The Perceived Information Quality in Accounting Information System: Effects on Trust and Risk[†]

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Abstract   This study discusses the results of an empirical study carried out to illustrate the key issues that need to be addressed to ensure accounting information quality (AIQ). The study also focuses on the factors of trust and risk as they impact the intention to use accounting information from accounting information systems(AIS). The factors that might impact on accounting information quality have been summarized from the existing literature on previous studies in this area. This study proposes a research model for key issues that have an impact on accounting information quality based on the literature. I use the empirical results of this study to discuss the key components of the research model.

Key Words : Accounting information quality(AIQ), Accounting information systems(AIS), Trus

1. INTRODUCTION

An accounting information system(AIS) is a system of records, normally computer-based, that combines accounting principles and concepts with the benefits of an information system. Analyzing and recording business transactions, accounting information systems provide financial statements and providing accounting data to the users. Yet, Some accounting information systems are still maintained manually(i.e., accounting records that are created with a pen and paper and manual entries in accounting register books) [1].

Accounting information systems in the past focused on recording, summarizing, and validating data about a business's financial transactions. These functions were performed to serve the various

groups within the organization that were concerned with the respective decisions associated with financial accounting, managerial accounting, and tax compliance issues [1]. The need to integrate these often diverse systems led to the accountants' appreciation of shared databases that provide a cohesive picture of an organization's data, eliminating duplications and reducing data conflicts [2]. Technology has had the most important influence on transforming accounting into a knowledge services profession. The claim, however, has been poorly reflected in recent accounting research generally. Furthermore, the research tradition in the AIS field concentrates on, for example, transaction processing, data structure modeling, computer fraud and security, as well as system development methodologies. Nevertheless, it seems not to have produced a useful understanding of the interplay between modern IT and accounting/management controls [3]. According to Flynn(1992),

success in providing management information to assist in critical decision-making decides how accounting information systems are effective [4]. According to Corner[5], the effectiveness of AIS can be evaluated as an added value of benefits. Gelinas[6] considers the effectiveness of AIS as the measure of success it achieves in meeting the established goals. The success of AIS implementation can be defined as one that is profitably applied to an area of major concern to an organization, is widely used by one or more satisfied users, and improves the quality of their performance. According to the above-described benefits regarding the importance of the quality of accounting information that is derived from AIS to the corporate sector, the author tries herein to empirically illustrate this importance within Korean business environment.

2. Literature Review

An effective AIS performs several key functions throughout input, software processing, and output, such as data collection, data maintenance, data management, data control (including security), and information generation. <Fig. 1> summarizes the data transformation process of an AIS [7].

There are many consequences, in particular, for poor information quality in accounting information systems. For example, errors in an inventory database may let managers to make decisions that cause overstocked or understocked conditions [8]. A single minor data entry error, such as an incorrect unit of a product's service price, if allowed to remain in an organization's AIS without appropriate information quality checks, could cause financial loss to the organization and/or harm its reputation. Therefore, there is a need for an understanding of the key issues that have an impact on the quality of accounting information. The author proposes a simplified model for the key issues that influence accounting information quality. An Australian case

study was used to illustrate the components in the model. The case study findings and results analysis were included for providing deeper insight into the key issues.
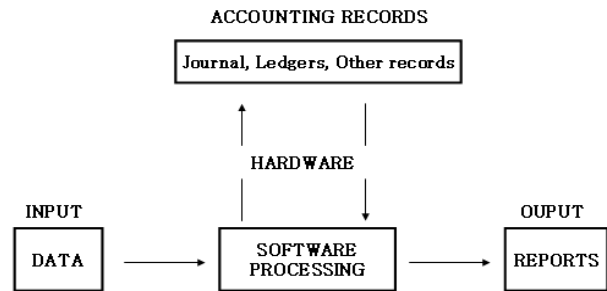
<Fig. 1> Accounting Information Systems (Bhatt, 2001) [7]

Traditionally, information quality has often been described from the perspective of accuracy; however, research and practice indicate that a useful definition of information quality should go beyond accuracy to encompass multiple dimensions [9]. nevertheless, no single standard for a precise definition of information quality has been accepted in the field [10]. A general definition of information quality is "information that is fit for use by information consumers" [9]. The type, level of detail, and variety of information required are usually determined at the system design and development phase, while the timeliness, accuracy, and reliability are produced from the system operations. Srinivasan[11] chose "report content and form" as a measurement of user-perceived effectiveness of the system. "Report content" included the accuracy, relevance, adequacy, and understandability of a report, while "form" included quality of format, timeliness of reports, mode of presentation, and sequencing of information. Information systems processing is similar to production processing in manufacturing organizations [12]. If the information is not delivered on time (timeliness) and the information does not conform to the needs

(relevance) of customers (users), then the customers (users) will be dissatisfied, and the firm will lose business [13].

In accounting and auditing, where internal control systems require maximum reliability with minimum cost, the key dimension used for information quality is accuracy－defined in terms of the frequency, size, and distribution of errors in information [14]. In assessing the value of accounting information, researchers also identified relevance and timeliness as desirable attributes [15]. Xu et al.[16] used the following dimensions to measure accounting information quality in their study, based on the previous work of Ballou et al.[17, 18, 19, 20]: (1) accuracy that occurs when there corded value is inconformity with the actual value; (2) timeliness that occurs when there corded value is not out of date; (3) completeness that occurs when all values for a certain variable are recorded; and (4) consistency that occurs when the presentation of the information values is the same in all cases.

Therefore, the dimensions that were originally suggested by Ballou et al. [18], and were used to measure accounting information quality [14], will be adopted in this research because they covered the most important dimensions that have been addressed in AIS literature and reasonably accepted in the information quality field. Therefore, quality information in AIS, in this research, refers to information that is accurate, timely, complete, and consistent in formation.

Regarding trust in accounting, by focusing on the accountant's part in the action‐reaction chain between evaluator and evaluated, it is possible to unveil evidence that performance evaluation is dependent on trust, as too are the production and reproduction of performance－evaluation routines [21]. Thus, this study investigates how trust－or distrust －between the parties involved is affected by the intention to use accounting information via perceived accounting information quality from AIS (see Fig. 2). the author herein aims to throw more light on how the perception of accounting information quality can create or violate trust between the users involved in their intention to use accounting information offered from an AIS.

Risk and trust together have been emphasized to play decisive roles in organizational process and exchanges. Having said that, risk is always the other part of trust as an exchange influence on information quality and how such perceptions influence the intent to adopt a specific exchange or information systems [22]. Additionally, Jarvenpaa et al. [23] and Pavlou [24] found that consumer perceived risk negatively affected intention to transact with a Web vendor.

Thus, this research aims at exploring whether information quality has distinctive influences on trust and risk and how these relationships between trust and risk influence a user's overall intent to using AIS exchange.
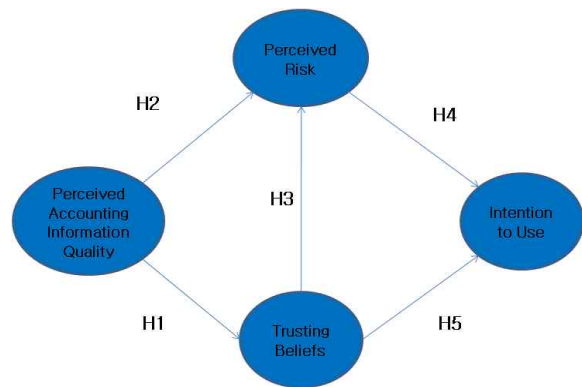
<Fig. 2> Research Model

3. Research Model and Hypotheses

This research examines AIQ effects on trust and risk during initial exchange interactions. Trust addresses uncertainty about a major information quality (IQ) issue: the competence, reliability, or expected behavior of potential exchange partners [25]. The researcher employs the trusting beliefs

component of the trust concept typology of McKnight and colleagues' works [26, 27]. Researchers in information systems use these components of trusting beliefs more frequently than any others [28, 29, 23, 30, 31]. McKnight and colleagues posit that first impressions, socio-cognitive processes, dispositions, or institutional influences may form trusting beliefs quickly [32, 27]. Carr and Smeltzer[33] found that the extent of automated links among buyers and sellers does not influence trust. Most purchasing managers they interviewed thought the technology itself did not build trust. Hence, to build partner trust, exchange providers must do more than merely provide electronic linkages. Fung and Lee [34] and Keen et al.[35] proposed that information quality would be an important trust-building mechanism in online interactions.

Because AIQ includes such positive information traits as accuracy, it should promote trusting beliefs –integrity in the exchange provider. In a similar way, people trust a speaker who gives truthful and credible information [36]. Information quality (IQ) also reflects information that is timely and responsive to an organization's needs [37]. Responsiveness relates to benevolence [27] because it implies that the exchange provider cares enough to provide helpful information [38]. IQ reflects information that is accurate, reliable, and correct in detail [37], which implies that the source of the information is competent. In addition, outside investors pay attention to the reported accounting information, and this reported accounting information is typically generated from AIS. In particular, outside investors trust the firm's reported earnings [39]. Therefore, AIQ should positively relate to and produce trusting belief–competence. Thus, AIQ can be expected to positively influence trusting beliefs, although we expect trusting beliefs to form a unitary construct early in the relationship, as others have found [40, 41].

Hypothesis 1. In an electronic accounting information exchange, perceived AIQ will positively influence trusting beliefs in the AIS.

Information exchange involves significant levels of uncertainty and risk in general [25]. Perceived risk is defined as the extent to which one believes uncertainty exists about whether desirable outcomes will occur. This definition includes part of Sitkin and Pablo's[42] more broadly conceived concept of perceived risk, which includes outcome uncertainty, likelihood of outcome divergence, and the extent of undesirable outcomes. AIQ should help reduce the uncertainty (namely "risk" in this study) related to exchange outcomes because of the worth of information shared. AIQ will influence perceived risk because high-quality information would provide what is needed to conduct the exchange in a controlled manner. Similarly, a strong belief that the information is accurate, current, and relevant would mitigate perceived risk regarding the exchange.

Hypothesis 2. In an electronic accounting information exchange, perceived AIQ will negatively influence perceived risk of AIS.

Trusting beliefs has been found to influence perceived risk related to a Web store [23]. Pavlou[24] and Pavlou and Gefen [2] found this to be true in the online auction domain. Others propose that trust will decrease risk or risk perceptions [43, 44] and will increase risk in a relationship [45]. Also, researchers have found that trust reduces uncertainty [46, 25, 2] an attribute that is similar to risk. While researchers still do not agree regarding whether trusting beliefs will predict perceived risk or vice-versa [47, 24], many studies have agreed that trust influences risk perceptions [48]. Placing trust as an antecedent of perceived risk harmonizes with psychological accounts of how trust, as a leap of faith, provides a sense of assurance, even when

outcomes are unclear [49].

Hypothesis 3. In an electronic accounting information exchange, trusting beliefs will negatively influence perceived risk.

In the exchange context, intention to use means the intent to employ the exchange in the future. Intention to use derives from the theory of reasoned action (TRA) literature [50], as exemplified by the Technology Acceptance Model (TAM) research [51, 52]. TRA suggests that external variables, such as personal values or beliefs about the broader work environment, should directly affect beliefs leading to specific intentions. Much of the work in TRA/TAM has focused on two main beliefs—perceived usefulness and ease of use—and their antecedents. However, other variables may also predict intention to use. In a field study, Lucas and Spitler [53] found that perceived ease of use and usefulness did not significantly relate to intentions toward, or use of, IT; instead, workload, social norms, and job differences predicted usage. This finding suggests that researchers need to examine other factors of intention to use, such as perceived risk and trusting beliefs. Risk theory suggests that risk perception will negatively affect willingness to perform a risky behavior [54, 24]. One has to accept some risk to adopt an exchange system because transactions may or may not run as expected. Sitkin and Weingart[14] report that decision-makers tend to make more risky decisions when the perceived risk is low. Given that the use of an electronic exchange is risky, risk perception is likely to negatively affect a user's intention to continue to use the exchange. Jarvenpaa et al.[23] and Pavlou[24] found that business-to-consumer (B2C) perceived risk negatively affected intention to transact with a Web vendor.

Hypothesis 4. In an electronic accounting information exchange, perceived risk will negatively influence the intention to use the data in AIS.

Like perceived risk, trusting beliefs acts as an evaluative mechanism regarding the extent to which users expect positive outcomes. Trust encourages the adoption of an electronic information exchange system because it reduces opportunism and conflict in a relationship [11, 55]. Research has considered trust to be a factor in developing or adopting electronic information systems. For example, Hart and Saunders[56] found that supplier trust led to diversity of electronic data interchange (EDI) use. Plus, Zaheer and Venkatraman[57] found that the level of trust an insurance agency had in an insurance carrier was the strongest predictor of the degree of electronic integration between the partners, surpassing other predictors such as asset specificity and reciprocal investments. In the marketing area, Morgan and Hunt[58] found that trust positively influences commitment to the relationship and negatively influences propensity to leave the relationship. Because trusting beliefs assess the competence, benevolence, and honesty of the exchange provider, they will influence the intention to continue using the exchange. In an ERP study, Gefen[59] found that client trust predicted perceptions that the relationship was worthwhile. Researchers in B2C e-commerce also have found that trust influences intended use [29].

Hypothesis 5. In an electronic accounting information exchange, trusting beliefs will positively influence intention to use the data in AIS.

3.1 Measurement Items and Study Method.

<Table 1> lists the measurement items from the questionnaires used in this study. Using these measurement items on a questionnaire. The survey questionnaire consisted of a list of 22 items

representing each of the 4 constructs. The validated questionnaire was sent to organizations in Taiwan. It was addressed to the employee responsible for technology adoption and implementation for his or her organization, requiring screening in the sample to avoid duplications of respondents in each company. This clearly indicated that the unit of analysis in this study was the organization. A total of 191 responses were collected from workers in Taiwan companies to test the research model after 21 participants were dropped. The final sample size was 191 (108 men and 83 women). In the sample, 15% were in their twenties, 75% were in their thirties, and 10% were over forty years old.

The breakdown of job role held by the respondents was: report to the chief decision maker (41.5%), give advice to the chief decision maker (32.3%), do not directly play a role (22.0%), and the chief decision maker (4.2%).

<Table 1> Measurement Items*

Perceived Accounting Information Quality
(7-point Likert scale: strongly agree to strongly disagree)
AIQ1. The data is accurate when I use it. (Accuracy)
AIQ2. The exchange maintains data in conformity with the actual value for my purposes. (Accuracy)
AIQ3. The exchange provides data that is timely enough to meet my current business needs. (Timeliness)
AIQ4. The data is up to date enough for my purpose. (Timeliness)
AIQ5. The transaction data transmitted are actually processed by the exchange. (Completeness)
AIQ6. The data I enter on the form is the same as that received from the vendor. (Completeness)
AIQ7. The data maintained by the data exchange is pretty much the same in all cases. (Consistency)
AIQ8. The exchange provides consistent information with regard to all transactions. (Consistency)
Trusting Beliefs
(7-point Likert scale: strongly agree to strongly disagree)
T1. The data on the exchange can be relied upon.
T2. The data is competent and effective in providing this exchange.
T3. The AIS performs its role of providing reliable data.
T4. Overall, the AIS is a capable provider that provides sufficient data.
Perceived Risk
(7-point Likert scale, using descriptive phrases below as endpoints)
Considering the case assigned to you, how would you rate the overall risk of carrying out transactions using this data from the AIS?
R1. Extremely low/Extremely high
R2. Much lower than acceptable level/Much higher than acceptable level
How would you characterize the possibility of using the data exchange offered by the AIS to carry out transactions?
R3. Significant opportunity/Significant threat
R4. Potential for gain/Potential for loss
R5. Positive situation/Negative situation
Intention to Use
(7-point Likert scale, extremely likely, extremely unlikely)
INT1. What is the likelihood that you would continue using this exchange data in the future to carry out transactions similar to the ones described in your case?
INT2. If I were faced with a similar transaction decision in the future, I would use this data from the AIS again.
INT3. I would recommend use of this data exchange to other colleagues who may be faced with similar needs.

*Information presented in this table has been adapted from Nicolaou and McKnight(2006) [60].

4. Data Analysis and Results

4.1 Measurement Model Analysis

Reliability of items in the measuring instrument was verified using a Composite Scale Reliability Index (CSRI). Typically, based on Fornell and Larcker's work(1981), this index has been shown to achieve strong internal consistency of measuring items if CSRI values are more than 0.5 [61]. Convergent validity exists when loading values of measuring variables exceed 0.5 [61], and the average variance extracted (AVE) of each construct exceeds 0.5. In this study, composite scales constructed by averaging items within each factor all showed acceptable reliability levels, as Cronbach's alpha values ranged from .960 for intention to use to .980 for risk. The values are much higher than the recommended threshold of .70 [62, 63].

To test discriminant validity, the AVE for each construct should be greater than the square of the correlation between others [63, 64, 61]. Normally, the variables used in this study have been confirmed to have sufficient validity based on the results shown in <Tables 2 and 3>, which exceed the suggested criteria values. Additionally multicollinearity were performed to check the reliability of the model. In this study, multicollinearity was checked using the variance inflation factor (VIF). the variance inflation factor (VIF) test did not detect any high level of multicollinearlity because of all VIF values of independent variables were low, ranging from 1.174 to 2.283.

<Table 3> Correlation Analysis

	AIQ	RISK	TRUST	INT
AIQ	1			
RISK	−0.954079	1		
TRUST	0.962062	−0.918424	1	
INT	0.965377	−0.938046	0.953686	1

As seen <Table 4>, the result of the factor analysis with varimax rotation showed that eigenvalues for all four factors were greater than 1 and the value of cumulative variance for all four factors was 81.73%. All factor loading values for the four factors in this study exceeded the suggested threshold of .60, which is considered to be an acceptable level for a newly-developed scale across disciplines [63].

<Table 2> Composite Reliability and AVE

	AVE	Composite Reliability	Cronbachs	Commu nality
Accounting Information Quality	0.851892	0.978723	0.975105	0.851892
Risk	0.927686	0.984649	0.980512	0.927686
Trust	0.902235	0.973624	0.963875	0.902235
Intention to Use	0.926571	0.974263	0.960365	0.926571

<Table 4> Factor Analysis

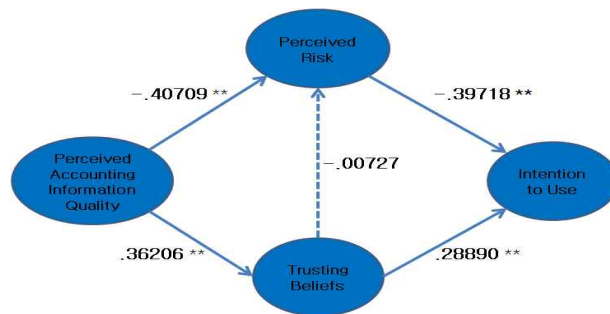|	1	2	3	4
AIQ1	0.77868	0.3769	0.34319	0.22154
AIQ2	0.70467	0.53773	0.37637	0.14616
AIQ3	0.68548	0.37397	0.45497	0.42608
AIQ4	0.6403	0.34304	0.52634	0.39002
AIQ5	0.72567	0.39526	0.46098	0.25812
AIQ6	0.7871	0.49907	0.5871	0.2222
AIQ7	0.6848	0.38747	0.24095	0.50189
AIQ8	0.63751	0.35569	0.33298	0.59751
T1	0.30792	0.6408	0.4913	0.38319
T2	0.35555	0.66826	0.34656	0.49162
T3	0.36593	0.66663	0.3821	0.34416
T4	0.40501	0.67514	0.48408	0.23836
R1	0.45446	0.44367	0.64039	0.32006
R2	0.45743	0.29755	0.74739	0.28402
R3	0.39354	0.39697	0.75987	0.25123
R4	0.52081	0.36393	0.65532	0.28681
R5	0.46202	0.4466	0.64388	0.2814
INT1	0.33158	0.51112	0.30865	0.67979
INT2	0.41582	0.53913	0.27536	0.61096
INT3	0.39591	0.51463	0.46195	0.64502
Eigen V.	7.205	3.593	2.634	2.045
Cum. V.	76.027	78.62	80.253	81.73

4.2 Evaluation and Explanation of Hypotheses Test

<Table 5> and <Fig. 3> show the results of testing of the structural equation model using Smart PLS. This modeling has been employed to test the proposed research model based on the sample groups. The results of the structural path analysis of the research model provide support for all five hypotheses. In terms of the explanatory power of the model, R^2 values in PLS analysis for each variable was used to verify there search hypotheses in this study [65].

The path significance of each hypothesized association in the research model and variance explained (R^2 value) for each path were examined, and the results are shown in <Fig. 2> and <Table 5>. Only four hypothesized associations were strongly significant at p<0.01 or p<0.05, and one association between trust and risk was not significant. The intention to use AIS in this study was jointly predicted by trust (β=0.288,<0.01) and risk (β=−0.397,<0.01), and these variables together explained 93% of the variance of intention to use (R2=0.934, coefficient of determination).

In addition to its direct effects, perceived AIQ also had an indirect effect on intention to use (β = 0.362, p < 0.01) via the variable trust, explaining

<Table 5> Structural Equation Model Test

	β	T Statistics	Results
Accounting Information Quality → Risk	−.40709	9.25803**	Accept
Accounting Information Quality → Trust	.36206	14.06599**	Accept
Trust → Risk	−.00727	0.07038	Reject
Risk → Intention to Use	−.39718	5.67875**	Accept
Trust → Intention to Use	.28890	8.38455**	Accept

** p-value < 0.01

92% of the variance in the dependent variables. Perceived AIQ also had an indirect effect (β = −0.407, p < 0.01) on intention to use via risk, explaining 91% of the variance in the dependent variables.

** p-value < 0.01

<Fig. 3> Hypotheses Testing Results

5. Conclusion

5.1 Interpretation of Results

Regarding accuracy versus timeliness of AIQ, some information users just want the report quickly, a user requirement that would certainly influence the perception of the quality of accounting information. Sometimes, the ability to supply quick information must be achieved at the cost of accuracy. Therefore, the information producers in the organization (in this case, the accounting finance managers) have to make a decision on how accurate they need the information to be and determine whether an estimate on a month-by-month basis would suffice or whether the information must be accurate right down to the dollar amount.

Regarding the consistency measurement of AIQ, having consistent procedures and policies was important in ensuring high quality accounting information, especially when an organization has different subsystems or a decentralized systems structure. The consistency between the subsystems

and the various internal divisions of an organization would have an impact on the consistency of the information they generate.

Regarding completeness of AIQ, information users often become very frustrated if the information they require is not available when it is needed. On the other hand, some organizations may capture and store information for years, but then find that no one ever looks at it or uses it, and it is unlikely that anyone will ever need it. However, accountants and IT professionals, as the custodians and producers of organizational information, do need to carefully ascertain the users' requirements and make sure that critical information is readily available, because lack of such information may lead to serious mistakes in the decision-making process.

5.2 Suggestions

Before discussing the variables of trust and risk in accounting information generated from AIS, it was clear that issues of accuracy, timeliness, consistency, and completeness were regarded as extremely critical to achieving a high quality of accounting information. These four issues can have a significant impact on information quality. Even though organizations are not in control of these factors, they can actively manage them. Utilizing skills related to change management, organizations are able to use these four attributes to improve the internal management of their accounting information quality.

High quality accounting information may mean different things to different people. This paper has discussed the accuracy, timeliness, consistency, and completeness of accounting information, along with trust and risk (but no direct effect between trust and risk: it only has indirect impact from perceive AIQ to intention to use) as they relate to the intention to use accounting information. It has been found that, in real-world situations, people will often sacrifice accuracy to achieve timeliness when there is pressure to make a deadline. This is, of course, a serious issue, but there are no easy solutions. Inconsistency of information is a big problem in decentralized organizations that have many different divisions or subsystems. Inconsistency can occur not only at the input stage but also in the processing stage, and either one could lead to an inconsistent output in reports. Undoubtedly, a major task of accounting systems is to obtain complete information, but simultaneously, it is also important to prevent information overload. Good management of accounting information quality is not an easy task, as there are so many external issues that can impact the process.

Regarding trust and risk issues, this study contributes to theory in this field in two primary ways. First, this study found AIQ to be an important variable of [using accounting information generated from AIS] because it has a valuable indirect effect (through perceived risk and trusting beliefs) on intention to use accounting information. Hence, this study places AIQ in a new nomological network and demonstrates its worth. While some findings link IQ directly to intention to use [66], this study contributes to the literature on information system effectiveness by showing that risk and trust mediate the relationship in the initial accounting information exchange produced by AIS. Second, the paper builds on existing theory by empirically examining the validity of four measurements of AIQ—suggested, but, not empirically tested by Xu et al., 2003—which support user perceptions of accounting information quality: accuracy, timeliness, consistency, and completeness [12].

Therefore, this paper attempts to categorize these four AIQ measurements [12], along with trust or risk for intention to use accounting information generated by AIS, by creating a simple model. This research may provide a better understanding of the process of managing accounting information quality. The study analysis applies the ideas of real-world

reactions to those key issues. Implications from this research may help to arouse awareness among organizational management of the different dimensions of information quality and reveal how those varying dimensions impact trust and risk toward intention to use. This understanding may help them focus on the issues important to achieving the desired aspects of their accounting information quality.

5.3 Limitations and Research Implications

The limitations of this study suggest directions for additional research. The study may not be generalized beyond the particular domain studied－a simple accounting data exchange－because specific perceived uncertainties favor how our model works. The author recommends that researchers conduct empirical testing in more complex accounting data exchange contexts in order to more widely generalize the model. This study focused on the four variables of accuracy, timeliness, consistency, and completeness of accounting information, as well as trust and risk as they relate to the intention to use accounting information. In the real world, more advanced exchange features are used. Thus, researchers should test the model in more complex exchanges. Future research should also examine the effects of AIQ in other domains, especially in contexts in which actual outcomes differ from those anticipated.

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