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Evaluation of the contribution of the automated accounting information system to the managerial decision-making process in the commercial bank of Bangladesh

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Abstract

Accounting Information Systems (AIS) are becoming widespread among Bangladeshi banks. The purpose of this study is to assess how automated AIS affects Bangladeshi commercial banks. Purposeful sampling and a randomized block design were used to disseminate questionnaires to 400 respondents from Chattogram, Bangladesh, a commercial port city. Five-point Likert scale close-ended questions assess eight aspects of AIS usage and benefits: infrastructure, technological resources, understanding ability, operational comparability, relevance, reliability, decision-making, and organizational performance. Descriptive analysis, Kolmogorov–Smirnov test, Shapiro-Wilk test, factor analysis with Kaiser-Meyer-Olkin test, Cronbach's alpha, one-sample Wilcoxon Signed Rank Test, Kendall's tau-b Correlation Coefficient, Mann-Whitney test, Kruskal-WallisH test, and structural equation model were performed using MS Excel 2016, IBM SPSS Statistics 26, and IBM SPSS. The model was validated using convergent and discriminant validity tests. The study found that technological resources, operational comparability, relevance, and dependability influence AIS-based decision-making, while infrastructure and understandability do not. Private banks and AIS-trained personnel make more AIS-based decisions than public banks and non-AIS-trained workers. Regular and frequent decision-makers use AIS more than sporadic decision-makers. There is no effect of gender or job experience on AIS-based decision-making. Finally, AIS-based decision-making improved organizational performance. Therefore, the study results may assist Bangladeshi commercial banks in adopting AIS.

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1. Introduction

The utilization of information technology facilitates the operational processes of diverse corporate entities, thereby enhancing efficiency and effectiveness. In recent years, information technology has become increasingly important in business organisations, particularly in the context of commercial banks. This is because commercial banks are now expected to perform a wider range of tasks. The advancements in information technology have enabled commercial bank management to efficiently capture, store, process, analyse, and retrieve information (Akhter, 2022). The necessity of an adequate information system is evident for companies, particularly commercial banks, given the significant influence of information on the decision-making process. The presence of advanced information technology plays a crucial role in maintaining the competitiveness of commercial banks. Accounting information is essential for managers of commercial banks in order to facilitate the making of well-informed, precise, and prompt decisions (O'Regan, 2015). The utilization of information inside banking institutions serves as a crucial tool for many managerial functions, including planning, organizing, directing, regulating, and decision-making. These functions are vital to enhancing overall job efficiency and performance. Enhancing performance is a significant challenge in the absence of effective utilization of advanced information technology. This research examines the extent to which the outputs generated by the automated Accounting Information Systems (AIS) implemented in the commercial banking sector of Bangladesh are able to meet the needs of decision-makers within these banks. Additionally, it explores the impact of information technology in shaping the decision-making process of these institutions. In order to align with decision-making processes, the outputs generated by the automated AIS should possess several qualities. The conceptual framework of the International Financial Reporting Standard (IFRS) has established a set of qualitative characteristics that differentiate accounting information of high utility from that of lower quality, with a focus on facilitating effective decision-making (Rathnayake Mudiyanselage, 2020). These characteristics encompass relevance, reliability, understandability, and comparability. Hence, the primary research inquiries that drive this study are as follows: Does the automated AIS employed by commercial banks in Bangladesh provide comprehensible, pertinent, dependable, and comparable outputs that are essential for the decision-making processes of these institutions? To what extent does the implementation of AIS (Accounting Information Systems) impact the operational efficiency and decision-making processes of commercial banks in Bangladesh? The responses to these inquiries will fulfil the aims of this research.

1.1. Objectives of the Study

1. To investigate whether the information provided by the automated AIS is understandable, reliable, and relevant to decision-makers.
2. To examine the differences in outputs of the automated AIS among Bangladeshi banks.

2. Conceptual Framework

2.1. Accounting Information System

An accounting information system (AIS) is the organizational framework that businesses use to efficiently gather, store, administer, manipulate, retrieve, and present their financial information to various stakeholders, such as accountants, consultants, business analysts, managers, chief financial officers (CFOs), auditors, as well as regulatory and tax organizations. Specifically, accountants who have received specialized training collaborate with an Accounting Information System (AIS) to guarantee the utmost precision in documenting a company's financial transactions. Their objective is to facilitate the accessibility of financial data to authorized individuals while simultaneously safeguarding the integrity and security of the data.

2.2. Automated Information System

An automated information system refers to a collection of computer hardware, software, firmware, or a combination thereof that is designed to carry out certain activities related to the management of information. These operations may include communication, calculation, distribution, processing, and storage of information. Automated information systems encompass a variety of technological tools, such as computers, management information systems, word processing systems, networks, and other electronic information handling systems.

Commercial Bank: The aforementioned entity is a financial institution that provides a range of services, including current, deposit, and savings accounts, catering to people, corporations, and organizations. A commercial bank is an institution that primarily engages in the acceptance of deposits and the provision of loans.

Definition of Variables: The variable encompasses both independent and dependent factors.

Decision-making Process as the Dependent Variable

Decision-making is a cognitive process that involves the selection of a course of action from a collection of available options. This process often involves the establishment of specific objectives, the acquisition of relevant information, and the evaluation of several potential alternatives.

2.3. Independent Variable

Relevance: The concept of relevance pertains to the notion that the data produced by an accounting system should have an impact on the decision-making process of the individual who is reviewing that information. The idea encompasses the substance and timeliness of information, both of which have the potential to impact decision-making processes.

Understandability: The notion of understandability pertains to the presentation of financial information in a manner that facilitates ease of comprehension for the reader. This notion presupposes that the reader has a moderate understanding of business; however, they do not need an expert degree of business acumen in order to achieve a substantial level of comprehension.

Reliability: Information's dependability depends on users' ability to rely on it as being substantially accurate and accurately representing the information it purports to convey. The presence of material inaccuracies or exclusions in financial statements undermines the dependability of the information they provide.

Comparability: Accounting comparability pertains to the inherent characteristic of accounting information that concerns its suitability and applicability in financial contexts. Comparable information refers to data that has been generated using consistent measuring procedures and presented in a similar manner. This type of information is deemed comparable since it shares similarities and can be evaluated alongside other financial data of a similar nature. The existence of financial ratios is contingent upon the idea of comparability.

Relationship between Independent and Dependent variables: The decision-making process, which serves as the dependent variable, is influenced by several factors, including the quality of the information. Understand ability, relevance, dependability, and comparability are some of the key factors that determine this quality. The user's text can be rephrased in an academic manner as follows:

Decision making = f (understand ability, relevance, reliability, and comparability)

2.4. The Research Hypotheses

Drawing upon the provided conceptual framework and existing literature, the study formulates the null hypotheses as follows:

Ho1: The outputs of the automated AIS of commercial banks in Bangladesh are not understandable.

Ho2: The outputs of the automated AIS of commercial banks in Bangladesh are irrelevant.

Ho3: The outputs of the automated AIS of commercial banks in Bangladesh are unreliable.

Ho4: The outputs of the automated AIS of commercial banks in Bangladesh are incomparable.

3. Literature Review

The study by Mohsin, Alfartoosi, and Ahmed (2022) seeks to identify the role of selected characteristics of accounting information systems in improving decision-making in Iraqi businesses. To achieve the research objectives, the researchers collected primary data from purposively-sampled 30 respondents and employed the descriptive approach. The study observed that accounting information systems influence and improve decision-making efficiency in Iraqi businesses.

Shagari, Abdullah, and Saat (2015) provide a conceptual framework for evaluating the efficiency of Accounting Information Systems (AIS) in the Nigerian banking industry by examining the influence of system and information quality on AIS effectiveness. The objective of this research article is to furnish bank managers with comprehensive information on the optimal utilization of AIS (Accounting Information Systems) in order to maximize the expected advantages while simultaneously expediting the decision-making process.

Hakim (2019) in his study descriptive, which is based on primary and secondary data, investigates and examines the role of AIS in the banking industry. Specifically, this study obtained primary data from 100 employees of five selected commercial banks in order to analyse and interpret their perceptions of the role and contribution of AIS to the bank business in Bangladesh.

Swalhah (2014) conducted a case study on Jordanian banks to identify the role of AIS in their rationalized administrative decision-making (field study). The total number of employees in three Jordanian banks (Jordan Islamic Bank, Islamic International Arab Bank, and the Housing Bank for Trade and Finance) constitutes the study population, and of the 250 questionnaires distributed to these employees, 210 responses (88%) were retrieved. The study results revealed that AIS influences the rationalization of administrative decision-making

The study conducted by Saha, Sil, and Sayaduzzaman (2021) aimed to ascertain the utilization of accounting information from annual reports in the process of making financial choices. The study encompassed an examination of five key elements pertaining to financing decisions, namely: identification of the optimal funding source, evaluation of cash flows, formulation of budgets and profit plans, valuation of bonds and shares, and analysis of financial statements. A structured questionnaire was employed to gather opinions from 150 specifically chosen respondents. The findings of this survey indicate that a significant proportion of the participants hold a strong belief in the utilization of accounting information for the purpose of making finance decisions.

The study by Ali, Bakar, and Omar (2016) explores the impact of AIS success variables on organizational performance. The study employed four distinct categories of AIS success characteristics as drivers of

performance, including service quality, information quality, data quality, and system quality. The data for this study were obtained using a structured questionnaire administered to 273 participants working in the banking industry in Jordan. Subsequently, the acquired data were analysed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. Based on the research findings, it has been determined that service quality, information quality, and system quality are the primary variables contributing to the effectiveness of an Accounting Information System (AIS) in enhancing organizational performance.

Kanakriyah (2017) examined the role of AIS in Jordanian bank success by distributing a structured questionnaire to bank employees. The findings revealed that AIS has a significant impact on the success of banks. Almbaidin (2014) investigated the effectiveness of AIS in Jordanian banks using primary data obtained through a questionnaire. Several conclusions were drawn from the study, which include AIS being effective in meeting the needs of planning, observation, and decision-making operations of Jordanian banks (Almbaidin, 2014).

In their study, Salehi, Dashtbayaz, Bahrami, and Teymoori (2015) conducted an analysis of the information needs, specifically the ideal condition, of small and medium-sized enterprises (SMEs) that are listed on the Tehran Stock Exchange (TSE). The researchers then compared these requirements to the existing information processing (IP) capacity of the systems now in place. To assess the IP capacity, the researchers utilized 19 common IP indicators. Based on the research results, there is a positive correlation between the deployment of AIS and Tobin's Q of enterprises listed on the Tokyo Stock Exchange. No statistically significant correlation was found between the installation of AIS and the P/E ratio within the underperforming group.

The study conducted by Teru, Idoku, and Ndeyati (2017) aimed to investigate the influence of AIS on internal controls in order to enhance firm performance. The findings of the study revealed that the efficient and effective operation of internal controls leads to improved performance and enhanced reliability of accounting information. Consequently, this facilitates better decision-making for both internal and external stakeholders (Liu & Wang, 2022; Teru et al., 2017).

Akhter (2022) looked at the impact of AIS on organizational performance. The data for this study was collected from a sample of 200 individuals who had significant expertise and were employed in 30 private commercial banks that were listed under the Dhaka stock market (DSE). The study utilized regression analysis as a methodological approach to examine the causal connections between the variables under investigation. The findings of the study provided empirical evidence supporting a robust association between accounting information systems and organizational performance.

Al-Okaily, Alghazzawi, Alkhwaldi, and Al-Okaily (2022) is to evaluate the influence of success factors related to digital accounting systems on the improvement of decision-making quality within the banking industry. In order to achieve this objective, a set of questionnaires was administered to a sample of 187 decision-makers employed in Bangladeshi banks that utilize digital accounting systems. The findings of the study revealed that the quality of data and information provided by these digital accounting systems has a noteworthy influence on the overall quality of decision-making. Conversely, the impact of system quality on decision-making quality was found to be insignificant.

Al-Hattami and Kabra (2019) explore whether AIS can help rationalize HR-related decisions. Data were collected using a questionnaire and analysed using a variety of statistical methods (via SPSS), including descriptive statistics such as averages and standard deviations, as well as a T-test. According to the findings of the study, AIS plays an important role in rationalizing HR-related decisions.

The article by Salimova and Shebnem analyses factors related to AIS that influence decision-making in large and medium-sized organizations. The research begins with an explanation of the importance and role of AIS in businesses and then explores factors influencing the implementation of an AIS in the company. The study also looked at the threats that a company might face after implementing an AIS and classified them based on their nature.

Khalid and Kot (2021) investigate the impact of AIS on the performance management of banks in Thailand. Purposive sampling was used in the study to select six major commercial banks in Thailand, and their financial statements from 2011 to 2019 were analysed. According to the study's findings, total assets, operating assets, and earnings after tax all have a positive and significant impact on return on equity.

3.1. Research Method

This study employed quantitative data obtained from AIS stakeholders of Banks via a survey questionnaire. The survey instrument was developed from existing studies.

3.2. Instrument Development

To ensure efficiency, the research instrument was developed methodically to cover the constructs. In a good instrument, all items in a specific construct must be matched with each other but not with items of another construct (Churchill Jr, 1979). As a result, the survey instrument was developed based on existing literature and employs a 5-point Likert scale with interval levels ranging from 'strongly disagree' to 'strongly agree.' However, a pilot survey was initially conducted to examine the validity of the questionnaire before sending it to the respondents

3.3. Data Collection

A structured, closed-ended questionnaire was used to collect data from AIS stakeholders at banks. The pilot survey results were subjected to the Cronbach alpha (α) test to ensure the reliability of the study's items. Items with scores of 0.65 or higher were considered suitable for the final survey (Henseler, Ringle, & Sinkovics, 2009). After making the necessary changes to the questionnaire based on the outcome of the pilot study, the final questionnaire survey was distributed.

3.4. Research Method

The identification of components of Accounting Information Systems (AIS) that exert an effect on banking choices is based on a comprehensive assessment of relevant literature and the authors' expertise. The components identified include infrastructure, technological resources, understandability, operational comparability, relevance, and dependability. Each aspect was assessed using a set of five closed-ended questions, employing a five-point Likert scale that ranged from 1 (indicating strong disagreement) to 5 (indicating strong agreement). The survey questionnaire underwent a pre-testing phase with a sample of 20 respondents who possessed relevant expertise. Subsequently, adjustments and revisions were implemented in response to the comments received from this group. The revised and definitive survey questionnaire was disseminated to a targeted sample of 500 bankers who utilize automated accounting systems through several channels, including email, WhatsApp, and in-person distribution. Out of the initial sample of 500 bankers who were the focus of the study, a total of 417 individuals provided responses to the questionnaire. From these responses, a subset of 400 data points was chosen for further analysis. This subset was selected based on specific criteria, including a confidence level of 95%, a margin of error of 5%, and a population proportion of 50%.

The data was then coded using software tools such as MS Excel 2016 and IBM SPSS Statistics 26. It is worth noting that some respondents answered all the questions in the same rank and did not provide responses to many other questions. IBM SPSS AMOS 22 software for final analysis. Among the valid respondents, 272 (68%) and 128 (32%) were male and female, respectively. The descriptive statistics showed that 40% (160) of the respondents were employees of public banks, while 60% (240) were engaged in private banks. Also, 174 (43.5%) respondents were not trained on AIS, while 226 (56.5%) respondents were trained on AIS. The statistics also revealed that 54 (13.5%) respondents had up to 5 years of experience, 142 (35.5%) had 5–10 years of experience, 142 (35.5%) had 10–20 years of experience, and 62 (15.5%) had more than 20 years of experience. In terms of involvement in decision-making based on AIS, 138 (34.5%) respondents reported sporadic or occasional participation, 142 (35.5%) respondents reported frequent participation, and 120 (30%) respondents stated regular participation. The descriptive analysis of each response variable in the survey response data was calculated, including the Kolmogorov-Smirnov test and the Shapiro-Wilk test to determine the normality of the survey response variable data. Based on the result of the normality test, median values were considered for the non-parametric analysis of the hypotheses. Factor analysis with Cronbach's alpha value of each factor and Kaiser-Meyer-Olkin measure for sampling adequacy were conducted for all the response variables to classify them into the following eight factors: AIS infrastructure, technological resource of AIS, understandability of AIS, operational comparability of AIS, relevance to AIS, reliability of AIS, decision-making based on AIS, and organization performance. Then, a one-sample Wilcoxon signed-rank test was used to compare the factors of organizational performance and to assess whether their population mean ranks differ significantly.

Subsequently, Kendall's tau-b correlation coefficient was computed in order to ascertain the degree of connection between the variables. The study used the one-sample Wilcoxon signed rank test, the Mann-Whitney test, and the Kruskal-Wallis test to see if there was a statistically significant difference in the AIS parts of organisational performance when demographic factors were taken into account. The Structure Equation Model (SEM) was devised with the purpose of identifying the many aspects that exert an effect on decision-making processes that are grounded in Accounting Information Systems (AIS). Additionally, SEM aims to ascertain the extent to which decision-making based on AIS has an impact on the overall performance of an organization. Consequently, the Average Variance Expected (AVE) and Maximum Shared Variance (MSV) were employed to assess the convergent and discriminant validity of the model, respectively.

3.5. Hypothesis 1

Null Hypothesis 1 (H0): There is no significant influence of AIS infrastructure, technological resource of AIS, understandability of AIS, operational comparability of AIS, relevance of AIS, and reliability of AIS on AIS-based decision-making.

Alternative Hypothesis 1 (H1): There is a significant influence of AIS infrastructure, technological resources of AIS, understandability of AIS, operational comparability of AIS, relevance to AIS, and reliability of AIS on AIS-based decision-making.

3.6. Hypothesis 2

Null Hypothesis 2 (H0): There is no significant effect of demographical factors (Gender, engagement, training, experience, and participation in decision-making) on AIS-based decision-making.

Alternative Hypothesis 2 (H1): There is a significant effect of demographical factors (Gender, engagement, training, experience, and participation in decision-making) on AIS-based decision-making.

3.7. Hypothesis 3

Null Hypothesis 3 (H0): There is no significant effect of AIS-based decision-making on organizational performance.

Alternative Hypothesis 3 (H1): There is a significant effect of AIS-based decision-making on organizational performance.

4. Result and Discussion

4.1. Descriptive Statistics of Respondents

The descriptive statistics (N, Min, Max, Median) and normality tests (Kolmogorov– Smirnov Test and Shapiro–Wilk Test) of the responses to items under variables AIS infrastructure, technological resource of AIS, understandability of AIS, operational comparability of AIS, relevance of AIS, reliability of AIS, decision making based on AIS, and organization performance are shown in Table 1.

Table 1. Descriptive statistics and normality test result.

Sl. no.	Questionnaire	Variable name	N	Min	Max	Kolmogorov–Smirnov test (Sig.)	Shapiro–Wilk test (Sig.)	Median
1.	AIS infrastructure	Average structure	400	2.2	5	0.165 (0.000)	0.855 (0.000)	4.2
1. (a)	Suitable to collect data for AIS	Structure 1	400	2	5	0.208 (0.000)	0.851 (0.000)	4
1. (b)	Suitable to store data for AIS	Structure 2	400	2	5	0.248 (0.000)	0.787 (0.000)	4
1. (c)	Suitable to process data for AIS	Structure 3	400	2	5	0.273 (0.000)	0.759 (0.000)	4
1. (d)	Suitable to retrieve data for AIS	Structure 4	400	2	5	0.262 (0.000)	0.843 (0.000)	4
1. (e)	Suitable to report data for AIS	Structure 5	400	2	5	0.241 (0.000)	0.842 (0.000)	4
2.	Technological resource of AIS	Average Technology	400	1.0	5	0.130 (0.000)	0.954 (0.000)	2.8
2. (a)	Record information effectively	Technology1	400	1	5	0.189 (0.000)	0.907 (0.000)	3
2. (b)	Save information effectively	Technology2	400	1	5	0.156 (0.000)	0.913 (0.000)	3
2. (c)	Process information effectively	Technology3	400	1	5	0.178 (0.000)	0.908 (0.000)	3
2. (d)	Analyse information effectively	Technology4	400	1	5	0.170 (0.000)	0.906 (0.000)	3
2. (e)	Retrieve information effectively	Technology5	400	1	5	0.151 (0.000)	0.912 (0.000)	3
3.	Understandability of AIS	Average understand	400	1.0	5	0.068 (0.000)	0.972 (0.000)	2.8
3. (a)	Use AIS in planning	Understand1	400	1	5	0.214 (0.000)	0.889 (0.000)	3
3. (b)	Use AIS in organizing	Understand2	400	1	5	0.195 (0.000)	0.907 (0.000)	3
3. (c)	Use AIS in directing	Understand3	400	1	5	0.184 (0.000)	0.914 (0.000)	3
3. (d)	Use AIS in controlling	Understand4	400	1	5	0.171 (0.000)	0.916 (0.000)	3
3. (e)	Use AIS in other decisions	Understand5	400	1	5	0.162 (0.000)	0.916 (0.000)	3
4.	Operational comparability of AIS	Average operation	400	1.0	4	0.124 (0.000)	0.953 (0.000)	2.3
4. (a)	AIS is suitable for computation operation	Operation1	400	1	4	0.267 (0.000)	0.862 (0.000)	2
4. (b)	AIS is suitable for dissemination operation	Operation2	400	1	4	0.240 (0.000)	0.872 (0.000)	2
4. (c)	AIS is suitable for communication operation	Operation3	400	1	4	0.223 (0.000)	0.878 (0.000)	2
4. (d)	AIS is suitable for the	Operation4	400	1	4	0.211 (0.000)	0.880 (0.000)	2.5

Sl. no.	Questionnaire	Variable name	N	Min	Max	Kolmogorov–Smirnov test (Sig.)	Shapiro–Wilk test (Sig.)	Median
	processing operation							
4. (e)	AIS is suitable for decisional operation	Operation5	400	1	4	0.254 (0.000)	0.868 (0.000)	2
5.	Relevance to AIS	Average relevance	400	2.2	5	0.180 (0.000)	0.898 (0.000)	4.2
5. (a)	AIS is suitable for consultants	Relevance1	400	2	5	0.209 (0.000)	0.854 (0.000)	4
5. (b)	AIS is suitable for business analysis	Relevance2	400	2	5	0.225 (0.000)	0.842 (0.000)	4
5. (c)	AIS is suitable for managers	Relevance3	400	2	5	0.260 (0.000)	0.840 (0.000)	4
5. (d)	AIS is suitable for chief financial officers	Relevance4	400	2	5	0.230 (0.000)	0.822 (0.000)	4
5. (e)	AIS is suitable for auditors, tax agencies, and regulatory authority	Relevance4	400	2	5	0.244 (0.000)	0.841 (0.000)	4
6.	Reliability of AIS	Average reliability	400	2.0	5	0.102 (0.000)	0.958 (0.000)	3.8
6. (a)	AIS ensures the highest level of accuracy	Reliability1	400	2	5	0.225 (0.000)	0.872 (0.000)	4
6. (b)	AIS ensures the highest level of transaction record	Reliability2	400	2	5	0.213 (0.000)	0.860 (0.000)	4
6. (c)	AIS ensures easily available data	Reliability3	400	2	5	0.254 (0.000)	0.866 (0.000)	4
6. (d)	AIS ensures data are kept intact	Reliability4	400	2	5	0.222 (0.000)	0.870 (0.000)	4
6. (e)	AIS ensures secured data	Reliability5	400	2	5	0.213 (0.000)	0.862 (0.000)	4
7.	Decision-making based on AIS	Average decision	400	2.0	5	0.161 (0.000)	0.921 (0.000)	3.2
7. (a)	AIS helps in investment and growth of bank decision	Decision1	400	2	5	0.213 (0.000)	0.878 (0.000)	3
7. (b)	AIS helps in decisions about development in the industry	Decision2	400	2	5	0.211 (0.000)	0.869 (0.000)	3
7. (c)	AIS helps in decisions about competitive position	Decision3	400	1	5	0.196 (0.000)	0.877 (0.000)	3
7. (d)	AIS helps in accounting, finance, and administration decision	Decision4	400	2	5	0.213 (0.000)	0.874 (0.000)	3
7. (e)	AIS satisfies the requirement for decision-making	Decision5	400	2	5	0.245 (0.000)	0.872 (0.000)	3
8.	Organization performance	Average performance	400	2.0	5	0.104 (0.000)	0.954 (0.000)	4.0
8. (a)	Effective AIS is needed in the planning process	Performance1	400	2	5	0.220 (0.000)	0.867 (0.000)	4
8. (b)	Effective AIS is needed in the decision-making process	Performance2	400	2	5	0.222 (0.000)	0.860 (0.000)	4
8. (c)	Effective AIS is needed for accounting performance	Performance3	400	2	5	0.224 (0.000)	0.850 (0.000)	4
8. (d)	Effective AIS is needed for financial performance	Performance4	400	2	5	0.226 (0.000)	0.867 (0.000)	4
8. (e)	Effective AIS is needed for operational performance	Performance5	400	2	5	0.218 (0.000)	0.862 (0.000)	4

According to Table 1, the minimum and maximum values of each item were 2 and 5, respectively, for AIS infrastructure; 1 and 5 for technological resources of AIS and understandability of AIS; 1 and 4 for operational comparability; 2 and 5 for the relevance of AIS, reliability of AIS, organizational performance, and decision-making based on AIS (except for item 3, which has minimum value of 1. However, the average minimum and maximum values were 2.2 and 5, respectively, for AIS infrastructure and relevance; 1 and 5 for technological resources of AIS and understandability of AIS; 1 and 4 for operational comparability of AIS; as well as 2 and 5 for the reliability of AIS, decision-making based on AIS, and organization performance. The Kolmogorov-Smirnov test statistic and Shapiro-Wilk test statistic values for each item range from 0.208 to 0.273 and 0.759 to 0.851, respectively, for AIS infrastructure; 0.151 to 0.189 and 0.906 to 0.913 for technological resources of AIS; 0.162 to 0.214 and 0.889 to 0.916 for understandability of AIS; 0.211 to 0.267 and 0.862 to 0.880 for operational comparability of AIS; 0.209 to 0.260 and 0.822 to 0.854 for relevance of AIS; 0.213 to 0.254 and 0.860 to 0.872 for reliability of AIS; 0.196 to 0.245 and 0.869 to 0.878 for decision-making based on AIS; and 0.218 to 0.226 and 0.850 to 0.867 for organizational performance, all of which were significant at the 5% level. Meanwhile, the average Kolmogorov-Smirnov test statistic and Shapiro-Wilk test statistic values were 0.165 and 0.855, respectively, for AIS infrastructure; 0.130 and 0.954 for technological resources of AIS; 0.068 and 0.972 for understandability of AIS; 0.124 and 0.953 for operational comparability of AIS; 0.180 and 0.898 for relevance of AIS; 0.102 and 0.958 for reliability of AIS; 0.161 and 0.921 for decision-making based on AIS; and 0.104 and 0.954 for organization performance. Since the survey response values were not normally distributed, median values were calculated for mean rank comparison in the non-parametric test (Kendall's tau-b Correlation, one-sample Wilcoxon signed rank test, Mann-Whitney Test, and Kruskal-Wallis Test).

The median values of each item were 4 for AIS infrastructure, relevance of AIS, reliability of AIS, and organizational performance; 3 for technological resource of AIS, understandability of AIS, and decision-making based on AIS; as well as 2 to 2.5 for operational comparability of AIS. However, the average median values were 4.2 for AIS infrastructure, 2.8 for technological resources of AIS, 2.8 for understandability of AIS, 2.3 for operational comparability of AIS, 4.2 for relevance of AIS, 3.8 for reliability of AIS, 3.2 for decision-making based on AIS, and 4.0 for organization performance.

4.2. Factor Analysis

The factor analysis yielded a Kaiser-Meyer-Olkin Measure of Sampling Adequacy value of 0.810 ($p = 0.000$). Hence, the component analysis technique may be utilized to categorize the values obtained from the questionnaire responses into distinct factors (refer to Table 2).

From the factor analysis table, the survey response values were classified into eight-factor variables, with factor loadings varying from 0.868 to 0.942 for technological resources of AIS, 0.806 to 0.959 for organization performance, 0.807 to 0.873 for decision-making based on AIS, 0.805 to 0.920 for operational comparability of AIS, 0.827 to 0.927 for understandability of AIS, 0.715 to 0.964 for AIS infrastructure, 0.734 to 0.943 for reliability of AIS, and 0.791 to 0.949 for relevance of AIS. Here, all factor loadings were greater than 0.400, which indicates satisfactory reliability for each factor of all measurements.

Table 2. Factor analysis, Cronbach's alpha and convergent validity test results.

Rotated component matrix[a]									Cronbach's alpha	Convergent validity (AVE)	Square root of AVE
	Component										
Factors	1	2	3	4	5	6	7	8			
Technology1	0.942								0.957	0.572	0.756
Technology4	0.908										
Technology3	0.882										
Technology5	0.873										
Technology2	0.868										
Performance 1		0.959							0.931	0.552	0.743
Performance 4		0.940									
Performance 2		0.855									
Performance 5		0.823									
Performance 3		0.806									
Decision4			0.873						0.922	0.500	0.707
Decision5			0.845								
Decision2			0.830								
Decision1			0.827								
Decision3			0.807								
Operation2				0.920					0.921	0.527	0.726

Rotated component matrix[a]									Cronbach's alpha	Convergent validity (AVE)	Square root of AVE
	Component										
Factors	1	2	3	4	5	6	7	8			
Operation5				0.859							
Operation3				0.854							
Operation1				0.852							
Operation4				0.805							
Understand2					0.927				0.920	0.539	0.734
Understand1					0.887						
Understand4					0.870						
Understand3					0.828						
Understand5					0.827						
Structure3						0.964			0.911	0.526	0.725
Structure2						0.946					
Structure5						0.847					
Structure4						0.792					
Structure1						0.715					
Reliability5							0.943		0.904	0.509	0.714
Reliability2							0.929				
Reliability4							0.807				
Reliability1							0.789				
Reliability3							0.734				
Relevance2								0.949	0.909	0.516	0.718
Relevance1								0.873			
Relevance5								0.828			
Relevance4								0.798			
Relevance3								0.791			

Note: Extraction method: Principal component analysis.
Rotation method: Varimax with Kaiser normalization.
a. Rotation converged in 6 iterations

The Cronbach's alpha values were 0.957, 0.931, 0.922, 0.921, 0.920, 0.911, 0.904, and 0.909 for the factor variables technological resource of AIS, organization performance, decision-making based on AIS, operational comparability of AIS, understandability of AIS, AIS infrastructure, reliability of AIS, and relevance of AIS, respectively. Since all Cronbach's alpha values were above the threshold of 0.7, the survey responses are considered reliable, valid, and consistent.

Five items served as a measure of the AIS infrastructure factor variables according to the aforementioned factor analysis: (a) suitable to collect data for AIS (Structure 1), (b) suitable to store data for AIS (Structure 2), (c) suitable to process data for AIS (Structure 3), (d) suitable to retrieve data for AIS (Structure 4), and (e) suitable to report data for AIS (Structure 5). The technological resource of AIS was identified using five items: (a) record information effectively (Technology 1), (b) save information effectively (Technology 2), (c) process information effectively (Technology 3), (d) analyse information effectively (Technology 4), and (e) retrieve information effectively (Technology 5). The understand ability of AIS was measured by the following items: (a) use AIS in planning (understand1), (b) use AIS in organising (understand2), (c) use AIS in directing (understand3), (d) use AIS in controlling (understand4), and (e) use AIS in other decisions (understand5). (4) The operational comparability of AIS was identified using the following: (a) AIS is suitable for computation operation (Operation 1), (b) AIS is suitable for dissemination operation (Operation 2), (c) AIS is suitable for communication operation (Operation 3), (d) AIS is suitable for processing operation (Operation 4), and (e) AIS is suitable for decisional operation (Operation 5). (5) The relevance of AIS was defined using the following measurement items: (a) AIS is suitable for consultants (Relevance 1), (b) AIS is suitable for business analysis (Relevance 2), (c) AIS is suitable for managers (Relevance 3), (d) AIS is suitable for chief financial officers (Relevance 4), and (e) AIS is suitable for auditors, tax agencies, and regulatory authorities (Relevance 5). (6) The reliability of AIS was identified by the following: (a) AIS ensures the highest level of accuracy (Reliability 1), (b) AIS ensures the highest level of transaction record (Reliability 2), (c) AIS ensures easy access to data (Reliability 3), (d) AIS ensures data are intact (Reliability 4), and (e) AIS ensures data are secured (Reliability 5). (7) Decision-making based on AIS was identified using the following items: (a) AIS helps in decisions on investment and growth of banks (Decision 1), (b) AIS helps in decisions about development in the industry (Decision 2), (c) AIS helps in decisions about competitive positions (Decision 3), (d) AIS helps in accounting, finance, and administration decisions (Decision 4), and (e) AIS satisfies the requirement of decision-making (Decision 5). Lastly, (8) organisation performance was measured by considering the following items: (a) Effective AIS is needed in planning processes (Performance 1), (b) Effective AIS is needed in decision-making processes (Performance 2), (c) Effective AIS is needed for accounting performance (Performance 3), (d)

Effective AIS is needed for financial performance (Performance 4), and (e) Effective AIS is needed for operational performance (Performance 5).

Based on the factor analysis result, an SEM of the relationship between organizational performance, decision-making based on AIS, AIS infrastructure, technological resource of AIS, understandability of AIS, operational comparability of AIS, relevance to AIS, and reliability of AIS was drawn (see Figure 1).

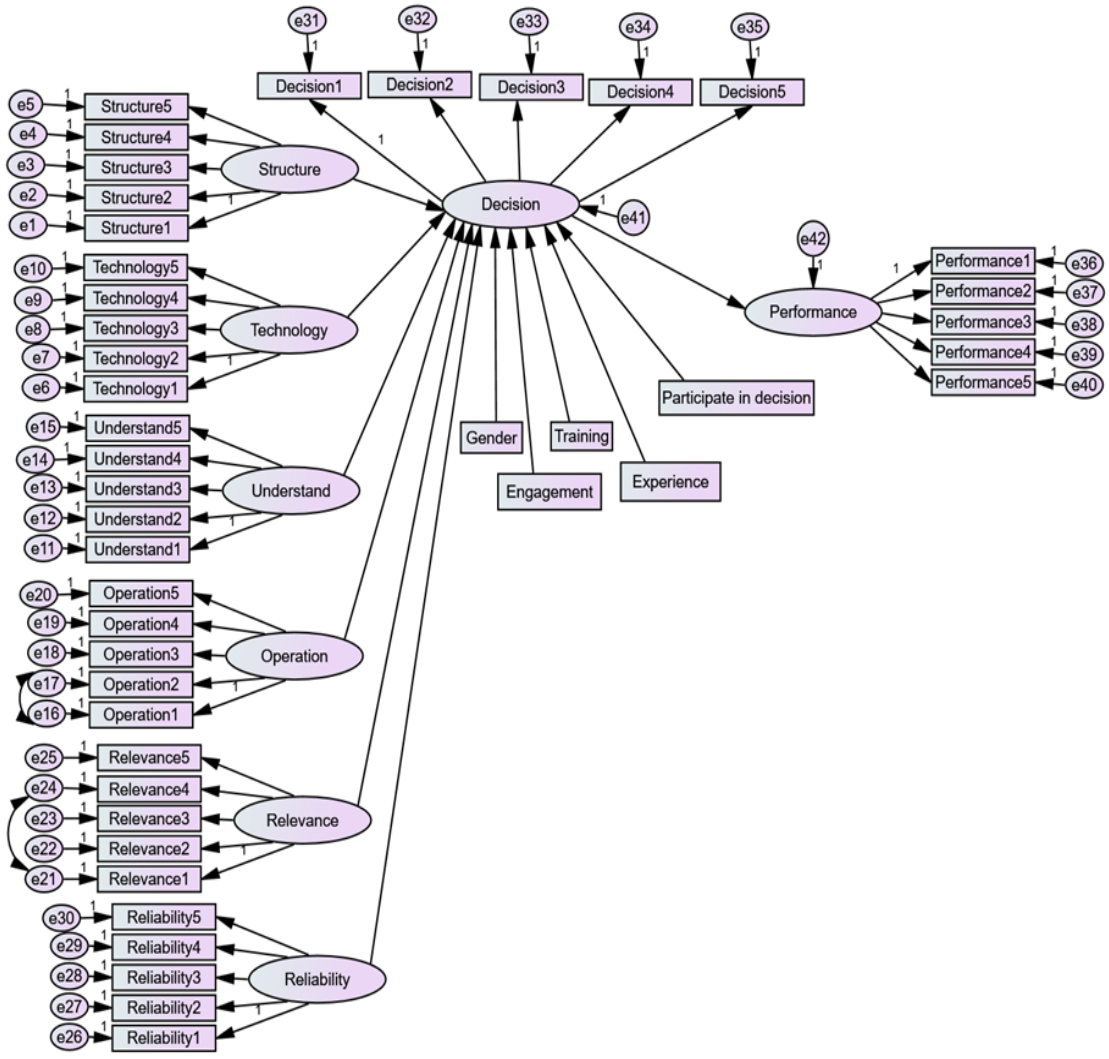

Figure 1. Structure equation model of accounting information system.

According to the above SEM, the standardized regression weights range from 0.62 to 1.00 for AIS infrastructure, 0.86 to 0.99 for technological resources of AIS, 0.76 to 0.94 for understandability of AIS, 0.73 to 1.01 for operational comparability of AIS, 0.70 to 1.03 for relevance of AIS, 0.67 to 1.00 for reliability of AIS, 0.79 to 0.86 for decision-making based on AIS, and 0.70 to 1.00 for organization performance, all of which were between −1 to 1 and statistically significant ($p < 0.05$). The covariance values between errors in the model range from 0.14 to 0.17 and are significant ($p < 0.05$).

In the selected model, the following model index values were observed: $\chi 2 / df = 2.244$ (which is < 3), comparative fit index (CFI) value = 0.926 (which is > 0.9), incremental fit index (IFI) = 0.926 (which is > 0.9), Tucker Lewis index (TLI) = 0.922 (which is > 0.9), and Root Mean Square Error of Approximation = 0.056 (which is < 0.08). Here, the model index values fulfill all of the standard requirements of the survey, and hence, the selected model is considered well-fitted. Now, to establish the convergent and discriminant validity of the selected model, AVE (see Table 2) and MSV (see Table 3) were calculated.

Table 3. Model regression weight, Kendall's tau-b correlation and discriminant validity test results.

Variable name	Discriminant validity square of MSV with decision-making based on AIS	Average median value	One-sample (Test value = 3) Wilcoxon signed rank test (Sig)	Kendall's tau-b correlation coefficient (Sig) with decision-making based on AIS	Regression weight (Sig) to decision-making based on AIS
AIS infrastructure	0.014	4.2	15.489 (0.000)	0.068 (0.063)	0.021 (0.683)
Technological resource of AIS	0.431	2.8	2.868 (0.004)	0.314 (0.000)	0.216 (0.000)
Understandability of AIS	0.007	2.8	3.987 (0.000)	0.037 (0.307)	0.010 (0.753)
Operational comparability of AIS	0.158	2.3	11.253 (0.000)	0.176 (0.000)	0.095 (0.005)
Relevance of AIS	0.142	4.2	14.640 (0.000)	0.116 (0.001)	0.186 (0.000)
Reliability of AIS	0.037	3.8	14.553 (0.000)	0.060 (0.098)	0.126 (0.015)
Decision making based on AIS		3.2	6.308 (0.000)		
Organization performance	0.124	4.0	14.914 (0.000)	0.129 (0.000)	0.212 (0.000)

The AVE values (see Table 2) for technological resources of AIS, organization performance, decision-making based on AIS, operational comparability of AIS, understandability of AIS, AIS infrastructure, reliability of AIS, and relevance of AIS were 0.572, 0.552, 0.500, 0.527, 0.539, 0.526, 0.509, and 0.516, respectively. All the AVE values were greater than 0.5, which confirms the convergent validity of the model.

As indicated in Table 3, the discriminant validity of the model was also established, as the MSV of AIS infrastructure and decision-making based on AIS was 0.014, which is less than the square root of AVE for AIS infrastructure (0.725) and decision-making based on AIS (0.707). Again, the MSV of technological resources of AIS and decision-making based on AIS was 0.431, which is less than the square root of AVE for AIS infrastructure (0.725) and technological resources of AIS (0.707). Similarly, the MSV of understandability of AIS and decision-making based on AIS was 0.007, which is less than the square root of AVE for AIS infrastructure (0.725) and understandability of AIS (0.734). Also, the MSV of operational comparability of AIS and decision-making based on AIS was 0.158, which is less than the square root of AVE for AIS infrastructure (0.725) and operational comparability of AIS (0.726). Moreover, the MSV of relevance of AIS and decision-making based on AIS was 0.142, which is less than the square root of AVE for AIS infrastructure (0.725) and relevance of AIS (0.718). The MSV of reliability of AIS and decision-making based on AIS was 0.037, which was less than the square root of AVE for AIS infrastructure (0.725) and reliability of AIS (0.714). The MSV of organization performance and decision-making based on AIS was 0.124, which is less than the square root of AVE for AIS infrastructure (0.725) and organization performance (0.743).

The one-sample Wilcoxon signed rank test statistics (median test value 3) for average decision-making based on AIS were 6.308 (p = 0.000). Therefore, there is a significantly higher median value of decision-making based on AIS among the respondents. Now, to determine the factors affecting decision-making based on AIS in Bangladesh, hypothesis testing was conducted as follows:

4.3. Hypothesis Testing

The one-sample Wilcoxon signed rank test statistics (median test value 3) for average AIS infrastructure were 15.489 (p = 0.000), which is significantly higher than the median value of average AIS infrastructure (4.2). The Kendall's tau-b correlation coefficient of average AIS infrastructure with decision-making based on AIS was 0.068 (p = 0.063), indicating that there is no significant correlation between AIS infrastructure and decision-making based on AIS (as the p-value is greater than 0.05). In the SEM, the regression weight (path coefficient) of AIS infrastructure to decision-making based on AIS was 0.021 (p = 0.683), which is not significant. As there is not enough evidence to reject null hypothesis 1 of a lack of relationship between AIS infrastructure and decision-making based on AIS, we conclude that AIS infrastructure does not contribute significantly to decision-making based on AIS.

The median value of average technological resources in AIS was 2.8, which is significantly lower than the observed one-sample Wilcoxon signed rank test statistics of 2.868 (p = 0.004) for average technological resources in AIS. The Kendall's tau-b correlation coefficient of the average technological resources of AIS with decision-making based on AIS was 0.314 (p = 0.000), suggesting the presence of a significant correlation between the technological resources of AIS and decision-making based on AIS. In the SEM, the regression weight (path coefficient) of technological resources of AIS to decision-making based on AIS was 0.216 (p =

0.000), which is statistically significant. Therefore, we reject null hypothesis 1 of a lack of relationship between the technological resources of AIS and decision-making based on AIS and conclude that the technological resources of AIS contribute significantly to decision-making based on AIS.

The median value of average understandability of AIS was 2.8, while the one-sample Wilcoxon signed rank test statistics (median test value 3) for average understandability of AIS was 3.987 (p = 0.000). This indicates that the respondents showed significantly lower understandability of AIS compared to the median value of understandability of AIS. The Kendall's tau-b correlation coefficient of average understandability of AIS with decision-making based on AIS was 0.037, which is not significant (p = 0.307). Therefore, there is no significant correlation between the understandability of AIS and decision-making based on AIS. In the SEM, the regression weight (path coefficient) of understandability of AIS to decision-making based on AIS was 0.010, which is not statistically significant (p = 0.753). Therefore, there is not enough evidence to reject the null hypothesis of a lack of relationship between the understandability of AIS and decision-making based on AIS. In other words, the understandability of AIS does not contribute significantly to decision-making based on AIS.

The one-sample Wilcoxon signed rank test statistics (median test value 3) for average operational comparability of AIS were 11.235 (p = 0.000), which exceeds the median value (2.3) of average operational comparability of AIS. So, the respondents showed significantly lower operational comparability of AIS compared to the median value of operational comparability of AIS. The Kendall's tau-b correlation coefficient of average Operational comparability of AIS with decision-making based on AIS was 0.176, which is significant (p = 0.000). This indicates that a significant correlation exists between the operational comparability of AIS and decision-making based on AIS. In the SEM, the regression weight (path coefficient) of operational comparability of AIS to decision-making based on AIS was 0.095, which is statistically significant (p = 0.005). Therefore, it can be concluded that the operational comparability of AIS has a significant contribution to decision-making based on AIS practice in Bangladesh.

The median value of average relevance to AIS was 4.2, while the one-sample Wilcoxon signed rank test statistics (median test value 3) for average relevance to AIS was 14.640, which is significant (p = 0.000). This implies that the respondents exhibited significantly higher relevance of AIS compared to the median value of relevance of AIS. The Kendall's tau-b correlation coefficient of average relevance of AIS with decision-making based on AIS was 0.116, which is statistically significant (p = 0.001). Hence, there is a significant correlation between the relevance of AIS and decision-making based on AIS. In the SEM, the regression weight (path coefficient) of relevance of AIS to decision-making based on AIS was 0.186, which is significant (p = 0.000). Therefore, we conclude that the relevance of AIS has a significant contribution to decision-making based on AIS.

The median value of average reliability to AIS was 3.8, which is less than the one-sample Wilcoxon signed rank test statistics (median test value 3) for average reliability to AIS (14.553). Since the p-value is less than 0.05, the result demonstrated that respondents have significantly higher reliability of AIS compared to the median value of Reliability of AIS. The Kendall's tau-b correlation coefficient of average reliability of AIS with decision-making based on AIS was 0.060, which is not significant (p = 0.098). Therefore, there is no significant correlation between the reliability of AIS and decision-making based on AIS. In the SEM, the regression weight (path coefficient) of the reliability of AIS to decision-making based on AIS was 0.126, which is significant (p = 0.015). Hence, we conclude that the reliability of AIS has a significant contribution to decision-making based on AIS.

The model regression weight, Mann–Whitney test, Kruskal-Wallis H test, and Wilcoxon signed rank test of the relationship between decision-making based on AIS and demographic variables (gender, engagement, training, experience, and participation in decision-making) are shown in Table 4.

Table 4. Model regression weight, Mann–Whitney test, Kruskal-Wallis H test and Wilcoxon signed rank test result.

Variable name	Measured variable	Number of observation	Median value of decision making based on AIS	One-sample Wilcoxon signed rank test (Sig.)	Measured variable for comparison test	Test statistic (Sig.)	Regression weight (Sig) to decision making based on AIS
Gender	Male	272	3.4	5.877 (0.000)	Mann-	0.838	0.086 (0.177)
	Female	128	3.2	2.526 (0.012)	Whitney	(0.402)	
Engagement	Public bank	160	2.6	1.838 (0.066)	Mann-	6.615	0.502 (0.000)
	Private bank	240	3.6	8.370 (0.000)	Whitney	(0.000)	
Training	No training on AIS	174	2.8	0.492 (0.623)	Mann- Whitney	6.311 (0.000)	0.311 (0.000)
	Trained on AIS	226	3.6	8.017 (0.000)			
Experience	Up to 5 years	54	2.8	1.401 (0.161)	Kruskal- Wallis	5.735 (0.125)	0.001 (0.967)
	5 – 10 years	142	3.4	5.106 (0.000)			
	10 – 20 years	142	3.2	3.617 (0.000)			
	More than 20 years	62	3.0	1.294 (0.196)			
Participate in decision	Occasionally	138	2.6	3.075 (0.002)	Kruskal-	67.403	0.168 (0.000)
	Frequently	142	3.4	5.727 (0.000)	Wallis	(0.000)	
	Regularly	120	3.7	6.905 (0.000)			

The median values of average decision-making based on AIS for male and female gender were 3.4 and 3.2, respectively. However, the one-sample Wilcoxon signed rank test statistics (median test value 3) for male and female genders were 5.877 and 2.526 at the significance levels of 0.000 and 0.012, respectively. Hence, both male and female genders have significantly higher perceptions of decision-making based on AIS. The Mann-Whitney test (z) statistic value for the male and female genders was 0.838 (p = 0.402), indicating that there was no significant difference in the perception of decision-making based on AIS between the male and female genders. In the SEM, the regression weight (path coefficient) of gender to decision-making based on AIS was observed to be 0.086, which is not significant (p = 0.177). Therefore, we fail to reject null hypothesis 2 of a lack of relationship between gender and decision-making based on AIS. In other words, gender does not contribute significantly to decision-making based on AIS practice in Bangladesh.

The average AIS values for decision-making about working with public and private banks were 2.6 and 3.6, respectively. The one-sample Wilcoxon signed rank test statistics (median test value 3) for decision-making about working with public and private banks were 1.838 and 8.370, with a significance level of 0.066 and 0.000, respectively. This indicates that respondents who were engaged in private banks have significantly higher perceptions of decision-making based on AIS compared to their counterparts in public banks. The Mann-Whitney test (z) statistic value for the difference in decision-making based on AIS between respondents from public and private banks was 6.615, which is significant (p = 0.000). Thus, the result demonstrated a significant difference in decision-making based on AIS between respondents engaged in private and public banks. In the SEM, the regression weight (path coefficient) of public bank and private bank engagement in decision-making based on AIS was 0.502 (p = 0.000). Therefore, the result validates the hypothesis that a significant difference exists in the perception of decision-making based on AIS between respondents engaged in public and private banks. Specifically, respondents engaged in private banks contribute significantly higher to the decision-making based on AIS practice in Bangladesh than respondents of public banks.

The median values of average decision-making based on AIS for respondents not trained on AIS and those trained on AIS were 2.8 and 3.6, respectively. However, the one-sample Wilcoxon signed rank test statistics (median test value 3) for "no training on AIS" and "trained on AIS" were 0.492 and 8.017 at the significance level of 0.623 and 0.000, respectively. The results suggest that respondents trained in AIS have significantly higher perceptions of decision-making based on AIS compared to those untrained in AIS. The Mann-Whitney test (z) statistic value for "no training on AIS" and "trained on AIS" on decision-making based on AIS was 6.311, which is statistically significant (p = 0.000). This indicates that there is a significant difference in the perception of decision-making based on AIS between respondents trained on AIS and those not trained on AIS. In the SEM, the regression weight (path coefficient) of "no training on AIS" and "trained on AIS" to decision-making based on AIS was 0.311 (p = 0.000). Therefore, we conclude that respondents trained in AIS contribute more significantly to the practice of AIS-based decision-making in Bangladesh than their counterparts with no training in AIS.

The median values of average decision-making based on AIS for experience levels of up to 5 years, 5–10 years, 10–20 years, and more than 20 years were 2.8, 3.4, 3.2, and 3.0, respectively. Meanwhile, the one-sample Wilcoxon signed rank test statistics (median test value 3) for experience levels of up to 5 years, 5–10 years, 10–20 years, and more than 20 years were 1.401, 5.106, 3.617, and 1.294 at the significance levels of 0.161, 0.000, 0.000, and 0.196, respectively. This indicates that respondents with experience levels of 5–10 years and 10–20 years have significantly higher (above the median value of 3) perceptions of decision-making based on AIS, while respondents with up to 5 years and more than 20 years of experience have significantly below-average (median) perceptions of decision-making based on AIS. The Kruskal-Wallis H test statistic value for up to 5 years, 5–10 years, 10–20 years, and more than 20 years of experience in decision-making based on AIS was 5.735, which is not significant (p = 0.125). Therefore, there is no significant difference in the perception of decision-making based on AIS between respondents with experience levels of up to 5 years, 5–10 years, 10–20 years, and more than 20 years. In the SEM, the regression weight (path coefficient) of experience to decision-making based on AIS was 0.001 (p = 0.967), which is statistically not significant. Therefore, we conclude that experience does not contribute significantly to the practice of decision-making based on AIS in Bangladesh.

The median values of average decision-making based on AIS for occasional, frequent, and regular participation in decision-making were 2.6, 3.4, and 3.7, respectively, while the one-sample Wilcoxon signed rank test statistics (median test value 3) for occasional, frequent, and regular participation in decisions were 3.075, 5.727, and 6.905 at the significance level of 0.002, 0.000, and 0.000, respectively. This suggests that respondents with occasional, frequent, and regular participation in decision-making have significantly higher (above median values) perceptions of decision-making based on AIS. The Kruskal-Wallis H test statistic value for the difference in decision-making based on AIS between respondents with occasional, frequent, and regular participation in decision-making was 67.403 (p = 0.000). The result suggests that a significant difference exists in the perception of decision-making based on AIS between respondents with varying participation levels (occasional, frequent, and regular) in decision-making. In the SEM, the regression weight (path coefficient) of participation in decision-making to decision-making based on AIS was 0.168 (p = 0.000). This means that the amount of participation in decision-making affects the use of AIS in Bangladesh.

Table 5. Pairwise comparisons of decision-making based on AIS for participation in decision-making.

Dependent variable: Decision-making based on AIS			
Pairwise comparisons of participation levels in decision-making		**Test statistic**	**Sig.**
Occasionally	Frequently	6.139	0.000
	Regularly	7.747	0.000
Frequently	Regularly	1.880	0.060

As shown in Table 5, the test statistic of decision-making based on AIS for pairwise comparison of "occasionally" to "frequently" was 6.139 (p = 0.000) and "occasionally" to "regularly" was 7.747 (p = 0.000). This indicates that there is a significant difference in decision-making based on AIS between respondent respondents that occasionally participate in decision-making as well as those that frequently and regularly participate in decision-making. However, the test statistic of decision-making based on AIS for pairwise comparison of "frequently" to "regularly" was 1.880 (p = 0.060). This result suggests that no significant difference exists in decision-making based on AIS between respondents that frequently and regularly participate in decision-making.

The median value of average organization performance was 4.0, and the one-sample Wilcoxon signed rank test statistics (median test value 3) for average organization performance were 14.914 (p = 0.000). This suggests that respondents show significantly higher (above median value) organization performance. The Kendall's tau-b correlation coefficient of average organization performance with decision-making based on AIS was 0.129 (p = 0.000), indicating that there is a significant correlation between organization performance and decision-making based on AIS. In the SEM, the regression weight (path coefficient) of decision-making based on AIS to organization performance was 0.212 (p = 0.000). Therefore, decision-making based on AIS has a significant contribution to organizational performance in Bangladesh.

5. Conclusion

The results showed that the average AIS infrastructure was significantly higher than the median test value 3, which does not correlate with or contribute significantly to decision-making based on AIS. The technological resource of AIS was significantly lower than the median test value, which strongly correlates with and significantly contributes to decision-making based on AIS. The understandability of AIS was observed to have no correlation or significant contribution to AIS-based decision-making, but it was significantly lower than the median test value. The operational comparability of AIS was significantly lower than the median test value, which had a strong correlation and significant contribution to decision-making based on AIS. The Relevance of AIS was significantly higher than the median test value, which had a strong correlation and a significant contribution to AIS-based decision-making. The reliability of AIS was significantly higher than the median test value of 3, which moderately correlates and significantly contributes to AIS-based decision-making.

There is no significant difference in the perception of decision-making based on AIS between the male and female genders. However, the perception of gender is significantly higher, which does not contribute significantly to decision-making based on AIS. Respondents from private banks contribute significantly higher than their counterparts from public banks to decision-making based on AIS. They also have significantly higher (above median value) perceptions of decision-making based on AIS as opposed to their counterparts from the public bank. Also, AIS-trained respondents contribute significantly more than respondents not trained in AIS to the practice of decision-making based on AIS in Bangladesh. Unlike those not trained on AIS, AIS-trained respondents have significantly higher (above median value) perceptions of decision-making based on AIS. Respondents with experience levels of 5–10 years and 10–20 years have significantly higher (above median value) perceptions of decision-making based on AIS, while those with up to 5 years and more than 20 years of experience have significantly lower perceptions of decision-making based on AIS. Furthermore, there was no significant difference in the perception of decision-making based on AIS between respondents of varying experience levels, and experience does not contribute significantly to the decision-making based on AIS. Respondents of all levels (occasional, frequent, and regular) of participation in decision-making have significantly higher (above median value) perceptions of decision-making based on AIS, and there is a significant difference in the perception of decision-making based on AIS between respondents of varying levels (occasional, frequent, and regular) of participation in decision-making. Also, participation in decision-making contributes to the practice of decision-making based on AIS in Bangladesh. Finally, the study found that average higher decision-making based on AIS contributes significantly to organization performance.

6. Recommendations

1. The average AIS infrastructure is significantly higher than the median value, and it neither correlates with nor contributes significantly to decision-making based on AIS.
2. The average technological resource of AIS contributes significantly to decision-making based on AIS, and it is significantly lower than the median test value. As a result, technological resource facilities in

Bangladesh's banking sector must be improved so that they can effectively contribute to AIS decision-making.

3. The understandability of AIS does not contribute significantly to AIS-based decision-making. But it is significantly lower than the median test value. Therefore, the bank authority should increase the understandability of AIS among bankers by training them on AIS.
4. The average operational comparability of AIS contributes significantly to decision-making based on AIS but is significantly lower than the median test value. Hence, operational comparability facilities must be improved in the banking sector of Bangladesh by providing some proper incentives in order to ensure a better contribution to AIS-based decision-making.
5. The average relevance of AIS contributes significantly to AIS-based decision-making, and it is significantly higher than the median test value. Because the AIS is relevant to the banking sector, it must be promoted and enforced in all commercial banks in Bangladesh by providing proper regulation and law; this will ultimately enhance the adoption of AIS-based decision-making.
6. The average reliability of AIS contributes significantly to decision-making based on AIS and is significantly higher than the median test value. While the AIS has already been implemented in some banks in Bangladesh, its adoption could be further promoted in all the commercial banks of Bangladesh by providing proper technical support, which contributes effectively to the decision-making in AIS.
7. There is no significant difference in the perception of decision-making based on AIS between male and female genders, and gender does not contribute significantly to decision-making based on AIS. However, the perception of decision-making based on AIS in both genders is significantly higher than the median test value. So, both male and female perceptions may be utilized in decision-making based on AIS.
8. Respondents from private banks contribute significantly more to the decision-making based on AIS than those from public banks, and they have significantly higher perceptions (above median value) of decision-making based on AIS, unlike the respondents from public banks. As a result, public bank authorities may need to take initiatives to popularize decision-making based on AIS to improve their performance.
9. AIS-trained respondents have significantly higher (above median value) perceptions of decision-making based on AIS as opposed to AIS-untrained respondents. AIS-trained respondents contribute significantly more than AIS-untrained respondents to AIS-based decision-making practice in Bangladesh. As a result, a regular training program to increase participation in decision-making based on AIS may be established.
10. There is no statistically significant difference in the perception of decision-making based on AIS among respondents of different levels of experience; moreover, experience does not contribute significantly to the practice of decision-making based on AIS. However, those with 5 to 20 years of experience have a significantly higher perception of decision-making based on AIS than respondents with up to 5 years and more than 20 years of experience. As a result, a special training program for employees with up to 5 years and more than 20 years of experience may be arranged to popularize AIS and increase efficiency.
11. Respondents who participate in decisions occasionally, frequently, and regularly have significantly higher (above median value) perceptions of decision-making based on AIS. There is a significantly higher perception of decision-making based on AIS among frequent and regular participants in decision-making than sporadic (sudden) participants, and participation in decision-making contributes to decision-making based on AIS. As a result, special consideration should be given to the sudden participants in decision-making in order to motivate them to make decisions based on AIS.
12. The average decision-making based on AIS contributes significantly to organization performance, and average organization performance is significantly higher than the median test value. This suggests that with the proper implementation of AIS in the banking sector, the decision-making system should be improved, which will, in turn, enhance the performance of the bank.

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