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Measuring Business to Business of Inland Container Terminal Ports Service Quality in Tanzania: A Study of Dar Es Salaam Port, Tanzania

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Abstract:

Inland container depots play a critical role in the economy of many countries. Inadequate inland container cargo clearance may significantly affect customers, government agencies, shipping lines, cargo owners and results in their dissatisfaction. However, what constitute business to business of inland container depots service quality and its measurement has not been well assessed in the literature. Therefore, this study assesses measuring business to business of inland container terminal ports service quality in Dar es Salaam port in Tanzania.

Following a literature review, a conceptual model of B2B inland container depots using INDSEV model. The model was validated through a survey of 364 members of the all service providers and service users' managers in Dar es Salaam port. Partial least squares structural equation modeling (PLS-SEM) was conducted to confirm the INDSEV dimensions and to assess their relationship with business to business of inland container depot service quality using Smart PLS 3.2.8 software. B2B inland container depots service quality is found to be measured by four latent constructs, potential quality, process soft quality, process soft quality, and output quality and all of these latent constructs have significant positive effects on inland container depots service quality.

In addition to its academic contribution, this study also contributes to management practices because port managers can use the INDSEV scale to measure their B2B inland container depots service providers and user's satisfaction and justify value for money in the quality management of B2B service quality.

Keywords: Business to business, inland container depot, INDSEV, potential service quality, process soft quality

1. Introduction

Ports are well known as playing an important role in B2B service quality and local and international supply chains. Ports engage in various activities: loading/discharging cargo onto/from vessels; providing value-added services such as labeling, packaging, cross-docking, and others; and acting as warehouse and distribution centers (World Bank, 2007). Ports add more value to shipments that are in the port area by further integrating themselves into value chains. Many ports are increasingly being perceived as integrated and inseparable nodes in their customers' supply chains. Ports play a critical role in the effective and efficient management of this industry.

According to Asubontenget *et al.* (1996), due to increasing competition and the hostility of environmental factors, B2B cargo clearance service quality has become a cornerstone supply chain strategy for B2B companies. This highlights how useful measuring B2B cargo clearance service quality is to organizations for their growth since it could help them tackle these challenges they face in the competitive environments. This implies that B2B service quality-based companies are compelled to provide B2B cargo clearance quality services to their customers in order to have a sustainable competitive advantage. There is however, a need for these organizations to understand measurement of B2B cargo clearance service quality is in order to attain their objectives.

Handling large volumes of cargo at a minimum unit cost and shortest time is paramount in positively effecting on the B2B service quality supply chain network. (Notte boomand Rodriguez, 2009) observed that the evolution of inland container ports was looked at as the cycle in the continuous development of containerization and intermodal transport. Establishment and explosion in global supply chains in the 1990s, coupled with export-oriented growth strategies adopted by developing countries resulted into a paradigm shift in freight distribution systems. Multi modal transport and inland container ports turned out to be the focal point in the new supply chain and logistics strategy formulation, first with the implementation in USA and developed Europe, followed by East Asian countries and then more recently Africa. This was mainly due to insatiable focus on trade which resulted into diminishing returns, congestion, and a significant fall in efficiency.

Inland container Depot evolved out of the challenges that faced existing Dar es Salaam port i.e., due to the increase in size and capacity of container vessels, port increasingly faced the challenge of inability to handle export and import cargo in an efficient manner. This resulted into congestion at Dar es Salaam ports due to long waiting time of trucks and haulage vehicles (Woxenius *et al.* 2004). Notteboom and Rodriguez (2009), argued that the evolution of inland container depots was looked at as the cycle in the continuous development of containerization and intermodal transport.

Unreliability in ports' services results in unhappy customers as a result of the disruption in the smooth movement of these flows in the next stage of the supply chain. Existing studies relating to the measurement of port efficiency and port choice in the logistics and supply chain context is well developed. What measure port B2B cargo service quality has yet to be well investigated. Despite number studies on service quality measurement in various sectors, little studies has been conducted in the cargo clearance in general and inland container depot in particular

In this paper, we aim to address these gaps in the literature by proposing and validating an INDSEV conceptual model of B2B service quality.

The specific research objectives are:

- To assess the effect of process hard quality on measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port;
- To assess the effect of process soft quality on measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port;
- To assess the effect of potential quality on measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port;
- To assess the effect of output quality on measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port;
- To assess the mediation effect of output quality, process hard quality and soft quality in the relationship between potential quality and measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port.

2. Literature Review

Leveque and Roso (2002) considered an inland container depot as "dry port directly linked to seaport with high capacity transport means, where customers can leave or pick up their standardized unit as if directly as a seaport. This definition takes into account the fact that an inland container depot does not only do the traditional role of transshipment as inland container depot but also to this role, it provides other services for example: consolidation, storage (both cargo and empty containers), maintenance and repair of containers, and customs clearance and maintenance (Wang and Wei 2008).

According to the United Nations Conference on Trade and Development (UNCTAD, 1991) an inland container depot is "a common user facility with public authority status, equipped with fixed installations and offering services for handling and temporary storage of any kind of goods (including containers) carried under customs transit by any applicable mode of transport, placed under customs control and with customs and other agencies competent to clear goods for home use, warehousing, temporary admissions, re-export, temporary storage for onward transit and outright export." Thus, Inland Containers depots evolved out of the challenges that faced existing Dar es Salaam ports i.e., due to the increase in size and capacity of container vessels, sea ports increasingly faced the challenge of inability to handle export and import cargo in a regular manner. This regularly resulted into congestion at different sea ports due to long waiting time of haulage and trucks vehicles (Werikhe and Zhihong, 2015; Woxenious *et al.* 2004).

Gronroos (1983.) considered the service quality as the relationship between the buyers' expectations upon the service offered to them and the one really delivered.

Based on the interactive approach to the B2B service quality, Lee (2011) suggested four variables model to the service quality with three -dimensional approach describes the service quality from the service provider's point of view that is through the, potential quality, process quality (hard and soft) and the output quality. In this approach the concept of the process quality is based on the fact that the service production and its utilization cannot be observed separately, because the several service providers have their contribution in the production process. The process quality level will therefore depend on the way in which both the service providers and the users participate in the service delivery, i.e. if their style of participation is complementary, the process quality will probably be higher.

2.1. Conceptual Framework

The conceptual framework (Figure 1) explains the underlying process, which is applied to guide this study. As discussed above, the INDSEV model is suitable for measuring service quality in inland container B2B services using the INDSEV service quality dimensions. This is line with Gronroos, (1982), technical quality dimension which is used to measure service quality.

Figure 1: Conceptual Framework

2.2. Potential Quality

Potential service quality relates to the search attributes that customers use to evaluate the provider's ability to perform the service before the relationship has begun (Gounaris, 2005).

Terminal and ICDs Potential quality (TermICDPQ).

Terminal potential service quality relates to the search attributes that importer, exporter and freight forwarders use to evaluate the Terminal's ability to perform cargo clearance before the documents processed in Terminal.

2.3. Process Hard Quality

Hard process quality comprises of "what" is being performed during the service process. This variable the service user's concern with respect to processes through which the services are the assessment of the appropriateness of these processes to produce the best solution timely and according to the service user's need. Hard process quality relates to what the customer receives in material terms. Hard process quality represents the core component of the service performed during the process and primary need of the customer like an employee's technical skills, ability, and accuracy in servicing a firm's customers (Lee, 2011).

Terminal hard process quality comprises of "what" is being performed during the terminals clearance process. This variable relates to the importer, exporter and Freight forwarder's concern with respect to Terminals clearance processes. It focus on through which the clearance process is delivered and the assessment of the appropriateness of these clearance processes to produce the best solution timely and according to the importer, exporter and freight forwarder's need

2.4. Process Soft Quality

Process Soft quality pertains to "how" the service is performed during the service process. The soft process quality variable denotes the service user's assessment regarding the interaction with the first line employees from the service provider with whom interaction is developed as a result of the service delivery effort. It goes beyond courtesy capturing communal elements of the interaction between managers of companies or more in understanding customers' needs and personality matching. In B2B services extended and intimate exchanges are required to produce successful outcomes (Gounaris, 2005).

Terminal and ICDs process soft quality pertains to "how" the Terminal service performed during cargo clearance. The terminal soft quality variable denotes the importer's, exporter's and freight forwarder's assessment regarding the interaction with the first line terminal employees with whom interaction developed as a result of the cargo clearance delivery effort.

2.5. Output Quality

Output quality pertains the service user's concern regarding the actual offering delivered. This variable comprises not only the results of the technical efforts to service delivery but also the impact that the service delivery consequently produces for the buying organization. Output service quality describes the effects that the solution offered that created for the client after it had been implemented (Gounaris, 2005). In this study output quality mediate both potential quality, hard quality, and soft quality.

Terminal Output quality pertains the importer's, exporter's and freight forwarder's concern regarding the actual terminal clearance delivered. This variable comprises not only the results of the technical efforts to terminals clearance delivery but also the impact that the Terminals clearance delivery consequently produces for the importer's, exporters and freight forwarders.

2.6. B2B Service Quality

B2B multi-process service quality of cargo clearance defined as service that satisfies port user's requirements from cargo clearance service providers. A complexity of cargo clearance service quality is due to the existence of different processes and multiple service providers (Hirimba, 2015). Cargo clearance measured by speed of completion processes in the chain (Ibrahim and Primiana, 2015).

2.7. Hypothesis

Specific research objectives are:

- H1: There is positive effect of process hard quality on measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port;
- H2: There is positive effect of process soft quality on measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port;
- H3: There is positive effect of potential quality on measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port;
- H4: There is positive effect of output quality on measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port;
- H5: There is positive mediation effect of output quality, process hard quality and soft quality in the relationship between potential quality and measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port.

3. Methods

3.1. Research Design

The current study Design is non-experimental, cross sectional survey and explanatory type research. Cross-sectional design facilitated deeper understanding of the subject. The study was employed quantitative data to give answer for the research question. Close ended questionnaires were used for collecting quantitative data from sampled respondents.

3.2. Sample

The researcher distributed 482 questionnaires and managed to collect 364

3.3. Data Sources

3.3.1. Service Quality Measurement Variables and Instruments

Measurement scale of the perceived quality of inland container depot business to business service quality consisted of 34 statements. The dimension of the quality of service potential was measured via 7 indicators, the dimension of process hard quality via 6, process hard quality through 7 items, output quality via 6 indicator and the dimension of business to business service quality via 5 indicators.

A numerical scale with seven intervals (1-strongly disagree, 7-strongly agree) was used to measure the perception of individual quality dimensions. Table 1 presents an overview of the statements used in the empirical research of the business to business service quality.

Symbol	Indicator	Scale
	ICDs potential quality	1-strongly disagree, 7-strongly agree
ICDPQ_1	Terminal and ICDs uses up to date technology for cargo clearance	
ICDPQ_2	Terminal and ICDs have sufficient modern equipment for cargo clearanc	
ICDPQ_3	Terminal and ICDs has comptent professional personnel to handle cargo clearance	
ICDPQ_4	Terminal and ICDs have sufficient equipment to comunicate with its clients	
	ICDs Process hard quality	1-strongly disagree, 7-strongly agree
ICDPHQ_1	Terminal and ICDs procedures are well designed, clear, detailed enough, known and easy to conform	
ICDPHQ_2	Terminal and ICDs timely and effectively perform cargo clearance	
ICDPHQ_3	Terminal and ICDs honor its claims and financial obligations timely	
ICDPHQ_4	Terminal and ICDs adherence to client cargo clearance schedule	
ICDPHQ_5	Terminal and ICDs have system for transferring documents to other service providers on time	
ICDPHQ_6	Terminal and ICDs are located near by to facilitate cargo clearance	
	ICDs Process Soft Quality	1-strongly disagree, 7-strongly agree
ICDPSQ_1	Terminal and ICDs accept responcebility once caused delay on cargo clearance	
ICDPSQ_2	Terminal and ICDs does not change frequently its procedures and tariffs	
ICDPSQ_3	Terminal and ICDs listen to client	
ICDPSQ_4	Terminal and ICDs personel are not requesting for bribers in oder to pass documents	
ICDPSQ_5	Terminal and ICDs has/have competent and pleasants personel	
ICDPSQ_6	Terminal and ICDs encourage active involvement of their clients on providing their service	
ICDPSQ_7	Terminal and ICDs and its personel take interest of client at heart	
	ICDs Output Quality	1-strongly disagree, 7-strongly agree
ICDOQ_1	Terminal and ICDs clear documents accurately on time	
ICDOQ_2	Terminal and ICDs service delivery reduce cargo clearance cost	
ICDOQ_3	Terminal and ICDs service delivery contribute to positive port cargo clearance image	
ICDOQ_4	Terminal and ICDs service delivery simplify and facilitate international trade	
ICDOQ_5	Terminal and ICDs procedures compatible with other service providers procedures	
ICDOQ_6	Terminal and ICDs service are timely offered	
	B2B Cargo clearance service quality	1-strongly disagree, 7-strongly agree
BSQ_1	Cargo clearance service providers providing their services concurrent	
BSQ_2	Cargo clearance service providers have efficient communication between each other	
BSQ_3	Cargo clearance service providers are electronically connected	
BSQ_4	Cargo clearance service provider(s) has harmonized procedures	
BSQ_4	Cargo clearance service providers has one clearance platform	

Table 1: Overview of Attribute Symbols Attributes and Scales of the Researched Theoretical Constructs

3.4. Data Analysis

This study used a quantitative approach where data were entered in SPSS software version 23. After the data collection, validation by conducting consistency checks to eliminate or control errors and missing information as practicable were done. Data were analyzed using Smart PLS version 3 (Hair et al., 2013; Hair et al., 2017) computer program. PLS-SEM was used to test the measurement of B2B multi-process cargo clearance service quality in Dar es Salaam port. Descriptive, inferential, and mediation analyses and the importance -performance matrix analysis were conducted based on Lee (2011) B2B service quality model.

3.5. Respondents Profile

Each respondent completed a survey questionnaire that contained items related to B2B cargo clearance service quality. In addition, each respondent also provided his or her demographic details such as gender, Type of organization, ownership of a firm, duration in the cargo clearance operations, education level, and age. The demographic characteristics of the respondents are given in Table 4. 1.

Demographic variable	Category	Frequency	Percentage
Gender	Male	227	62.4
	Female	137	37.6
Type of organization	Customs Authority	33	9.1
	OGDS	11	3.0
	Shipping Agency	21	5.8
	Inland Container Depots	9	2.5
	Freight forwarding agent	41	11.3
	Importer and exporter	149	40.9
Ownership of a firm	Government institution	44	12.1
	Pure Locally owned	264	72.5
	Pure Foreign owned but based in Tanzania	3	.8
	Joint Venture Between Foreign and Local investors	38	10.4
Duration in the cargo clearance operations	Multinational company operating in Tanzania	15	4.1
	Less than one year	10	2.7
	Between 2 and 5 years	42	11.5
	Over 5 – 10 years	204	56.0
	Over 10 – 20 years	105	28.8
Education level	Over 20 years	3	.8
	Standard seven	4	1.1
	O' Level secondary education	9	2.5
	A' Level secondary education	38	10.4
	Diploma level	180	49.5
	First degree level	124	34.1
Age	Post graduate level	9	2.5
	20 to -30 years	31	8.5
	31 to 40 years	155	42.6
	41 to 50 years	144	39.6
	51 to 60 years	33	9.1
	Over 60 years	1	.3

Table 2: Sample Demographic

4. Results Assessment of the Measurement Model First Order Constructs

4.1. Reliability and Multicollinearity

The assessment of the reliability of the items depends on examining the outer loadings. A popular rule of thumb is to accept items with outer loadings of 0.707. In Table 1 the outer loadings for all first order constructs of each measurement item are provided. The t-test of all the loadings is at the $p < 0.05$ level. All the loadings are above acceptable value and significant. The reliability and convergent validity of the constructs is evaluated by analyzing the Cronbach's alpha and composite reliability of the indicator. Nunnally (1978) recommends a value of 0.70 (in exploratory research, 0.60 to 0.70 is considered acceptable) as a threshold value for this indicator. The Cronbach's alpha scores ranged between 0.783 and 0.882 while the composite reliability scores ranged between 0.72 and 0.86, indicating adequate convergence or internal consistency. Thus, multi-collinearity was not a concern in this study, VIF value ranged from 1.358 through 1.99 below cut off of 5 VIF (Hair et al., 2017)

4.2. Validity

The average variance extracted (AVE) provides an assessment of convergent validity. Fornell and Larcker (1982) recommend an AVE value ≥ 0.50 . This means that 50% or more of the indicator variances should be accounted for. Consistent with this suggestion, all the constructs have an AVE value above this minimum threshold as shown in Table 1. This study assesses the discriminant validity by Fornell-Larcker criterion, i.e., the AVE, square root of each construct is higher than the absolute value of their correlation (ranges between 0.46 to 0.619)

Item	Outer loadings	Multicollinearity	t-value	Composite reliability	Cronbach alpha	Average Variance Extracted	Fornell and Larker
Potential quality				0.860	0.783	0.605	0.778
ICDPQ_1	0.736	1.36					
ICDPQ_2	0.788	1.66					
ICDPQ_3	0.783	1.66					
ICDPQ_4	0.803	1.59					
Process hard quality				0.890	0.852	0.754	0.758
ICDPHQ_1	0.752	1.61	22.71				
ICDPHQ_2	0.764	1.87	21.80				
ICDPHQ_3	0.756	1.85	18.73				
ICDPHQ_4	0.746	1.78	16.74				
ICDPHQ_5	0.739	1.61	18.67				
ICDPHQ_6	0.787	1.96	20.53				
Potential soft quality				0.720	0.780	0.710	0.760
ICDPSQ_1	0.717	1.80	11.77				
ICDPSQ_2	0.759	1.99	13.82				
ICDPSQ_3	0.602	1.53	8.90				
ICDPSQ_4	0.602	1.67	7.23				
ICDPSQ_5	0.838	1.88	12.38				
ICDPSQ_6	0.731	1.66	12.91				
ICDPSQ_7	0.759	1.90	12.79				
Output quality				0.906	0.875	0.605	
ICDOQ_1	0.786	1.857	25.93				
ICDOQ_2	0.827	2.302	29.89				
ICDOQ_3	0.771	2.059	22.70				
ICDOQ_4	0.767	2.117	20.49				
ICDOQ_5	0.769	1.945	23.34				
ICDOQ_6	0.789	2.078	19.98				
B2B				0.875	0.822	0.574	
BSQ_1	0.764	1.623	17.67				
BSQ_2	0.762	1.642	17.36				
BSQ_3	0.787	1.827	22.45				
BSQ_4	0.715	1.587	10.81				
BSQ_5	0.792	1.828	22.84				

Table 3: Results Assessment of the Measurement Model First Order Constructs

4.3. Assessing of Hierarchical Second Order Constructs

This study conceptualizes process hard quality and process soft quality as the latent construct of second order using repeated indicators approach (Riel *et al.*, 2017). Researcher have proposed number of approaches for specifying and estimating second order constructs in PLS SEM. The most used one are repeated indicator approach and two stage approach (Ringle *et al.*, 2012).

In the repeated indicators approach, the items of the first-order constructs are reused for the second-order construct. This procedure to model second order constructs with PLS is based on the hierarchical components approach suggested by Wold (1982). In essence, in this approach a second-order construct is directly measured by using all of the first-order common factors' manifest variables. For example, when a second-order construct is made up of three first-order constructs with five manifest variables each, all these 15 items would be reused as indicators for the second-order construct. This is the most frequently used method for estimating higher-order constructs in PLS (Riel *et al.*, 2017). The lower order components form the higher order component (reflective-formative types adopted in this study), the direction of relationships is from the lower order latent constructs to higher latent construct and therefore represents weights (Sarstedt *et al.*, 2019). Thus, this study used the standard measurement model evaluation criteria to the path relationships between the lower order and higher order latent construct by using (1) convergent validity, (2) collinearity between indicators and (3) significance and relevance of outer weights. According to Sarstedt *et al.*, (2019:4), "researcher have to assess the discriminant validity of the higher order component by considering its lower order components as the measurement model of the higher-order component".

Figure 2: Reflective-Formative Of Inland Container Depot B2B Service Quality Repeated Indicators Approach(Sarstedt et al., 2019).

4.4. Convergent Validity

The convergent validity refers to the validity of reflective-formative construct that measures how a specific measurement truly measures the latent construct.

Hair *et al.* (2017) and Sarstedt *et al.* (2019) recommended a measurement model of second order should employ average variance extracted (AVE) for checking convergent validity of second order constructs. According to Hair *et al.* (2017) recommendations, AVE value threshold is 0.5. Thus by using repeated indicators approach (Sarstedt *et al.*, 2019), the Table 4 below presents the results of second order latent constructs, which indicates that the convergent validity was sufficient or ensured. This is consistent with Hair *et al.* (2017) suggestions and suggesting that the measures are reliable.

Construct	Average Variance Extracted (AVE)
OQ	0.395
Potential quality (PQ)	0.605
Process hard quality (PHQ)	0.574
Process soft quality (PSQ)	0.522

Table 4: Second Order Measurement Model Displays a Convergent Validity

4.5. Collinearity between Indicators

The variance inflation factor (VIF) allowed for testing for multicollinearity. As a rule of thumb in PLS-SEM, a VIF value higher than 5 indicates a critical level of multicollinearity (Hair *et al.*, 2017). In Table 5 presents that, the VIF values for items of the second order latent construct models range from 1.358 via 2.167, thus is consistent with Hair *et al.* (2017) recommendations, that there was no threats for multicollinearity in our data set.

Indicators	VIF		Indicators	VIF
ICDPHQ_1	1.613		ICDPQ_3	1.657
ICDPHQ_1	1.889		ICDPQ_4	1.761
ICDPHQ_2	1.875		ICDPQ_4	1.595
ICDPHQ_2	1.943		ICDPSQ_1	1.799
ICDPHQ_3	1.851		ICDPSQ_1	1.907
ICDPHQ_3	1.966		ICDPSQ_2	1.988
ICDPHQ_4	1.78		ICDPSQ_2	2.167
ICDPHQ_4	1.888		ICDPSQ_3	1.529
ICDPHQ_5	1.613		ICDPSQ_3	1.57
ICDPHQ_5	1.68		ICDPSQ_4	1.668
ICDPHQ_6	1.96		ICDPSQ_4	1.72
ICDPHQ_6	2.048		ICDPSQ_5	1.878
ICDPQ_1	1.58		ICDPSQ_5	2.022
ICDPQ_1	1.358		ICDPSQ_6	1.662
ICDPQ_2	1.774		ICDPSQ_6	1.734
ICDPQ_2	1.659		ICDPSQ_7	1.903
ICDPQ_3	1.694		ICDPSQ_7	1.979

Table 5: Multicollinearity Statistics

4.6. Significance and Relevance of Outer Weights

Weights indicate the relative contribution of items to its construct.

Indicators	Constructs			
	OQ	Potential quality (PO)	Process hard quality (PHQ)	Process soft quality (PSQ)
ICDPHQ_1			0.233	
ICDPHQ_1	0.103			
ICDPHQ_2			0.212	
ICDPHQ_2	0.096			
ICDPHQ_3			0.216	
ICDPHQ_3	0.100			
ICDPHQ_4			0.219	
ICDPHQ_4	0.097			
ICDPHQ_5			0.212	
ICDPHQ_5	0.094			
ICDPHQ_6			0.228	
ICDPHQ_6	0.102			
ICDPQ_1	0.081			
ICDPQ_1		0.333		
ICDPQ_2	0.075			
ICDPQ_2		0.298		
ICDPQ_3	0.076			
ICDPQ_3		0.305		
ICDPQ_4	0.086			
ICDPQ_4		0.350		
ICDPSQ_1				0.159
ICDPSQ_1	0.096			
ICDPSQ_2				0.218
ICDPSQ_2	0.103			
ICDPSQ_3				0.139
ICDPSQ_3	0.087			
ICDPSQ_4				0.108
ICDPSQ_4	0.085			
ICDPSQ_5				0.314
ICDPSQ_5	0.108			
ICDPSQ_6				0.235
ICDPSQ_6	0.095			
ICDPSQ_7				0.171
ICDPSQ_7	0.099			

Table 6: Outer Weights

4.7. Indicator Weights/loadings/significance

Indicator ICDPSQ_4 to process soft quality (PSQ) is not significant has $P > .05$ (Table 7). for example, $p = .07$. The researcher had not dropped this indicator for non significant weight estimates. In fact, we considered content validity, because if we dropped this indicator may have altered the meaning of exogenous variable. Thus, in this study we decided to keep an item with non-significant weight to preserve the construct's content validity (Hair *et al.*, 2017). Indeed, all weight estimates show the expected sign and are significant at a 5% significance level except one ICDPSQ_4 of the process soft quality. The weight estimate of this item is 0.108, and its composite loading estimate is 0.654 is significant. Taking into account content validity the ICDPSQ_4 of the process soft quality may incorporate some of the B2B business' important business processes. Therefore, we concluded to retain the item in the empirical analysis to accommodate content validity and avoid changing the conceptualization of the exogenous variable of process soft quality.

	Weights	Loadings	Standard Deviation	T Statistics	P Values
ICDPHQ_1 <- Process hard quality (PHQ)	0.233	0.748	0.015	15.385	0.000
ICDPHQ_1 <- OQ	0.103	0.693	0.007	14.513	0.000
ICDPHQ_2 <- Process hard quality (PHQ)	0.212	0.772	0.013	16.41	0.000
ICDPHQ_2 <- OQ	0.096	0.65	0.008	12.633	0.000
ICDPHQ_3 <- Process hard quality (PHQ)	0.216	0.767	0.013	16.304	0.000
ICDPHQ_3 <- OQ	0.100	0.667	0.008	12.915	0.000
ICDPHQ_4 <- Process hard quality (PHQ)	0.219	0.741	0.015	14.327	0.000
ICDPHQ_4 <- OQ	0.097	0.652	0.009	11.288	0.000
ICDPHQ_5 <- Process hard quality (PHQ)	0.212	0.734	0.013	16.868	0.000
ICDPHQ_5 <- OQ	0.094	0.629	0.007	13.123	0.000
ICDPHQ_6 <- Process hard quality (PHQ)	0.228	0.783	0.013	17.341	0.000
ICDPHQ_6 <- OQ	0.102	0.681	0.007	14.218	0.000
ICDPQ_1 <- OQ	0.081	0.542	0.013	6.132	0.000
ICDPQ_1 <- Potential quality (PQ)	0.333	0.733	0.042	7.845	0.000
ICDPQ_2 <- OQ	0.075	0.504	0.011	7.031	0.000
ICDPQ_2 <- Potential quality (PQ)	0.298	0.791	0.025	11.89	0.000
ICDPQ_3 <- OQ	0.076	0.513	0.009	8.308	0.000
ICDPQ_3 <- Potential quality (PQ)	0.305	0.786	0.026	11.73	0.000
ICDPQ_4 <- OQ	0.086	0.573	0.008	10.485	0.000
ICDPQ_4 <- Potential quality (PQ)	0.350	0.8	0.025	14.111	0.000
ICDPSQ_1 -> Process soft quality (PSQ)	0.159	0.734	0.062	2.573	0.010
ICDPSQ_1 <- OQ	0.096	0.653	0.008	12.696	0.000
ICDPSQ_2 -> Process soft quality (PSQ)	0.218	0.778	0.06	3.663	0.000
ICDPSQ_2 <- OQ	0.103	0.692	0.008	13.209	0.000
ICDPSQ_3 -> Process soft quality (PSQ)	0.139	0.658	0.059	2.35	0.019
ICDPSQ_3 <- OQ	0.087	0.594	0.009	10.017	0.000
ICDPSQ_4 -> Process soft quality (PSQ)	0.108	0.654	0.06	1.796	0.073
ICDPSQ_4 <- OQ	0.085	0.59	0.009	8.963	0.000
ICDPSQ_5 -> Process soft quality (PSQ)	0.314	0.804	0.068	4.634	0.000
ICDPSQ_5 <- OQ	0.108	0.703	0.008	12.839	0.000
ICDPSQ_6 -> Process soft quality (PSQ)	0.235	0.72	0.067	3.516	0.000
ICDPSQ_6 <- OQ	0.095	0.634	0.009	10.868	0.000
ICDPSQ_7 -> Process soft quality (PSQ)	0.171	0.758	0.055	3.112	0.002
ICDPSQ_7 <- OQ	0.099	0.67	0.007	13.736	0.000

Table 7: Indicators Weights, Loadings and P Values

Note: All T-Values above 1.96 Are Significant at the 0.05 Level $P < 0.05$, Two Tailed Test. All "P Value in the Table 7 All Produce by Ordinary Plsbootstrapping

4.8. Assessment of Structural Model

The PLS-SEM procedure does not employ the conventional goodness of measures (Ali *et al.*, 2018)

Figure 3: Reflective-Formative Specification of Inland Container Depot B2B Service Quality (Repeated Indicator Approach)

Figure 4: Reflective-Formative Repeated Indicator Approach of Inland Container Terminal Depot Service Quality and PLS-Sem Results

4.9. Multicollinearity between constructs

Construct	B2B Inland Container Terminal Service Quality	Output Quality	Process Hard Quality (PHQ)	Process Soft Quality (PSQ)
B2B inland container terminal service quality				
Output quality	1.868		1.102	1.39
Potential quality (PQ)	1.397	1.378	1.231	1
Process hard quality (PHQ)	1.839	1.777		1.21
Process soft quality (PSQ)	2.181	1.720	1.434	

Table 8: Multicollinearity Statistics

4.10. Significance and Relevance of the Path Coefficients

Figure 5: Third Order Construct Structural Model (PLS SEM Bootstrapping Analysis)

4.11. Coefficient of Determination R^2

This study aimed to examine the direct link between potential quality B2B inland container depots with the mediating role of process hard quality, process soft quality and output quality. Here, Table 9 and Figure 5 present a comprehensive estimation of the structural model with statistical evidence to this proposed model. The coefficient of determination (R^2) is an essential criterion for the structural model. Various scholars have explained that the value of R^2 presents a proportional variation of exogenous variables and the predicting variable(s) can describe it appropriately (Hair *et al.*, 2017). In fact, the R^2 value ranges from 0 to 1, with higher levels signifying higher levels of predictive accuracy. According to the recommendations of Cohen [1988], R^2 values (0.26, 0.13 and 0.02) related to endogenous constructs might be interpreted as substantial, moderate or weak respectively. While, in marketing research, R^2 values of 0.75, 0.50, or 0.25 for endogenous latent constructs can, as a rule of thumb, be correspondingly described as substantial, moderate, or weak (Hair *et al.* 2017).

However, the (R^2) value of the endogenous variable (B2B inland container depot service quality) was 0.999, which indicates the PLS-SEM analysis produces smaller predication errors because all indicators of the lower -order constructs are to identify the higher order component; hence, the higher order component's variance was fully explained by lower order components (For example R^2 value 0.999 is near to unity that the combinations of exogenous latent variables namely, potential quality, process hard quality and output quality jointly explain 99.9% of the variance in a B2B inland container terminal depots service quality. However, the R^2 value (R^2) of (a B2B inland container terminal depots service quality) the endogenous latent construct was significant as shown in Figure 5 and Table 9.

	R Square	R Square Adjusted
B2B inland container terminal service quality	0.999	0.999
Output quality	0.465	0.46
Process hard quality (PHQ)	0.234	0.232
Process soft quality (PSQ)	0.209	0.207

Table 9: Explanatory Power Statistics

4.12. Path Coefficients

The first hypothesis (H1, H2, H3, H4,H5,H6,H7,H9,H10,H11 and H12) were also supported since there is a significant positive effect of process hard quality on the relationship potential quality and B2B inland container terminal service quality ($\beta = 0.32$, $P = 0.000$). The hypothesis (H8) not supported, is rejected since it has an insignificant p-value of 0.051 ($p > 0.05$). Its associated path coefficient is 0.099. which indicated that there was not a significant relationship potential quality and output quality. The results of hypotheses H5, H6, and H7 showed that output quality, process hard quality and process soft quality mediated the relationship between the potential and inland container depots B2B service quality respectively.

Finally, the findings of this study confirmed positive relationship all hypotheses for bias corrected confidence interval and except hypothesis H8 point estimate as indicated in Table 10.

Structural Path	Hypothesis		path coefficient	t value (bootstrap)	95% BCa Confidence interval	P Values	Decision
	No.	Sign					
Process hard quality (PHQ) -> B2B inland container terminal service quality	H1	+	0.32	15.644	0.287, 0.374	0.000	supported
Process soft quality (PSQ) -> B2B inland container terminal service quality	H2	+	0.373	15.37	0.337, 0.433	0.000	supported
Potential quality (PQ) -> B2B inland container terminal service quality	H3	+	0.173	8.316	0.131, 0.205	0.000	supported
Output quality -> B2B inland container terminal service quality	H4	+	0.351	12.473	0.302, 0.408	0.000	supported
Potential quality (PQ) -> Output quality -> B2B inland container terminal service quality	H5	+	0.035	0.017	0.009, 0.073	0.034	supported
H6: Potential quality (PQ) -> Process hard quality (PHQ) -> B2B inland container terminal service quality	H6	+	0.155	0.023	0.106, 0.196	0.000	supported
Potential quality (PQ) -> Process soft quality (PSQ) -> B2B inland container terminal service quality	H7	+	0.171	0.024	0.118, 0.213	0.042	supported
H8: Potential quality (PQ) -> Output quality	H8	+	0.099	1.957	0.024, 0.221	0.051	Not supported
Potential quality (PQ) -> Process hard quality (PHQ)	H9	+	0.484	6.405	0.329, 0.62	0.000	supported
Potential quality (PQ) -> Process soft quality (PSQ)	H10	+	0.458	6.036	0.283, 0.58	0.000	supported
Process hard quality (PHQ) -> Output quality	H11	+	0.182	2.315	0.039, 0.346	0.021	supported
H12: Process soft quality (PSQ) -> Output quality	H12	+	0.497	4.9		0.000	supported

Table 10: Structural Model Results and Hypothesis Testing

Note: Significant At The 5% Level (P -Value < 0.05)

4.13. Predictive Power

In addition to evaluating the magnitude of coefficient of determination (R^2) as a criterion of predictive accuracy, we tested Stone-Gesser's Q^2 value (Geisser, 1974; Stone, 1974. According to Hair *et al.* (2017:202) that, " Q^2 is an indicator of the model's out of sample predictive power or relevance". The inner model varying magnitude of predictive relevance to the endogenous latent construct is 0.35, high for B2B inland container terminal depot service quality and small for output quality, process hard quality, and Process soft quality for 0.258, 0.125, and 0.101 respectively. Hence, all Q^2

values are considerably above 0, thus, providing evidence for the structural model's predictive relevance in terms of out-of-sample prediction (Hair *et al.*, 2017)

Latent Construct	SSO	SSE	Q ² (=1-SSE/SSO)
B2B inland container terminal service quality	8,372.00	5,442.63	0.350
Output quality	2,184.00	1,620.33	0.258
Potential quality (PQ)	1,456.00	1,456.00	
Process hard quality (PHQ)	2,184.00	1,911.71	0.125
Process soft quality (PSQ)	2,548.00	2,289.60	0.101

Table 11: Construct Cross validated Redundancy

4.14. Model Fit

This study also determined the overall model fit through standardized root-mean square residual (SRMR) as the root mean square discrepancy between the observed correlation and the model implied correlations. This study follows Henseler *et al.* (2014) and define the standardized root mean square residual (SRMR) as an index for model validation. The SRMR is the absolute measure of fit, a value of 0 indicates a perfect fit, when consider values below 0.08 employed in CB-SEM is normally considered good fit (Hu and Bentler, 1998) but this value is too low for PLS-SEM and Henseler *et al.* (2014) suggest cut off of 0.12 values, values less than 0.12 is considered well fit the model, while greater than 0.12 considered a lack of fit (Hair *et al.* 2017). In this study, the model estimation with PLS-SEM reveals a saturated SRMR value of 0.08, which confirms the overall fit of PLS path model (See Table 12).

	Saturated Model	Estimated Model
SRMR	0.07	0.08

Table 12: Model Fit

5. Conclusion and Recommendation

5.1. Conclusion

This study was aimed to assess measuring business to business of inland container depot service quality in Dar es Salaam port in Tanzania. The results of this research strongly indicate that all four latent constructs namely Potential quality, Process Hard Quality, Process Soft Quality and Output Quality have a direct and indirect significant positive effect on measuring business to business of inland container terminal ports service quality in Tanzania in Dar es Salaam port. Also, this finding is unique for the cargo clearance because it introduced and empirically validated the measurement of inland container depot B2B cargo clearance service quality.

To this end, our empirical tests show that inland container depots base their evaluation of the perceived B2B cargo service quality on their evaluation of four corresponding latent constructs: Potential quality, Process Hard Quality, Process Soft Quality and Output Quality. The combination of all these four latent constructs constitutes a cargo clearance's overall perception of the B2B cargo clearance quality of service. On the basis of these findings, it appears that a hierarchical conceptualization of B2B inland container depots cargo clearance service quality is appropriate. As a result, our study is in-line with recent developments in conceptualizing and measuring perceived service quality, this finding is consistent with other studies which tried to measure these relationships (Brady and Cronin 2001; Gounaris, 2005), consolidates multi process cargo clearance service quality conceptualizations within a single, comprehensive, multidimensional framework, with a strong theoretical base suitable for capturing the actual components that comprise Cargo clearance service quality in the B2B environments.

This study also confirmed that delivering a potential quality, process service quality and output quality have a significant positive effect on B2B cargo clearance service quality.

Additionally, this higher order construct model's conception of B2B cargo clearance service quality is in line with contemporary advancements in the study of B2B service quality which calls for a new direction in service quality research. These advances are particularly important because a multi-process of B2B cargo clearance service quality is associated with several key organizational results, including storage, clearance and transshipments.

The measuring of B2B inland container depots service quality have inadequate studies. The results from this study reveal and validate that INDSEV model is a model of four latent constructs and these constructs positively influence inland container depot B2B service quality.

5.2. Limitations and Future Research Directions

Our study is not free of limitations, which however, future research may easily resolve. One such limitation is the one port context of the study.

Although in this study cargo clearance service providers from private and public were investigated, if one follows Lovelock's (1983) classification than, for instance, all four types of services investigated are quite intangible and there is a lack of any formal relationship between the provider and the client. Thus, again, future research is required in other types of B2B cargo clearance services so that a more detailed investigation of the psychometric properties can become possible.

The results showed that process hard quality is a fundamental latent construct in improving B2B multi-process service quality. In the model, we included second-order latent constructs such as potential quality, process soft quality, process hard quality and output quality for third order as a driver of B2B multi-process service quality. The less than one R^2 for B2B Multi-process inland container depot cargo clearance shows that there are other variables at stake that possibly impact B2B multi-process service quality.

The study employed B2B service category based on Dar es salaam port only. The study warrants further explanation and exploration for transferrable and representation of B2B cargo clearance within other population. This study is cross sectional research and therefore lacks causality. This study can be improved by conducting a longitudinal research design.

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