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Determinants and Consequences of Information Exchange Quality in the Buyer-Supplier Relationship: Evidence from the Fishing Industry of Tanzania

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Abstract

Given a number of studies that recognise the imperative of information exchange in buyer-supplier relationships, there is still a gap to fill. Thus, this study investigated the determinants and consequences of information exchange quality in the buyer-supplier relationships of the fishing industry in Tanzania. Specifically, the study aimed to investigate the associations that exist between information exchange willingness and information exchange quality, information exchange content and information exchange quality, information exchange quality, and perceived information exchange benefits. Transaction Cost Economics (TCE) theory and empirical literature guided the development of hypotheses. The study employed a cross-sectional research design with a quantitative approach, and a structured questionnaire was used as the main instrument for data collection. The study used partial least square structural equation modelling (PLS-SEM) aided by SmartPLS 3.3 to validate the measurement model and test the hypotheses by using data from 300 fish purchasing managers from the Mwanza and Dar es Salaam regions. Findings indicate that information exchange willingness and content are positively and significantly associated with information exchange quality. Furthermore, findings indicate that information exchange quality is positively and significantly associated with perceived information exchange benefits. This study contributed to the imperative of information exchange quality in the dynamic supply chain for the growth of the fishery industry in Tanzania, as it offers significant meaning to fish purchasing practitioners and policymakers. Moreover, the findings have implications for transaction cost economics theory by further considering the quality of information exchange rather than information exchange in general.

Keywords: Information exchange, perceived benefits, buyer-supplier relationship
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Introduction

In the United Republic of Tanzania, the fishing industry is one of the important industries accounting for economic growth (URT, 2012). According to the annual report of the Bank of Tanzania for the financial year 2009/2010, promising listed manufacturing enterprises that support a blue economy belong to the fishing industry. This industry offers a significant amount of employment in Tanzania, and it involves subsectors (Ruteri & Xu, 2009; Sutton & Olomi,

2012). Generally, Tanzania entails two separate fish supply chains that serve two separate sectors of the industry: international and domestic. The two supply chains are very divergent as they have a limited scope in terms of the delivery of raw materials, service providers, and asset utilisation, such as warehouse usage or a mutual information system. The international fish supply chain is categorised by moral integration, low transaction costs, high levels of investment, and modern technologies. Moreover, inputs are issued by specialised agents to export processors, all in terms of hard inputs (like equipment and finance), while soft inputs are like training. Furthermore, the international fish supply chain enjoys better information flows to the level of processors, unlike the domestic supply chain.

Information allows effective business operations by enhancing accurate decision-making and processing. In modern supply chains, the failure of most businesses is due to negligence in associating with other business partners in the upstream and downstream supply chains. Besides, businesses are no longer competing independently; rather, they compete as supply chains; thus, every component of a chain must effectively and efficiently participate in competing with other supply chains, as there is no success or failure of an independent component of a chain; instead, there is a success or failure of the whole chain (Christopher, 1994). Meanwhile, apart from the physical accessibility of goods in a given link in the chain, excessive significance is associated with the ownership of the latest information concerning quantity, a configuration of variety, as well as the location of supplies moving along the supply chain. Monitoring of supply movement qualifies an extensive range of information exchange from the chain to be acquired and used in making faster supply issues when required with optimal cost while ensuring a high customer service level (Kolinski et al., 2020).

Trading parties regularly consider the imperative of information exchange to improve the performance of the supply chain (Kang & Moon, 2016). Besides, Marinagi et al. (2015) suggested that to enable collaboration between supplier and buyer, supply chain members must coordinate their processes over information exchange. Information exchange amongst partners along the supply chain positively increases the overall performance of the particular chain. In a green supply chain, information exchange and joint activities may lead to knowledge transfer, which contributes to the discussion of achieving environmental capacity and performance (Chu et *al.,* 2017). An information system through information exchange provides connectivity in the supply chain, resulting in recurrent and well-timed information exchange (Sinnandavar *et al.,* 2018).

To have an effective and efficient green supply chain in the fishing industry, information exchange is inevitable (Kang & Moon, 2016). Information exchange considers information quality as the most important factor for organisational success and has to be well maintained (Marinagi *et al.,* 2015; Ramayah & Omar, 2010). Information exchange reduces demand uncertainty, which results in optimal costs, high rates of order satisfaction, and reduced order cycle time. Information exchange can highly determine the level of green supply chain performance, as it enables agility and flexibility as well as provides individuals and the whole supply chain with improved stability and performance. Trading parties must effectively consider how they exchange information to maximise mutual benefits (Schiefer, 2004).

Bisbe and Otley (2004) stressed that high-quality information exchange expedites market research, promotes the development of new ideas, and encourages experimentation for new creativity through a knowledge generation process. Fawcett et al. (2011) and Glavee-Geo *et al.,*

(2020) acknowledged generally that information exchange is a vital enabler for improving the performance and a proportional edge of companies and supply chains without stressing the importance of information exchange quality and key determinants of such quality. In the same vein, a study by Singogo (2021) acknowledged the imperative of information exchange quality in the dyadic relationship of buyer and supplier without explicitly outlining the key determinants of information exchange quality. Moreover, most of the previous empirical studies on buyer-supplier relationships in supply chain management are qualitative, while few of them have integrated the quantitative perspective (Dornfeld, 2013; Gong *et al.,* 2019). Based on the literature, most of the studies on information exchange and supply chains based on buyer-supplier relationships are from mechanised countries, especially China and other Asian countries, as well as America and Europe. Besides, little has been done for developing economies, which are the focal sources of inputs for the mechanised countries as well as buyers of their end products. Thus, more studies are required to be done in the context of developing economies with a focus on information exchange quality and perceived information exchange benefits in the supply chain based on buyer-supplier relationships to achieve sustainable supply chain performance. Tanzania is among the less merchandised countries with fewer industries, despite the fact that it is rich in natural resources for merchandise activities. Meanwhile, the country depends more on the importation of finished goods and less on the on the exportation of finished goods (UNEP, 2009). Therefore, a study investigating the determinants and consequences of information exchange quality in the buyer-supplier relationship of a fishing industry in Tanzania would be important for re-investigating the revealed relationships and offering cherished insights.

The focal objective of this study was to investigate the key determinants and consequences of information exchange quality in the buyer-supplier relationships of the fishing industry in Tanzania with the research question, *"What are the determinants and consequences of information exchange quality in the buyer-supplier relationship of the fishing industry in Tanzania?"*

Theoretical Review

Transaction Cost Economics

According to Transaction Cost Economics (TCE), trading parties acquire a total cost that can be divided into two components, namely, transaction costs and production costs. Transaction costs encompass costs for coordination, which are concerned with the processing of information that is essential for coordinating people's work, as well as equipment that executes the prime operation. Meanwhile, production costs are defined as costs acquired by the physical or other prime processes that are critical for making and issuing goods or services from the company's core business (Malone *et al.,* 1987). Trading parties have to abide by the key principle of TCE, whereby they have to work hard to lower exchange expenses in a definite set of prospects by selecting the best monitoring (Barney & Hesterly, 2018, 2019; Williamson, 1987). Besides, Rindfleisch and Heide (1997) state that TCE involves three assumptions under the governance mechanism, whereby the first assumption is based on individuals, which stresses that in whichever form of the economy there is a confined rationality whistle, people anticipate being rational, while in reality they have limited cognitive capabilities. The next assumption stresses

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that, to a great extent, some people act opportunistically in trading and choose to willingly attend to their interests.

For a long time, TCE has been given considerable attention in economics as well as in information systems management (Bakos & Kemerer, 1992; Subramani, 2004), together with an organisational theory (Barney & Hesterly, 2019). TCE was employed in this study because it enhances transparency (information exchange) in buyer-supplier relationships, which in turn reduces transaction costs (Rindfleisch & Heide, 1997). Despite the fact that each transaction has pre-transaction costs and post-transaction costs, the quality of the information exchanged reduces the effect of these costs.

As per TCE, when there is a lower degree of cooperation, the buyer-supplier relationship maximises the spot-market style of governance, whereas in advanced cooperation, a trading relationship stands similar to the vertical integration ideal of monitoring. Amongst the two extremes, various kinds of hybrid relations have been established, which start with short-term cooperation, then long-term cooperation, and end up without end cooperation. TCE considers that when there are lower transaction costs, economic organisations favour market governance, and when there are high transaction costs that surpass the cost advantages of markets, organizations may prefer contracting a model of operation.

However, Williamson (1987) acknowledged the existence of three significant transaction forms, which are transaction uncertainty, transaction-specific investments, and transaction frequency. Transaction-specific investment is considered the form that is most frequently employed to regulate the best transaction governance mechanism. Thus, transaction-specific investments were termed human and physical assets that are devoted to a particular relationship and cannot be easily reassigned. Transaction-specific investment is important as it changes the way organisations transact, leading them to both valued and vulnerable positions (Williamson, 1987). Transactions are mostly faced with two dominant problems, which are uncertainty and complexity. TCE clearly admits and gives specific devotion to the significance of information in resolving problems triggered by uncertainty (Bakos & Kemerer, 1992). Besides, quickly changing markets, technology, and consumer tests may lead to the occurrence of uncertainty that has often been distinguished into environmental uncertainty and behavioural uncertainty. Noordewier et al. (1990) conveyed environmental uncertainty as unexpected modifications in situations adjacent to an exchange.

Williamson (1987) described behavioural uncertainty as emerging from the challenges related to inspecting the contractual performance of transaction allies. Grounding from a measurement point of view, environmental uncertainty is termed the most challenging TCE construct, which involves two opposing operationalizations in which the first, which is the most common perception, stresses the volatile nature of the external environment, while the second tests both volatility and difficulty. However, behavioural uncertainty has less operationalization related to environmental uncertainty as well as transaction-specific investment (Rindfleisch & Heide, 1997). Boger (2001) stressed that frequency generally causes negative impacts on governance only in concurrence with the specificity of an asset that is included in the transaction.

Also, the frequency of transaction occurrences can be an appropriate determinant of cost-economization resolution under governance structures. Based on the literature, frequency has limited consideration in TCE studies, as most of them have mostly been ineffective in checking the imagined impact of frequency on the governance ideal (Rindfleisch & Heide, 1997). Under

TCE, transaction-specific investment is associated with some complications, such that two significant governance concepts in TCE are proposed, which are concerned with dropping risk and uncertainty together with contractual governance. In the current era, the economic theory of contracts has gradually advanced and gained influences from numerous angles, whereby agency theory and TCE are the most impressive theories (Bogetoft & Olesen, 2004). As per TCE, an agreement among a supplier and buyer entails particular transactions, contracts, and promises, as well as conditions of the transactions that are clearly stated by price, asset uniqueness, and protections, on the notion that quantity, quality, and time are all quantified (Williamson, 1987).

Furthermore, TCE is anxious about the expenses of contract creation and management, such that an agreement does not stipulate all of the possible contingencies that may result in transaction costs. Bogetoft and Olesen (2004) identified four basic kinds of direct transaction costs involved in a contract. Some of the influential undertakings are taking back and twisting information, manipulating connections, and covering up particular information (Hansmann, 2000; Milgrom & Roberts, 1990). However, there have been distinct considerations of contract, but various previous researchers have identified contracts in terms of hard copy and soft copy, unequivocal and normative, proper and improper, as well as printed and unprinted (Heide & John, 1992; Lusch & Brown, 1996). Therefore, Gibbons (2010) summarises the undertakings of TCE into three sections, which are methodology, assumptions, and frequency of transactions. Besides, TCE has developed a significant interest in the management information systems arena, just as in other academic arenas, whereby two fields of information systems have been anticipated to use TCE (Bakos & Kemerer, 1992).

Information exchange is a component of general green supply chain integration, defined as the capacity of an organisation to exchange information and knowledge within the entire supply chain by ensuring effective and efficient management (Kang & Moon, 2016). Also, information exchange may refer to a two-sided expectation whereby partners proactively provide information that is valuable to them based on different substances like long-term estimating, information on structural planning, forthcoming product design, and schedules for manufacturing planning (Noordewier *et al.*, 1990). The researcher applied information exchange as one of the variables because of the new information economy known as the internet economy, web economy, information technologies, digital networking, and information exchange setups. Then all forms of information economy provide an international platform over which people and organisations meet, exchange information, cooperate, and exploit information (Sabbaghi & Sabbaghi, 2011).

Empirical Literature Review and Hypotheses Development

Information exchange willingness and information exchange quality

According to Fawcett *et al*., (2007), trading parties invest more in information technology with the hope that it assists in connecting people and organisations, which may result in information exchange. However, it is described that the expectations of information exchange do not regularly emerge in most trading parties that make great investments in information technology (Fawcett *et al.*, 2007). Current studies such as Glavee-Geo *et a.l.* (2020) and Singogo (2014), just to mention a few, have recognised the benefits of information exchange in buyer-supplier relationships without explicitly focusing on the quality of information exchange or what causes

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such quality. In the absence of statistical evidence, Fawcett *et al.*, (2011) and Heide and John (1992) highlighted that one of the key determinants of information exchange quality in buyer-supplier relationships is information exchange willingness.

According to Fawcett *et al.* (2011), information exchange willingness can be referred to as an individual's or organisation's positive approach and sincerity to exchange appropriate information fairly and often. On the other hand, studies by Al-Tameem (2004), McKinnon et al. (2003), and Riley *et al.*, (1994) concentrated on finding factors attributing to an individual's or organisation's information exchange willingness without looking at the influence of information exchange willingness on information exchange quality. On top of that, Fawcett *et al.*, (2007) conducted an empirical study to examine how information exchange willingness may be affected by operational performance and not how it influences information exchange quality. It suggested that willingness to exchange information reinforces information exchange quality (Fawcett *et al.*, 2007; Lee *et al.*, 2000; Mendelson, 2000). Moreover, the Transaction Cost Economics theory as read from Williamson (1987) has explicitly recognised the role of information exchange in the buyer-supplier relationship without digging more into the association between information exchange willingness and information exchange quality. Thus, to bridge the existing gap in both theoretical and empirical literature, this study proposed hypothesis one (H_1) as follows:

Hypothesis one (H_1): The level of information exchange willingness is positively associated with the level of information exchange quality.

Information exchange content and information exchange quality

Without statistical evidence, Storer and Storer (2006) pointed out that information exchange in a buyer-supplier relationship can be defined in terms of its features that involve information contents, perceived information exchange benefits, and information exchange quality. Moreover, Storer and Storer (2006) did not establish any influence between information exchange contents and information exchange quality, which ultimately leads to perceived information exchange benefits. According to Storer and Storer (2006), information exchange contents comprise a broadly sympathetic view of advertising, the chain, the commodities, problem resolution, general product and performance feedback, product quality, freshness together with traceability, timely distribution, the extensiveness of orders, elasticity to alteration orders, prices, charges, as well as profitability, prediction of what should be offered and what is the requirement, advertisement, product invention, and lastly, opportunities and threats.

When more detailed information is exchanged amongst trading parties, it is expected that there will be a lower total cost, a higher rate of order success, and a shorter order cycle time. Besides, organisations normally face demand uncertainty that may be reduced through proper information exchange (Zhou & Poppo, 2010). Information content can be categorised as supplier information, manufacturer information, buyer information, distribution information, and retailer information (Chopra & Meindl, 2013). Despite the fact that Transaction Cost Economics theory and previous studies such as Glavee-Geo *et al.*. (2020); Mohr and Sohi (1995); and Singogo (2014) have acknowledged the imperative of information exchange in the trading relationship, it is difficult to trace studies that investigated the association between information exchange contents and information exchange quality that ultimately may lead to perceived information

exchange benefits. Thus, to uncover the existing theoretical and empirical literature, hypothesis two (H_2) was formulated as follows:

Hypothesis two (H_2): The level of information exchange content is positively associated with the level of information exchange quality.

Information exchange quality and perceived information exchange benefits

According to Bensaou and Venkatraman (1995), information exchange quality is frequently measured in terms of dependability, timeliness, quickness, correctness, sufficiency, wholeness, relevancy, gravity, range of content, simplicity of access, demonstration, interaction, and general fulfillment. To attain quality information exchange, the trading parties have to express their requirements to obtain an improved service from the other party (Wilson & Vlosky, 1998). Moreover, for distinguishing the types of information exchange Peng *et al.*, (2014) formulated two constructs, which are information quality and awareness among trading parties. This study focused on exploring the association between information exchange quality and perceived information exchange benefits. According to the literature, the quality of information increases when it is appropriate, well-timed, accurate, trustworthy, sufficient, and comprehensive (Mohr & Sohi, 1995; O'Reilly, 1982; Stohl & Redding, 1987). Moreover, the quality of information is powerfully linked with happiness in information exchange (Mohr & Sohi, 1995). According to Peng et al. (2014), information about the capabilities, olden times, and trends in the development of commercial firms, opponents, and own institutions shall be available timely. Knowing the needs of the buyer is the foundation of a buyer's position, which is exposed to increasing the quality of service (Jaworski & Kohli, 1993). The extent to which you allow the buyer to know your business, the better their capability of meeting your desires (Wilson & Vlosky, 1998). This has then been verified by a great deal of commercial deception: that a quicker check on partners' relationships can prevent possible risks and vast losses. However, it was established that parties involved in business did not obtain on time the indicators of varying buyer needs (Storer & Storer, 2006).

Moreover, to distinguish the types of information exchange, Peng *et al.*, (2014) formulated two constructs: information quality and awareness among trading parties. This study opted to explore the association between information exchange quality and perceived information exchange benefits as the construct that needs further justification. Despite the fact that Transaction Cost Economics theory and previous studies such as Glavee-Geo *et al.*, (2020); Mohr and Sohi (1995); and Singogo (2014) have generally acknowledged the imperative of information exchange in the trading relationship, it is difficult to trace studies that investigated specifically the association between information exchange quality and perceived information exchange benefits. Hence, to uncover the existing theoretical and empirical literature, hypothesis two (H_3) was formulated as follows:

Hypothesis three (H_3): The level of information exchange quality is positively associated with the level of perceived information exchange benefits.

Conceptual Framework

The conceptual framework of this study, as presented in Figure 1, was developed based on the three proposed hypotheses that information exchange willingness and contents are positively

associated with information exchange quality, and information exchange quality is positively associated with perceived information exchange benefits.

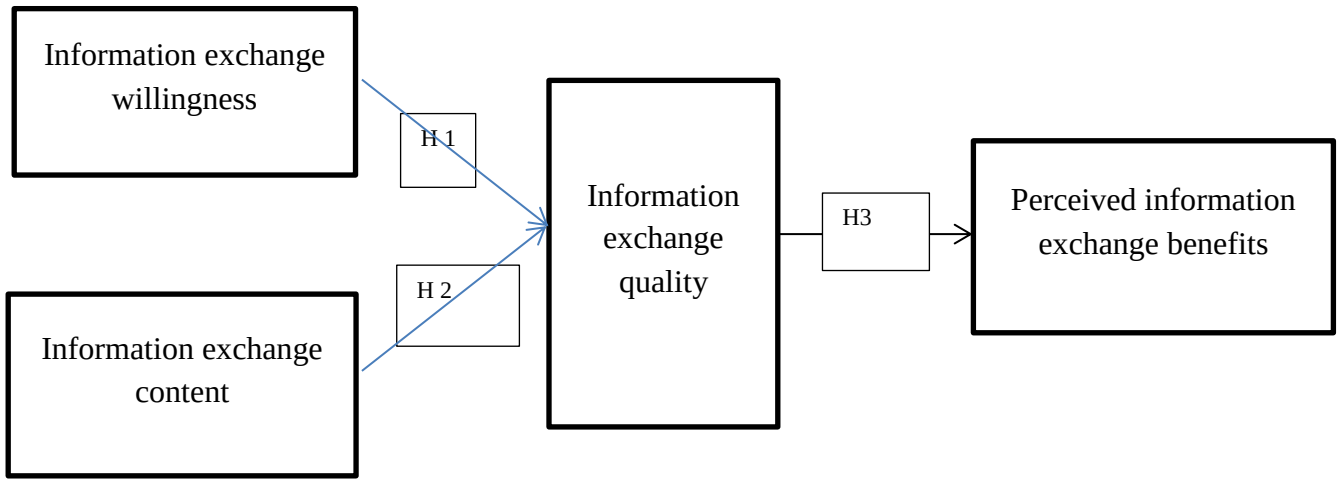

Figure 1: Conceptual framework

Methodology

This study employed a quantitative research approach based on positivism, whereby a cross-sectional design was involved as the data used was collected only once from the field. Moreover, the research population for this study was drawn from fish purchasing dealers in Dar es Salaam and Mwanza. The regions were selected purposefully as they are surrounded by large water bodies and, to a large extent, are engaged in fish business activities (Fisheries, 2020). According to NBS (2022), there are about 2,343,015 fish purchasing dealers in Dar es Salaam and Mwanza. The total number of registered fish purchasing dealers in Dar es Salaam is approximated at 1,549,807, whereas in Mwanza it is 793,208 (NBS, 2022).

At first, stratified sampling was employed to ensure an adequate representative sample size for Dar es Salaam and Mwanza. According to Krejcie and Morgan (1970), a population of 2,343,015 fish purchasing dealers can be adequately represented by a sample size of at least 384 fish dealers. Then, based on the stratified sampling method, the sample size set in Dar es Salaam was at least 254 fish purchasing dealers, while in Mwanza there were at least 130 fish purchasing dealers. However, a total of at least 454 questionnaires were randomly sent through email and WhatsApp to registered fish purchasing dealers in Dar es Salaam and Mwanza.

The questionnaire was employed in this study due to its simplicity, reliability, limited time, and cost savings. Initially, the questionnaires were sent to five academic staff members who have been experts in purchasing and supply chain management for ten years. All issues raised by these experts were accommodated, and the questionnaire instrument was refined. Moreover, a pilot study on ensuring the reliability and validity of the questionnaire was carried out by involving ten fish dealers in Dar es Salaam, and the instrument confirmed the presence of reliability and validity, and some more refinement was done before going for the main data collection.

A 7-point Likert scale ranging from 1 strongly disagree to 7 strongly agree for each indicator of a target variable was employed in this study. The items used to measure the latent variables were adapted from previous studies with minor modifications to suit this study. The items used to measure the latent variables were adapted from previous studies with minor modifications to suit this study. Perceived information exchange benefits were measured by using four items that were adapted from Claro (2004); both information exchange willingness and content each used three items that were adapted from Lee *et al.*, (2000); Mendelson (2000); and information exchange quality used five items that were adapted from Miller (2005); Teng *et al.*, (1995). After the collection of data for both regions, the response rate was assessed, whereas the purely collected data from Dar es Salaam was only 170 and from Mwanza were 130 purchasing dealers. The characteristics of respondents in this study in terms of regions, gender, and age are presented in Table 1.

Table 1: Sample Characteristics (n=300)

Demographic Characteristics	Category	Frequency	Percent
Regions	Dar es Salaam	170	66.92
	Mwanza	130	65.00
Gender	Male	94	31.33
	Female	206	68.67
Age	<30	131	43.67
	30-40	101	33.67
	41-50	57	19.00
	>50	11	3.67

This study assessed the presence of common method variance as recommended by Jarvis *et al.*, (2003) and borrowed the approach from Harman (1976), whereas a single latent variable is considered. It was observed that the result from the unrotated latent variable, which employed principal component analysis, was less than 50%, i.e., 43.446%. According to Podsakoff and Organ (1986), if the unrotated result is less than 50%, it symbolises the absence of common method variance. Thus, based on single latent variable analysis as proposed by Harman (1976), this study was free from common method variance.

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Findings

This study employed Partial Least Square Structural Equation Modelling based on SmartPLS version 3.3.3 for both data analysis and findings as proposed by Ringle *et al.*, (2015). Descriptive statistics based on central tendency (mean and standard deviation) for measures of each construct as employed in this study to describe their features were conducted (see Table 2). Before embarking on further analysis, the measurement model employed in this study was assessed to determine its suitability and fitness. The extent to which one construct measures what it was intended as well as its uniqueness were assessed by using both convergent validity and discriminant validity. Based on the average variance extracted (AVE) values as presented in Table 3, which ranged from 0.690 to 0.809, it can be concluded that the data employed in this study confirmed convergent validity as the AVE value for each construct was above the threshold of 0.5, in line with Fornell and Larcker (1981).

The level of discriminant validity in this study was assessed based on two approaches. The first approach was based on the matching score of the AVE square root of each construct and its association among other constructs. From Table 3, it can be observed that all scores of the AVE square root of each construct were above the scores describing the associations with other employed constructs and were in line with the condition set by Fornell and Larcker (1981). More assessment of discriminant validity was based on cross scores, as presented in Table 4, whereby one construct distinguished itself from other constructs by scoring higher in its respective columns and rows. Additionally, the Heterotrait-monotrait ratio of correlations (HTMT) scores were further used to assess the presence of discriminant validity in this study, and it was observed that all scores were below 0.85, confirming the presence of discriminant validity, which was in line with Hair *et al.,* (2017) and Henseler *et al.*, (2015).

Furthermore, the issue of consistency for measures employed for each construct was assessed, and as presented in Table 3, both composite reliability and Cronbach's alpha for each construct were above the threshold of 0.7, implying that measures of each construct were consistent in line with Hair *et al.*, (2017). Also, the loadings as presented in Table 2 confirmed the existence of consistency in measures of constructs, as all loadings were above 0.70.

Table 2: Construct, Indicators, Descriptive Statistics and Loadings (n = 300)

Construct	Question	Indicator	M	SD	Loadings#
Perceived information exchange benefits Claro (2004)	Information exchanges enhance problem resolution.	IEPB1	4.91	2.11	0.795***
	Information exchange enhances product quality control.	IEPB2	5.19	2.04	0.824***
	Information exchange enhances timely and precise delivery.	IEPB3	5.12	2.04	0.823***
	Information exchange enhances the proper setting of product prices.	IEPB4	5.03	2.10	0.786***
Information exchange willingness Lee *et al.,* (2000), Mendelson (2000).	Appropriate information exchange	IEW1	4.70	2.19	0.885***
	Formal and official information exchange channels	IEW2	4.76	2.02	0.844***
	Regularly exchange of information	IEW3	4.90	2.03	0.882***

Information exchange content Lee *et al*, (2000), Mendelson (2000).	Transactional information exchange	IEC1	4.41	2.29	0.895***
	Operational information exchange	IEC2	4.11	2.29	0.858***
	Strategic information exchange	IEC3	4.58	2.26	0.861***
Information exchange quality Teng *et al.*, (1995), Miller (2005)	Timely information exchange	IEQ1	2.90	1.75	0.793***
	Adequate information exchange	IEQ2	3.53	1.98	0.831***
	Accurate and credible information exchange	IEQ3	3.34	2.14	0.855***
	Consistency in information exchange	IEQ4	3.10	1.94	0.814***
	Security and availability of information exchange	IEQ5	3.45	2.26	0.778***

Note: # Based on 5000 bootstrapping samples *** p < 0.001 (two-tailed), ** p < 0.05 (two-tailed).

Table 3: Reliability, AVEs and Discriminant Coefficients (n=300)

Construct	Composite reliability	Cronbach's Alpha	AVE	1	2	3	4
Perceived information exchange benefits	0.944	0.921	0.809	**0.899**			
Information exchange willingness	0.916	0.862	0.784	0.507	**0.885**		
Information exchange content	0.908	0.865	0.711	0.476	0.496	**0.843**	
Information exchange quality	0.930	0.911	0.690	0.437	0.302	0.461	**0.831**

Note: Bold numbers on the diagonal show the square root of the AVEs; Numbers below the diagonal represent construct correlations.

Table 4: Demonstrating Discriminant Validity based on Cross-loadings (n = 300)

Indicator	Perceived information exchange benefits	Information exchange willingness	Information exchange content	Information exchange quality
IEPB1	**0.795**	0.395	0.217	0.246
IEPB2	**0.824**	0.455	0.368	0.371
IEPB3	**0.823**	0.457	0.251	0.181
IEPB4	**0.786**	0.359	0.278	0.234
IEW1	0.184	**0.885**	0.286	0.288
IEW2	0.343	**0.844**	0.564	0.102
IEW3	0.160	**0.882**	0.577	0.149
IEC1	0.086	0.194	**0.895**	0.101
IEC2	0.232	0.020	**0.858**	0.257
IEC3	0.205	0.333	**0.861**	0.057
IEQ1	0.425	0.550	0.158	**0.793**
IEQ2	0.420	0.483	0.180	**0.831**

IEQ3	0.416	0.435	0.114	**0.855**
IEQ4	0.466	0.385	0.230	**0.814**
IEQ5	0.504	0.459	0.306	**0.778**

Note: Bold values at significant at approximately $p < 0.05$

Model Estimation and Findings

As indicated in Table 5, the estimation of model associations in the conceptual framework was statistically significant, confirming the hypotheses stated in this study. Hypothesis one (H_1) specified a positive association between the level of information exchange willingness and the level of information exchange quality. The findings provide evidence for a positive association between the level of information exchange willingness and the level of information exchange quality ($\beta = .29$, $t = 3.50$, $p < .01$). Similarly, hypothesis two (H_2) specified a positive association between the level of information exchange content and the level of information exchange quality. The findings provided evidence for the positive association between the level of information exchange content and the level of information exchange quality ($\beta = .44$, $t = 5.72$, $p < .01$). Additionally, hypothesis three (H_3) specified a positive association between the level of information exchange quality and the level of perceived information exchange benefits. The findings provide evidence for a positive association between the level of information exchange quality and the level of perceived information exchange benefits ($\beta = .56$, $t = 7.69$, $p < .01$).

Table 5: Structural Model Results, Effect Sizes (f^2) and Collinearity based on VIF (n=300)

Criterion	R^2	Predictors		Path coefficients	t-values#	f^2	VIF
Information exchange quality	0.23	Information exchange willingness		0.29***	3.50	0.21	1.74
		Information exchange content		0.44***	5.72	0.32	1.33
Perceived information exchange benefits	0.37	Information exchange quality		0.56***	7.69	0.54	1.11

Note: # Based on 5000 bootstrapping samples ***p <0.01, **p < 0.05 (two-tailed)

Discussion of the Findings

Information exchange, as supported by Transaction Cost Economics theory and empirical literature, has been shown to have positive outcomes in trading relationships. The existing positive association between information exchange and perceived information exchange benefits has been evidenced by Glavee-Geo *et al.*, (2020); Singogo (2014); and Williamson (1987). The findings of this study support previous studies by explicitly showing that information exchange willingness and contents have a positive association with information exchange quality, which ultimately associates positively with perceived information exchange benefits in buyer-supplier relationships. As per this study's findings, information exchange content has the highest association with information exchange quality (f^2=.32) when compared with information

exchange willingness (f^2=.21). More importantly, information exchange quality has the highest association with perceived information exchange benefits (f^2=.54). Thus, information exchange willingness and contents play a vigorous role in enhancing the quality of information in the buyer-supplier relationship that is exchanged among them. When information exchange quality is effectively attained, it is highly expected for the communicating parties to often get the expected benefit of the information they exchange. With consideration to the Transaction Cost Economics, when each part gets the expected benefit from the information exchanged, it is expected that operation and transaction costs will be as optimal as possible.

As hypothesized in hypothesis one (H_1), the result on the path coefficient that described the association between information exchange willingness and information exchange quality was positive (0.29) and statistically significant ($t = 3.50$; $p < 0.01$). This means that a 1-point increase in information exchange willingness leads to a 0.29 increase in information exchange quality. Alternatively, this means that a 1-point decrease in information exchange willingness leads to a 0.29 decrease in information exchange quality. The finding is in line with previous studies by Fawcett *et al.*, (2007); Lee *et al.*, (2000); and Mendelson (2000), who proposed that willingness to exchange information reinforces information exchange quality. Moreover, the findings complement the Transaction Cost Economics theory by Williamson (1987), which recognized the role of information exchange in the buyer-supplier relationship without digging more into the association between information exchange willingness and information exchange quality.

As hypothesized in hypothesis two (H_2), the result on the path coefficient that described the association between information exchange content and information exchange quality was positive (0.44) and statistically significant ($t = 5.72$; $p < 0.01$). This means that a 1-point increase in information exchange content leads to a 0.44 increase in information exchange quality. Alternatively, this means that a 1-point decrease in information exchange willingness leads to a 0.44 decrease in information exchange quality. The finding complements Transaction Cost Economics theory and previous studies such as Glavee-Geo *et al.*, (2020); Mohr and Sohi (1995); and Singogo (2014) that acknowledged the imperative of information exchange in the trading relationship without showing the association between information exchange contents and information exchange quality that ultimately may lead to perceived information exchange benefits.

As hypothesized in hypothesis three (H_3), the result on the path coefficient that described the association between information exchange quality and perceived information exchange benefits was positive (0.56) and statistically significant ($t = 7.69$; $p < 0.01$). This means that a 1-point increase in information exchange quality leads to a 0.56 increase in perceived information exchange benefits. Alternatively, this means that a 1-point decrease in information exchange quality leads to a 0.56 decrease in perceived information exchange benefits. The finding provides more justification for the positive association between information exchange quality and perceived information exchange benefits as requested by Peng *et al.*, (2014), and indicate that this is the construct that needs further justification. Moreover, the finding adds to Transaction Cost Economics theory and previous studies such as Glavee-Geo *et al.*, (2020); Mohr and Sohi (1995); and Singogo (2014) that acknowledged generally the imperative of information exchange in the trading relationship without showing specifically the association that exists between information exchange quality and perceived information exchange benefits.

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The Implications of the Study

The study adds theory, management, and policy implications to the existing studies. Firstly, the conceptual framework indicated some essential issues in the setting of the fishing industry in Tanzania to add literature on the association between information exchange willingness and information exchange quality; information exchange content and information exchange quality; information exchange quality and perceived information exchange benefits. As noted earlier, Transaction Cost Economics theory and previous studies on the association between information exchange and perceived information exchange benefits focused less on issues of information exchange willingness and content and how these are associated with information exchange quality that ultimately may lead to perceived information exchange benefits. Information exchange content and information exchange willingness play a vigorous role in enhancing the quality of information in the buyer-supplier relationship. When information exchange quality is effectively attained, it is highly expected for the communicating parties to often get the expected benefit from the information they exchange. With consideration to the Transaction Cost Economics, each part gets the expected benefit from the information exchanged, thus, enhancing operational and transactional costs as optimally as possible.

In line with Claro (2004), fish purchasing dealers in buyer-supplier relationships should ensure information exchange that brings benefits in terms of problem solving, quality control, timely and precise delivery, and proper price setting of fish. To attain such benefits, the establishment of information systems and centres that ensure information exchange willingness and contents that ultimately enhance information exchange quality is inevitable. In line with Lee *et al.,* (2000) and Mendelson (2000), to ensure information systems and centres that ensure information exchange willingness for fish purchasing dealers in buyer-supplier relationships, there should be availability of appropriate information exchange, regular exchange of information, and formal and official information exchange channels. Moreover, in line with Lee *et al.,* (2000) and Mendelson (2000), to ensure information systems and centres that ensure information exchange contents for fish purchasing managers in buyer-supplier relationships, there should be transactional information exchange, operational information exchange, and strategic information exchange. Furthermore, in line with Miller (2005) and Teng *et al.,* (1995), to ensure information systems and centres that ensure information exchange quality for fish purchasing managers in buyer-supplier relationships, there should be timely information exchange, adequate information exchange, accurate and credible information exchange, consistency in information exchange, and security and availability of information exchange.

Conclusion

This study was aimed at investigating the determinants and consequences of information exchange quality in the buyer-supplier dyadic relationship of the fishing industry in Tanzania. The study focused on determining the associations that exist between information exchange willingness and information exchange quality; information exchange content and information exchange quality; information exchange quality, and perceived information exchange benefits. The study found significant associations between information exchange willingness and information exchange quality; information exchange content and information exchange benefits; and information exchange quality and perceived information exchange benefits. The findings

have indicated that the presence of information exchange willingness and contents attribute to information exchange quality, which ultimately leads to perceived information exchange benefits in the buyer-supplier relationships in the fishing industry of Tanzania. The study calls for more comparative studies in the buyer-supplier relationships of other industries or different empirical settings.

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