We only have one strategy to deal with complexity and change, as John Zachman put it. "Management of enterprise architecture. Institutions that want to remain competitive and gain an edge have just one option given the growth and growth pace of growth. Enterprise architecture management "

The major challenge in architectural transformation is to swiftly decide what to do and how to do it in order to use time and money resources as efficiently as possible to meet the institution's goals in the face of the sector's complexity and rapid change. Identifying the institution's business operations, competencies, and knowledge capitals to be developed is the what question in this situation. Which enterprise architecture management will be used is the question at hand.

There is a Architecture structure of its company and an architecture of its behavior, which is why the transition occurs architecturally. Without carrying out the structuring of functional structures or the highlighting of capabilities in important organs, units of good or bad architecture pass. Enterprise architecture management is a comprehensive management discipline that offers the institution business benefits, technology, program and data processing in an architecturally sound manner, enhancing ways, risk and better management to help it reach strategic certainty.

The most frequently used corporate architecture technique in the world, TOGAF (The Open Group Architecture Framework), was used as a guide for creating this architectural discipline. DDD (Domain Driven Design), Micro Service design, BPM2.0 [6], and Event Storming techniques are some approaches we employ to construct this design.

The strategic target is clear, the desired point is clear, how to get there, how to deal with the Strategy/business/technology dimensions of the transformation journey, and how to reduce various cost items while increasing experience and efficiency are all addressed in this study under the umbrella of digital transformation. The research approaches employed and the findings that pertain to the management of the most significant cultural dimension are mentioned.

The main reasons for the need for this study are that there is no workflow in applications that can look at the processes holistically, that there are repetitive studies because there is no shared language between the business unit and technology teams, that business processes cannot be developed because of insufficient business execution maturity, and that there are similar processes that serve similar purposes because of application diversity. Enthusiasm started a major change process.

What is TOGAF (The Open Group Architecture Framework) methodology? [1]
It is a tried-and-true Enterprise Architecture framework and technique used to boost corporate productivity. Togaf Standard is a proven Enterprise Architecture methodology and framework used by the world's leading organizations to improve business efficiency.

It is a foundation for comprehending, creating, organizing, and controlling the intricate business structures. To manage and enhance business architecture processes, particularly in large and complex businesses, TOGAF was created. As an open standard, TOGAF enables companies to incorporate their objectives into their technological foundation. In order to manage the digital twins of the institutions, the relationships between the layers, and to make decisions with a focus on process, risk, architecture, strategy, technology, data, cost, and efficiency, a new architectural model/framework was developed with reference to the TOGAF Model. No comparable model was found in the research done for a new architectural model that was constructed. The framework/model developed to oversee the institution's digital transformation was given the name EAM (Enterprise Architecture Model). The constructed architectural model has six dimensions or layers.

Table 1: ADM Phase (The Architecture Development Method)[2]

1.Business Architecture Layer
Business architecture is an architectural model used to align strategic goals with tactical demands about the organization. business architecture model; It consists of "Domain", "sub domain", "business functions", "organization", "product", "segment", "contract" and "Chanel", "capability", "processes".

2.Strategy Layer
There are models that can serve as a reference for institutions to achieve their strategic goals in line with their vision and mission. As a reference model in the strategy layer The Northan tiger [5] methodology is used. Layers ("Focus," "Strategic Goal," "Initiative," "KPI") are designated.

3.Portfolio Alignment Layer
Portfolio Alignment layer ("Demand Management", "Project Management") was created with reference to PMI [7]standards in our metamodel, which was created by institutions for effective portfolio/project management.

4. Data Architecture Layer
Data Architecture Layer (Physical Data Component, Logical Data Component, Data Entity, Schema, Functions, Trigers, Table, Views, Stored Procedures) was created with reference to DAMA [3] Framework.

5. Application Architecture Layer
Application Architecture Layer (Micro Service, Logical Application Component, Physical Application, Application Module, Application Component) was created with reference to service/micro service oriented architecture.

6.Technology Architecture Layer
The Technology Architecture layer (Logical Technology Component, Physical Technology Component, Platform Services) was created.

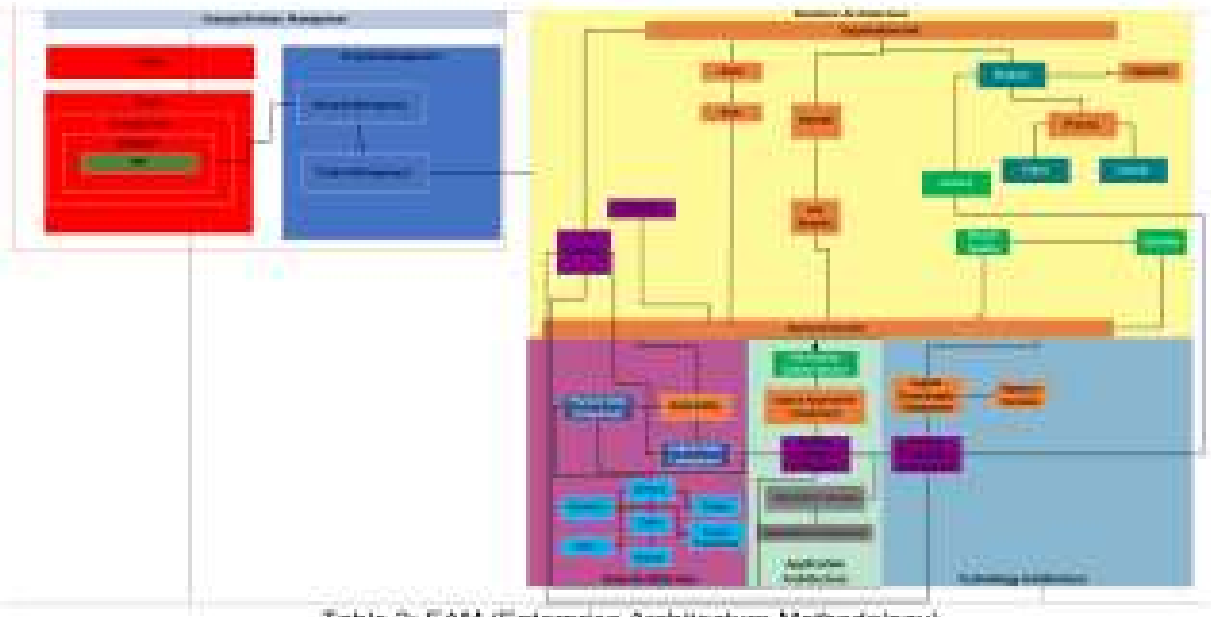

Table 2: EAM (Enterprise Architecture Methodology)

Developing a Workflow Methodology in Light of Event Storming and Agile Methods

During the software development process, complex business processes, events, and interactions are understood and modeled using the workshop and analysis technique known as event storming. This technique aids in a better understanding of business processes and the business environment, particularly when combined with the Domain Driven Design (DDD) methodology.

The major goals of event storming are to motivate participants to investigate the business processes and workflows associated with their jobs, to establish a common vocabulary, and to communicate complicated ideas in a clear and concise manner. This enables them to examine and discuss workshop, teamwork, and business components from many angles. Event storming aids in maintaining the company vision and clarifies specifics.

The term "agile methodology" refers to a collection of guidelines and practices that take a flexible, team-based, and client-focused approach to software development and project management procedures. Agile projects are designed to be quicker, more productive, and more responsive to client needs. By better adjusting to the variables, rather than relying on a rigid and static plan of business processes, it seeks to produce better results.

At order to realize the change/transformation of corporate business models with the Digital Transformation at institutions and to establish a shared goal, common target, and common language, agile/event storming working approaches have been used as references. The Domain Driven Design (DDD) approach, greater understanding of business processes, and the development of a common language approach used in event storming are seen as examples of how the working principles of the Agile methodology are faster, more effective, and can better adapt to customer requests. EBFM (Event-Based Flexible Method) is the name of the recently developed model. While developing the interest model, working approaches including Agile Methodology, PMI, SDLC, Event Storming, Kanban, and Waterfall were examined. Organizations and units have been established, RACI matrices have been made, and documentation requirements have been decided.

The following is how the institution used the chosen methodology.

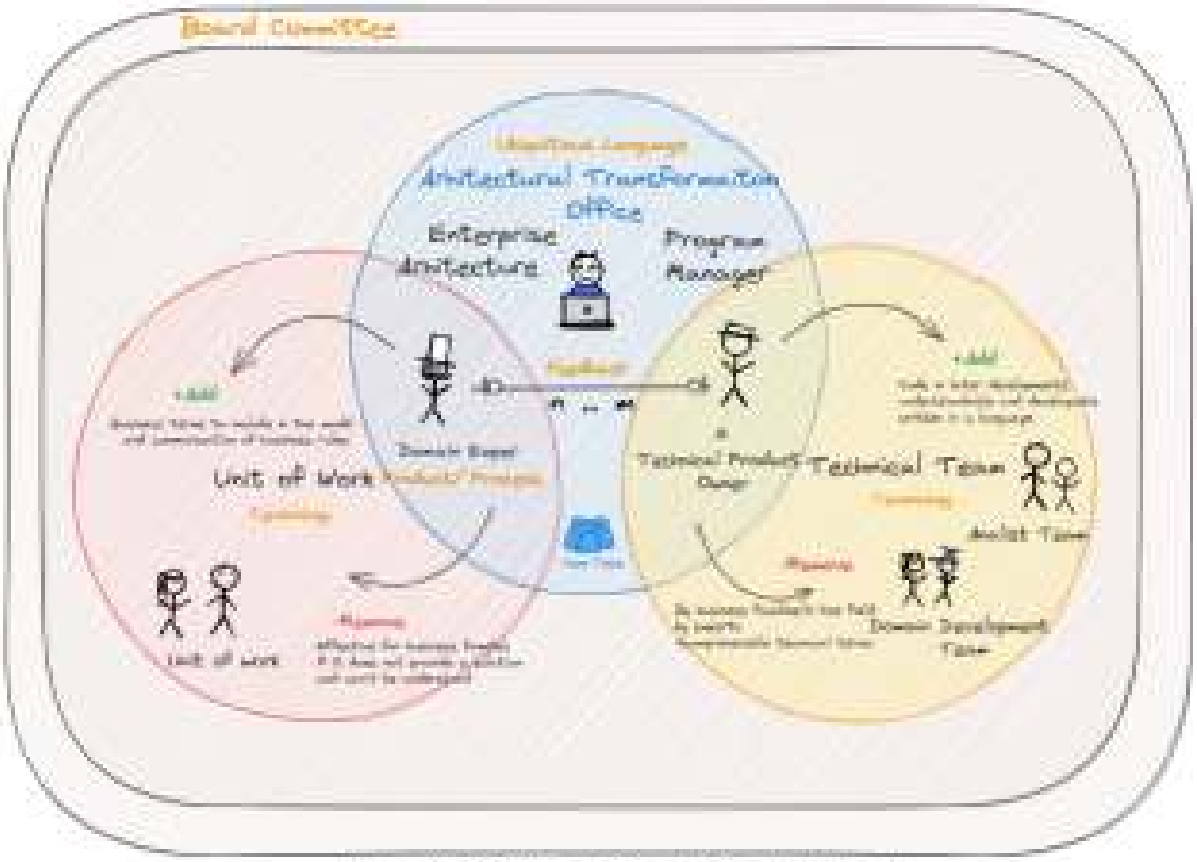

Table 3: EBFM (Event-Based Flexible Method)

Domain-based architecture using the DDD (Domain Driven Design)/ Micro Service Architectural Approach method

Domain Driven Design: What is it?
DDD is not a cutting-edge technology or a particular technique. In order to ensure the continuity of our applications once these large projects are done, DDD is a strategy that aims to offer solutions to the fundamental issues that are regularly encountered in the creation of big software systems.
In order to build domain-based organization, technology, and process setup, business activities/business services offered on 10 distinct platforms were compared to DDD.

For instance, using the DDD method, operational units that were previously controlled as application-based units within the institution were changed into domain-based operational processes. Deduplicating the order management for each application has resulted in the creation of a single order management unit.

Action was taken on the axis of culture, experience, and transformation at the same time that this operational, technological, and architectural transformation brought about by the digital transformation spread and became internalized. The following components are used as a guide in order to establish the established methodology and cultural transformation in a solid manner.

- Expressing our thoughts honestly and engaging in productive conflict.
- Setting up an autonomous management environment,
- Acting bravely,
- Fostering a culture of shared values and active participation,
- Acting in unison of value, respect, and love for one another, and taking action by putting our attention on how to improve by viewing the setbacks we have previously experienced as learning opportunities.
- Being us

Table 4: Domain-Based Organization

What is the Microservice Architecture?

A modular structure known as a "microservice architecture" is a method of creating a single application that has mechanisms that can manage their own business and communication inside each service, are not overly complex, and are modest in size compared to other services. It is a framework with an automated distribution system that focuses on a specific task for which these services are accountable and capable of working independently. It ought to be comparatively free of central government institutions. It can be created using a variety of data-based technologies and programming languages.

By looking at the screens related to the application modules, the services associated with the screens, and the methods of the services, it has been concluded that there are 6400 services. The analyses lead to the conclusion that there is no software architecture. 1200 micro services were used in the construction of the new platform.

DBAM (Domain-Based Architectural Model)
Scalability, management independence, and business continuity are costs associated with the DBAM (Domain Based Architectural Model) [4]Microservice architectural model. A fresh model approach is the DDD model reference point. The fields associated with the Logistics Sector were eliminated when this model was created. Aggregate Root and Bounded Context have been eliminated from domains.

Domain

- Order management
- Customer/Supplier management
- Stock management
- Planning Management
- Payment System management
- Product management
- User management
- Contract Management
- Pricing Management
- Integration Management

DDD Model reference reference varies with Layered Architecture.

- Domain Layer
- Application Layer
- Presentation Layer
- Infrastructure Layer

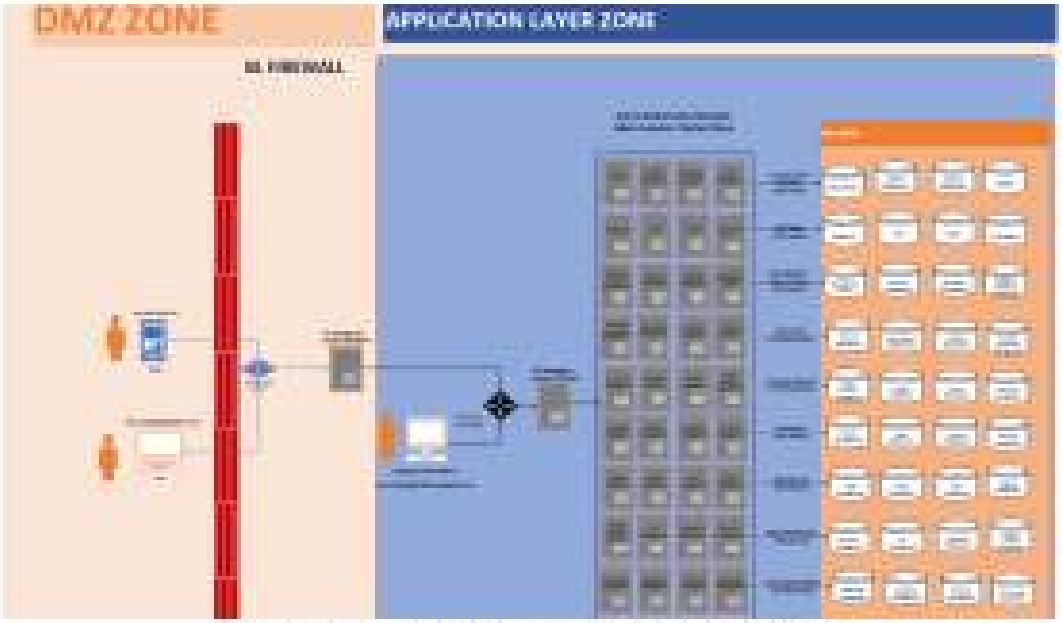

Table 5: DBAM (Domain-Based Architectural Model)

The TOGAF architectural model served as a guide for the institution's AS-IS investigations, which were focused on Product, Process, Application, Technology, Data, Service, and Framework. The size of the tables belonging to ten different applications, their relationships with one another, and their data models were all determined as a consequence of the asis investigations. Studies on table catalogs were conducted in conjunction with the Data Governance principles as a guide. On almost 3,000 MS SQL servers, tables were located, and their performance was examined. 6400 service architecture catalogs were created, and

the performances of the services were tested, by looking at the screens connected to the modules in the applications, the services belonging to the screens, and the methods of the services. The following decisions were reached as a result of the examinations performed in accordance with architectural standards.

- It has been concluded that due to the diversity of the database infrastructure among the 10 distinct applications, technical standards cannot be established and efficiently managed.
- There is no referenceable Framework infrastructure.
- Lack of a Service Architecture
- Absence of a suitable, advanced technology architecture
- Process standards are not sufficiently developed
- Data Architecture is still in its infancy.
- There is no Central Technology Steak
- Considering the variety of technologies available, specialization within the institution is not required.
- When various legacy applications have services that serve the same commercial purpose

Technology

The dependency on a single programming language is gone. The newly constructed build and deploy timings are separate, benefiting the developers because the Codebase deployment methods were inefficient. By establishing a technical institutional memory, dependence on developers was decreased and learning convenience was ensured. No codes Platform development activities using low code are kept to a minimum. Costs for development have decreased. It was possible to specialize by domain. A common language was established as a result of the platform and working methodology that were developed. Utilizing open source technologies helped to save operating costs. Performance and speed improvements were made.

Corporate Effectiveness

The first platform was singularized, which streamlined processes and increased operational effectiveness. By eliminating the institution's administrative tasks, manually advancing tasks were digital. A lean organization has been achieved and efficiency has grown as a result of the merger of the organizations.

Business Strategy

A new avenue for cross-selling has been established. Enhanced client satisfaction. Enhanced vendor loyalty.

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PROCEDURAL EFFECT ON TANZANIA PORTS' ACCESSIBILITY AND SATISFACTION

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Abstract
Purpose: This study assessed the influence of complex cargo clearance procedures on the relationship between port accessibility and customer satisfaction as constructs based on the empirical evidence drawn from Tanzania's port operations.
Design/methodology/approach: The study used structured questionnaires administered with 228 port stakeholders from a sample of 298 respondents drawn from a population of 1,325 agents using simple random sampling, from five selected Tanzania ports to obtain data necessary for hypotheses testing using Structural Equation Modelling through Smart PLS 3.0. Using a positivist philosophy and deductive approach along with an explanatory design and quantitative method, and the Resource-Based Theory (RBT) and the Port Service Quality (PSQ) theories to operationalise the interactions of the three constructs. The study worked on the assumption that there has been no extensive research model that compounded the joint effects of constructs.
Findings: The study found that port accessibility has a positive significant impact on customer satisfaction whereas the moderated relationship has lower positive significant effects. Further, the findings of the Importance-Performance Matrix Analysis (IPMA) revealed that port accessibility has the highest levels of both importance and performance in predicting customer satisfaction. The study concludes with strong empirical confirmation that port accessibility positively influences customer satisfaction and expands the RBT and PSQ dimensions.
Practical implications: The results shed light on areas that the Tanzania Ports Authority and other Stakeholders from both the public and private sectors can improve to boost satisfaction. The study findings have implications for relevant policies, including the Ports Act 2004, National Transport and Trade Policies both of 2003, and the Agenda 2063 The Africa We Want.
Originality/value: This research pioneered in identifying dimensions of port resources and moderating effects of complex cargo clearance procedures and examined their impacts on customer satisfaction.

Keywords: Port accessibility, customer satisfaction, cargo clearance procedures, and port operations.

Introduction

Transport infrastructure can foster balanced economic and regional development in addition to influencing significantly the national integration into the world economic market (Dwarakish & Salim, 2015). Dwarakish and Salim (2015) and Pienaar (2013) found that the load carried, economies of fleet size, economies of distance, seaway transportation constitute the cheapest and most effective transportation mode relative to others in improving the living standard of locals (Dwarakish & Salim, 2015; Pienaar, 2013; Yin, 2020). Also, customers have increasingly become a rich source of information for firms through their views on services, particularly for service improvement while enhancing the user experience of the end products (Busagara, Mori, Mossberg, Jani, & Andersson, 2020). User experiences and interactions allow service providers to gather enormous information for improving services as well as designing and developing future services to optimise customer satisfaction (Kadir, Rahmani, & Masinaei, 2011).

The influence of port service quality on customer satisfaction particularly in the port sector is not a topic that has been well-researched upon empirically (Yeo, Thai, & Pak, 2016). Moreover, Phan, Thai and Vu (2020) in their study had observed that studies of service quality in the maritime sector generally, and in the port industry particularly, have not been carried out frequently in the literature; instead, most of these studies have focused on port efficiency, selection of port or carrier. Mkawuganga (2018) also found scant literature on customer satisfaction in the port industry and, specifically, on the effect of port service quality on customer satisfaction. This study aimed to determine the impact of port accessibility on customer

satisfaction in Tanzania's ports using the Resource Based Theory (RBT) and Port Service Quality (PSQ). Informed by the literature coupled with the studies' environment and variables, we adopted the moderation approach to portraying the co-variation effects rather than mediation that portrays the transitive effect (Umarath, 2003).

In Tanzania, the role trade plays in economic growth has not received as much attention and it is difficult to find studies that quantify the subject sufficiently (Magai, 2018). Yet, the ports in Tanzania serve many of the land-linked countries comprising Burundi, Rwanda, DR Congo, Uganda, Malawi, and Zambia (Issa & Masanja, 2022). The country also has lake ports. The market share analysis for respective Tanzania and Kenya ports for the 2013 – 2017 period shows that of the incoming cargo traffic to Tanzania from Burundi, Rwanda, DR Congo and Uganda, the average percentages of 97.92, 88, 77.2, 53.4 and 2.8 and 2.08, 12, 22.8, 46.6 and 97.2 went through Tanzania and Kenya ports, respectively. Such market share potentials amidst competition as well as future dynamic demand in the port industry suggest the need to investigate factors for enhancing customer satisfaction to retain the existing and attract new customers. This study strived to assess the aforementioned factors through the assessment of port accessibility on customer satisfaction with Tanzania ports and examine the moderating effects of the complexity of cargo clearance procedures on port accessibility and customer satisfaction.\

The findings on the relationships among study variables enhanced knowledge on and understanding at the local level. In setting port improvement priorities and strategies, port accessibility and customer satisfaction are competitive factors. The Important-Performance Map Analysis (IPMA) for Tanzania ports has been developed from the study findings through variables and the established relationships for management consideration. The study objectives have addressed, firstly, the Ports Act 2004 No 17 on page 12 about port promotion and, secondly, the National Transport Policy of 2003 (Tanzania, 2003) about its mission and the National Trade Policy for a Competitive Economy of 2003 (Viwanda, 2003) on its vision.

Literature Review

Theoretical Literature Review

To address its objectives, the study was informed by the Resource-Based Theory (RBT) and the Port Service Quality (PSQ):

Resource-Based Theory (RBT)

RBT tries to explain the origins of higher performance among firms in competitive environments (Akbari, Azbari, & Chajani, 2019). According to RBT, resources that are valuable, rare, inimitable, and non-substitutable can enable firms to sustain above-average returns (Liang & You, 2009) and can enjoy a sustained competitive advantage if they successfully exploit these resources. Kim and Chiang's (2017) analysis of the effect of sustainability practice on the relationships between competitiveness and performance in port operations. Applying RBT, the study found that, the port needs step-by-step container handling procedures, and processes and simplified but satisfactory procedures for customs clearance to sustain practices in international port operations. Studies that have applied RBT also have a variable related to cargo clearance procedures, hence also supporting the independent variable because of the complex cargo clearance procedure is one of the study variables.

Port Service Quality (PSQ) Theory

Cho, Kim and Hyun (2010) demonstrated that Port Service Quality (PSQ) depends on three dimensions—endogenous quality, relational quality, and exogenous quality. Whereas endogenous quality has to do with internal capabilities of a port, including loading and unloading charges, berthing facilities, and terminal capacity, relational quality dwells on relationships the between port companies and shipping companies, such as the port logistic network, employee professionalism, the customer partnership. In contrast, exogenous quality correlates with external factors affecting the magnetism of a port, including the port location, the cargo volume, the distance. On their part, Applying the PSQ concept, Phan, Thai, and Vu (2021) found that enhanced PSQ positively influenced customer satisfaction, with the outcomes of port

service performance and its image accounting for the greatest impact. PSQ theory supported the operationalisation of the endogenous variable, Port Customer Satisfaction (PCS), and one exogenous variable Port accessibility (PA) as applied in this study.

Empirical Literature Review

Port accessibility and Customer Satisfaction Relationship

Raza, Jawaid and Hassan (2015) determined the effects of service quality dimensions including accessibility on customer satisfaction in Malaysia. The traits of responsiveness and empathy helped to meet the clients' demands whereas accessibility had a significant and positive influence on the satisfaction level of customers. Also, Nui Polatoglu and Ekin's (2001) study of how Turkish customers' embrace of Internet banking services considered reliability and accessibility and found clients to be more satisfied with online banking's accessibility and reliability factors because they countenanced no problems when using these services. In the studies reviewed, the influence of port accessibility on customer satisfaction remains an issue worth further exploration to enrich the literature of PSQ management especially in the context of developing countries. Thus, this study assessed the influence of port accessibility on port customer satisfaction with empirical evidence from Tanzania ports. As such, we hypothesise:

H_1: Port accessibility positively influences port customer satisfaction

Complexity of Cargo Clearance procedure and Customer Satisfaction Relationship

A study on the influence of cargo clearance procedures in the East African Community on trade facilitation in Rwanda by Rudahigwa and Tombola (2021) recommended for the simplification of trade documentation and procedures to facilitate trade in goods within the community. After all, well-performing logistics processes can contribute to a customer's commitment to the relationship by providing the best customer comparative net value, enhancing their satisfaction, eventually leading to a strong buyer-supplier relationship (Kanani, 2020; Tuan, 2017). Nyema's (2014) assessment of factors that influence container terminal efficiency based on Mombasa Entry Port in Kenya found inadequacy of the quay, equipment to facilitate the performance of the port, insufficient time for reducing bays, late coming of ships at the port, weak clearance of customers to be factors affecting the Mombasa port performance . Nevertheless, the studies reviewed indicate that few attempts made to assess the influence of port tangible and intangible resources on customer satisfaction. This study, therefore, assessed the moderation effect of the complex cargo clearance procedure and the relationship between port accessibility and port customer satisfaction with empirical evidence from Tanzania ports. Thus we hypothesise:

H_2: The complexity of the cargo clearance procedure moderates the relationship between port accessibility and port customer satisfaction

Methodology

This study adopted a positivist philosophical stance to relate the natural scientist stance with an observable social reality to produce law-like generalizations (Saunders, Lewis, & Thornbill, 2019), and deductive reasoning for the study's hypotheses and observable consequences that should have occurred with new empirical data if the hypotheses were to be found true (Anfwi & Kasim, 2015). Moreover, it applied an explanatory design to explore a new universe based on the study variables, relationships, and associated objectives, which had not been studied earlier involving causes and reason factors about some phenomenon related to study variables (Megel & Heermann, 1993). Also, the study applied the quantitative method since it supported and identified what is embedded in the positivism paradigm that focuses on fresh data (Rahi, 2017). Also, it integrates purposes and procedures that are deductive, objective, and generalised (Morgan, 2014). The study applied Krejcie and Morgan's (1970) formula, which has already been applied by Januszyk *et al.* (2011) and Minani (2019), to a population of 1325 to obtain a representative sample of $n = 298$.

Sample Selection, Unit of Analysis and Inquiry

The sample size consisted of 298 port customers, Other Government Departments, and Tanzania Ports Authority from the five mentioned regions selected using simple random sampling that gave every one a

fair chance of being recruited in the sample (Creswell, 2014). Due to the participation of several stakeholder groups, the study presented a more comprehensive analysis of the research issue (Kovacs & Moshtari, 2019). A simple random sample from an existing sampling frame was adopted. The study's unit of analysis was the Clearing and Forwarding Agency Company (employer) and the units of inquiry were the staff members (employees) of the firm who had adequate information and knowledge about the Tanzania Ports Authority (TPA) services.

The study used a self-administered two-part questionnaire to collect data. The first part gathered the respondents' demographic information alongside the Company profile and the second part contained 7-point Likert-scale type statements with measures ranging from 'Strongly agree' to 'Strongly disagree'. The techniques used to address the common method bias include reverse coding of the variable values applied in the questionnaire during data entry and the application of the 7-point Likert scale for independent and dependent variables instead of the 5 or three 3-point scale; the reliability of the responses on the former scale is better than on the latter lower scales owing to items on the scale defined by the construct (Joshi, Kale, Chandel, & Pal, 2015).

Measurement and Operationalisation of variables

The study involved an endogenous variable, Port Customer Satisfaction (PCS) and an exogenous variable Port accessibility (PA), with the Complexity of Cargo Clearance Procedures (CCCP) serving as a moderating variable.

Port accessibility

Accessibility serves as a product of the land use and transport systems and describes the extent to which land use and transport systems enable individuals to reach activities or locations employing a combination of transport modes within the port (Karst Geurs, Tomaz Ponce Dentinho, & Patuelli, 2021).

Port Customer Satisfaction

Customer satisfaction is the response of consumers to the evaluation of the discrepancy between prior expectations and the perceived performance of the consumed product or rendered service (Yi, 1990).

Complexity of Cargo Clearance Procedure

Cargo clearance procedures constitute one of the major bottlenecks in product supply chains in Kenya because lengthy, complex procedures and excessive paperwork delay border crossings and port handling, hence creating a negative impact on trade coupled with soaring the costs of doing business in the country (Billy, Thomas, & Peter, 2019).

Data Analysis, Interpretation, And Discussion Of Findings

Respondent's Profile

The study generated data from 228 out of 298 questionnaires distributed in the five regional ports under review, a response rate of 76.5%. The gender split of the final sample was 83.8% male and 16.2% female. The mean age of the sample was 35.5 years. The sample comprised 63.6% respondents with College diplomas , 17.5%with secondary school certificates, 16.7% with university degree, and 2.2% with non-formal education. The majority (32%) had a mean working experience of 5 years.

Assessment of the Measurement Model

The assessment of the measurement model was conducted by composite reliability, Cronbach alpha, rho_A, AVE, and HTMT, and the following results were obtained:

Table 1: Measures of Construct Validity and Reliability

	Composite Reliability (>0.7)	Cronbach Alpha (>0.7)	rho_A	Average Variance Extracted (>0.5)	HTMT (HTMT < 1)		Decision
					CCCP	PA	
CCCP	0.955	0.937	0.946	0.842			Good
PA	0.931	0.901	0.906	0.771	$0.543CI_{0.95}$ [0.428;0.651]		Good
PCS	0.949	0.928	0.932	0.823	$0.465CI_{0.95}$ [0.353;0.572]	$0.799CI_{0.95}$ [0.742;0.852]	Good

Source: Field Data (2022)

The results obtained show that exogenous latent variables have good measures of validity and reliability across all the variables, including the endogenous variable, PCS.

Assessment of Common Method Bias

The CMV was subjected to a simple Collinearity Test using VIF, which show that all the constructs had variance inflated factor (VIF) values of less than the proposed threshold of 5. Hence CMV posed no threat.

Assessment of the Model's Predictive Power ($PLSe_{predict}$) (out-of-sample)

The assessment of the model's predictive power found the RMSE of LM (i.e. prediction) to be greater than that of PLS-SEM (i.e. actual) in SATIS4, SATIS2, SATIS5, and SATIS3, which implies lower prediction error. Also, the values of Q^2_predict in the four indicators of the endogenous variable are above 0, meaning a lower prediction error. As such, the model has higher predictive power.

Evaluation Results of the Structural model

The measuring of the VIF values indicate that both independent variables have 1.335, which are acceptable levels of collinearity. Hence the structural model has no collinearity issues. Also, the path coefficient value of 0.687 indicates a strong positive relationship, which explains a 68.7% increase in PCS. Impliedly, if the PA construct increases by one standard deviation unit, the PCS construct will increase by 0.687 standard deviation unit, assuming all other independent constructs remain constant. The result of the coefficient of determination of R^2 stood at 0.546 for the direct model, which explains that a 54.6% change in PCS can be accounted for one (1) exogenous construct. Also, the effect size of f^2 yielded 0.779, which translates into a large effect size on R^2. The measuring of the predictive relevance of Q^2 produced a value of 0.418. Hence, the model has predictive relevance.

Model Assessment

The structural model results reveal a significant relationship that exists between PA and PCS. In this regard, The direct model was measured and the coefficient of determination of the R^2 value was 0.546, implying that, a 54.6% change in PCS can be accounted for two (2) exogenous constructs as follows:

Direct effect of port accessibility on port customer satisfaction

The first hypothesis, H_1 states that port accessibility positively influences port customer satisfaction. In testing the hypothesis, the results indicate that PA has a significant impact on PCS ($\beta = 0.687$, $t = 16.471$), i.e. one unit increase of PA increases PCS by path coefficient of 68.7%, *ceteris Paribus* (Hair, Sarstedt, & Ringle, 2017). Also, the confidence intervals [0.616; 0.754] do not include 0, indicating the existence of a direct effect (Hair *et al.*, 2017). Furthermore, the t-value of 16.471 is above the critical value for the z-test of 1.645. Therefore, H_1 was supported and hence not rejected.

Moderation Analysis Results

The moderated model was also measured and the coefficient of determination of R^2 value has improved from 0.546 to 0.554, hence a 55.4% change in PCS for two (2) exogenous constructs.

Complexity of cargo clearance procedure and port accessibility on Port Customer Satisfaction

The second hypothesis, H_2: states that the higher (lower) the complexity of the cargo clearance procedure, the weaker (stronger) the influence of port accessibility on port customer satisfaction. The results indicate that CCCP*PA has a significant impact on PCS (β = -0.094, t = 2.404). Implicitly, if one unit increases (decreases) of the complexity of the cargo clearance procedure, then the influence of port accessibility and port customer satisfaction decreases (increases) by the size of the path coefficient (9.4%), *ceteris Paribas* (Hair *et al.*, 2017). There is a weakening or reduction of t-value from 16.471 to 2.404, which is still above the critical value for the *z*-test of 1.645. Therefore, H_2 is supported and, hence, cannot be rejected.

Simple Slope Analysis

A typical moderator analysis results in representation using simple slope plots (Hair, Sarstedt, & Ringle, 2021). This study has one simple slope plot delineated as follows:

Moderation Effect of Simple Slope Analysis between PA, CCCP, and PCS

The relationship between PA and PCS is positive. Hence, lower levels of PA are associated with lower levels of PCS. The upper line (in green), which represents a higher level of the moderator, CCCP with standard deviation above the mean, has a flatter slope, hence representing a weaker positive effect. Also, the bottom line (in red) which represents a lower level of moderator, CCCP with a standard deviation below the mean, has a steeper slope, thus representing a stronger positive effect. The simple slope plot shows the positive interaction terms that lower CCCP levels entail a slightly weaker relationship between PA and PCS and vice versa which are accepted.

Importance-Performance Map Analysis (IPMA)

Ringle and Sarstedt (2016) contend that multiple moderators in a total effect or moderated effect complicates the interpretation of IMPA's importance dimension. As such, it is advisable to exclude moderators in an IPMA (Hair *et al.*, 2017; Ringle & Sarstedt, 2016). IPMA was conducted using Smart PLS. The results are based on the total effect of one exogenous variable (PA) on the endogenous variable (PCS). The findings confirm that PA, the exogenous variable, has high levels of importance and performance in Quadrant I with 'Concentrate Here' status.

Conclusion, Implications, and Recommendations

Effect of Port Accessibility on Port Customer Satisfaction

To begin with, the study findings substantiate hypothesis H_1 by showing the positive effect of port accessibility on port customer satisfaction. In fact, the higher the level of port accessibility the higher the level of port customer satisfaction. These findings are in line with the findings of (Kadir *et al.*, 2011; Nui Polatoglu & Ekin, 2001; Raza *et al.*, 2015). In this regard, the study findings provide strong empirical confirmation that port accessibility positively influences port customer satisfaction. Implicitly, port accessibility is a key determinant of port customer satisfaction whose four internal indicators are important in improving port accessibility.

Moderating Effect of Complexity of Cargo Clearance Procedures on Port Customer Satisfaction

Second, the study affirms hypothesis H_2 by accounting for the moderating effect of the complexity of the cargo clearance procedure and how it positively influences port accessibility and port customer satisfaction. Indeed, the higher (lower) the level of complexity of the cargo clearance procedure, the weaker (stronger) the influence of port accessibility on port customer satisfaction, which is consistent with the findings by Gittell (2011), Kanani (2020), Kim and Chiang (2017), Nyema, 2014); Rudahigwa and Tombola, (2021), and Tuan (2017). The findings are congruent with previous literature despite the theoretical, contextual, and methodological differences.

Also, cargo clearance procedure can complicate port accessibility and affect it either negatively or positively. Even though other variables could impair the attainment of port customer satisfaction, these two factors are critical areas port managers can ignore at their own peril amidst scarcity of resources, competition, and dynamism of the business environment, customer demand, and technology. In this study, the complexity of cargo clearance procedures was operationalised as the moderation variable on Port accessibility and Port Customer Satisfaction with five measurable indicators based on existing scales. Overall, the findings provide strong empirical confirmation regarding the moderating effect of the complexity of cargo clearance procedures that can positively influence the relationship between port accessibility and port customer satisfaction when enhanced. Implicitly, the moderation effect of the complexity of cargo clearance procedures makes it a key determinant of the relationship between port accessibility and port customer satisfaction.

Overall, the fact that both hypotheses (100%) have been supported has implications for routine port operations and theories. Port managers can enhance port accessibility alongside other resources to boost the effectiveness and efficiency of the port to improve customer satisfaction.

Implications

Firstly, since a limited number of studies had established the relationships between resources and port customer satisfaction, this study is complementary particularly by providing a theoretical framework that identifies a detailed relationship among the resources variables of port accessibility and complexity of cargo clearance procedure. Moreover, only anecdotal evidence existed for the intervening roles of and complexity of cargo clearance procedure in the relationships between resources and port customer satisfaction. In this regard, this study has confirmed that the two resources significantly and positively correlate with port customer satisfaction. Also, the study findings confirm that the complexity of the cargo clearance procedure is a potential moderating variable in the relationships between resources and port customer satisfaction.

Second, this study significantly contributes to the theory by showing that unique resources enable ports to enhance resources by considering port accessibility aspects in their cargo clearance processes and related operations. Previous studies had paid limited attention paid to its empirical contribution to port customer satisfaction along with moderating effects of the complexity of the cargo clearance procedure. This practice has left practitioners with the complex task of selecting alternative resources while making ports operate below customer satisfaction.

Thirdly, this study extends and strengthens the theoretical foundations of resources. Through extensive literature review and subsequent analyses, it has revealed that port accessibility is a reliable and valid dimension that both researchers and practitioners interested in measuring resources cannot overlook. Also, the study findings on this aspect could inform the revision of existing and can support further development of theory in the field of port customer satisfaction management.

Recommendations for future studies

Even though this study found port accessibility to be positively influenced by port customer satisfaction, future studies could apply these variables in other service settings such as banks and academic institutions to compare results. Moreover, future studies could use other resource attributes on port customer satisfaction to bring about more insight into the resource and port customer satisfaction interface. Other researchers could opt for a longitudinal approach as opposed to a cross-sectional approach applied during this study.

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