Knowledge Utilisation and Organisational Resilience of Pre-Shipment Inspection Companies in South-South, Nigeria.

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Abstract

The study examined the link between knowledge utilisation and organisational resilience (measured by adaptability and agility) of pre-shipment inspection companies in South-South, Nigeria. The upper echelon and the social learning theories underpinned the study, while the underlying philosophy is positivism. A cross-sectional survey was adopted and primary data was generated through the use of questionnaire. The elements of the accessible population are the 480 middle and top-level managers of all the 20 Pre-Shipment Inspection Companies, in South-South, Nigeria, and a sample size of 235 respondents was determine. The hypotheses were tested at 0.05 significance level, using structural equation modelling. The results revealed that knowledge utilisation has positive and significant relationships with the measures of organisational resilience. The findings of this study reinforce the theoretical assertions of the upper echelon theory, and the social learning theory. The study concludes that knowledge utilisation will boost the measures of organisational resilience, when the firm utilizes available knowledge in improving services provided to its customers, effectively manages different sources and types of knowledge and new knowledge is applied to find ways of overcoming the barriers to resilience. It is hereby recommended Managers of Pre-Shipment inspection companies should improve their level of knowledge utilisation by effectively managing different sources and types of knowledge, utilizing available knowledge in improving services provided to its customers, having incentive and benefit policies for new idea suggestions in utilizing existing knowledge and applying new knowledge to find ways of overcoming the barriers to resilience.

Keywords: Knowledge utilisation, adaptability, agility, and organisational resilience.

1. Introduction

The Pre-Shipment Inspection industry has gained prominence due to the globalisation of trade, and rapid urbanization in emerging markets. Data from the Data Bridge Market Research report, (2020) reveals that the Global Pre-Shipment Inspection Market is estimated to reach USD19.70Billion by 2028, exhibiting a healthy compound annual growth rate of 5.85% over the forecasted period of 2021-2028. However, the industry is grappling with challenges of intense competition from independent foreign companies, delay in payments of executed contracts, tight regulatory environment, and high government influence, which suggest the need for improved resilience capabilities. The importance of organisational resilience cannot be over stressed, as it is considered an important organisational variable, which enables organisations to adapt to the dynamism in their operating environment (Sylva & Ojiabo, 2018; and Akpan, Jonney & Sylva, 2021). Scholars (Lengnick-Hall, Beck, & Lengnick-Hall, 2011) suggest that organisational resilience is perceived not only as a critical factor for coping with acute crises but also as enabling an organisation to cope with the complexities and changes in daily life and to develop and grow from them. Organisational resilience has been measured in differently by scholars. For instance, Jeffrey and Linda (2012) identified eight (8) measures of organisational resilience as self-assurance, personal vision, flexibility and adaptability, organized, problem solver, interpersonal competence, socially connected and proactiveness, while Kim (2000) suggested ability (competence), psychological belief (self-efficacy), and communication behaviors as measures of organisational resilience. However, this study adopts adaptability and agility as the measures of organisational resilience (Chu, 2015; Kantur & Iseri-Say, 2015). Adaptability refers to the ability of a firm to alter its decision-support capabilities and governance structure to withstand perturbations and disruptions (Starr et al., 2003). Furthermore, adaptability can also be referred to as an attribute of a socio-ecological system that permits coping with disturbances (Olsson et al., 2004). On the other hand, Goldman et al. (1995) postulated that agility refers to a firm's ability to being ready for change and rapidly respond to changes in uncertain business environment. Likewise, agility can be seen as an ability of firms to easily and quickly change or revise their strategy (Tallon & Pinsonneault, 2011). However, considering previous research attempts on the study of organisational resilience, there appears to be a dearth of knowledge on how knowledge utilisation associates with organisational resilience. Furthermore, Alosaimi (2016), mentioned that knowledge utilization impacts the creation of sustainable competitive advantages because of its ambiguity and uniqueness to the firm and the fact that knowledge becomes embedded in organisational processes.

The problem of inadequate organisational resilience of Pre-Shipment Inspection Companies in South-South, Nigeria, has become very critical. Some of these companies show inadequacies in adapting to fast changing technological climate, and they appear not to possess the capability to align their internal processes, structures and strategies to changing business contexts or environmental shifts. Furthermore, a number of these firms fail to quickly respond

to internal disturbances and external shocks in order to maintain their identities and thrive. It appears that these challenges have led to the collapse of a handful of the indigenous Pre-Shipment Inspection and Monitoring companies in Nigeria. For instance, Nigeria had twenty-two (22) Pre-Shipment Inspection, Monitoring and Evaluation Agents in the year 2000. However, as at 2022, only eight of these firms are in active business. Moreover, even the existing eight are grappling with some challenges that threaten their survival (Data Bridge Market Research report, 2020). Indeed, various scholars have provided possible panaceas to the problem of inadequate organisational resilience among firms. These recommended solutions include product innovation (Ahiauzu & Eketu, 2015); performance management (Ikiriko, Jaja & Eketu, 2017) , mentoring (Jaja & Amah, 2014); trust (Olu-Daniels & Nwibere, 2014); crisis management (Wobodo & Oparanma, 2019) and corporate foresight (Mama & Alagah, 2020). However, despite the myriad of possible panaceas suggested by various scholars in tackling the problem of inadequate organisational resilience among firms, studies that have assessed the problem in the context of Pre-Shipment Inspection firms are scant. The present study theorizes that the process of utilising knowledge may have empirical relationship with an organisation's capacity to be resilient as a way of responding to conditions that were uncertain, sudden, and sufficiently disruptive (Lengnick-Hall & Beck, 2011). Therefore, this study seeks to ascertain the nexus between knowledge utilisation and organisational resilience of Pre-Shipment Inspection companies in South-South, Nigeria.

1.1 Objectives and hypotheses

The aim of this study is to ascertain the link between knowledge utilisation and organisational resilience of Pre-Shipment Inspection companies in South-South, Nigeria.

The specific objectives of the study are to:

    i.   Evaluate the relationship between knowledge utilisation and adaptability.

    ii.   Ascertain the link between knowledge utilisation and agility.

The following research questions directed the investigation:

    i.   What is the association knowledge utilisation and adaptability?

    ii.   What is the link between knowledge utilisation and agility?

The following null hypotheses were formulated to provide tentative answers to the above research questions:

H_{01}: There is no significant relationship between knowledge utilisation and adaptability.

H_{02}: There is no significant relationship between knowledge utilisation and agility.

2. Literature Review

2.1 Theoretical framework:

The theories that underpin the study are the upper echelon theory (Hambrick & Mason, 1984), and the social learning theory (Bandura (1977). Upper echelons theory states that organisational outcomes – both strategies and effectiveness – are reflections of the values and cognitive bases of powerful actors (senior executives) in the organisation (Carpenter, Geletkanycz, & Sanders, 2004). Therefore, the upper echelon theory is relevant to this study because it will aid the connection between individuals and top management teams in making of strategic choices. On the other hand, the social learning theory also known as observational learning, occurs when an observer's behavior changes after viewing the behavior of a model. According to Nabavi (2014), this theory is based on the idea that we learn from our interactions with others in a social context. Therefore, the social learning theory is relevant to this study as understanding the intricacies of how people learn from one another through observation, imitation and modeling, can enhance knowledge management and ultimately bring about organisational resilience.

2.2 Conceptual framework:

The predictor variable - knowledge utilisation was adopted from Darroch (2003), as a single factor, while the criterion variable- organizational resilience, was measured by adaptability and agility, as adopted from Kantur and Iseri-Say, (2015).

2.2.1 Knowledge Utilisation: Knowledge is said to be utilized, if it is applied in real life situations (Gold, Malhotra, & and Segars, 2001). According to Azzam (2010), knowledge utilization is the use and application of knowledge and the production of commercial value for the customer.

2.2.2 Organisational Resilience: Organisational resilience is the capability of an organisation to anticipate crises, react to short-term shocks and adjust to the unexpected disruption. Moreover, organisational resilience is the capacity of the firm to foresee possible unfavourable occurrences and resist through the adaptation of possible measures to contain with the threats and to recover by restoring the organisation or state to a stable and acceptable state as much as possible (Burnard & Bhamra, 2011; Umoh et al., 2013; Akpan, Jonney & Sylva, 2021).

2.2.3 Adaptability: Adaptability can be referred to as an attribute of a socio-ecological system that permits coping with disturbances (Olsson et al., 2004). Moreover, Adger (2003) argued that adaptability relates to the ability of a system to evolve to accommodate perturbations and cope with variabilities. According to Ashford (1986), adaptability is a firm's ability to change its structures, behaviors, and design to fit a specific environment.

2.2.4 Agility: Agility refers the ability to respond to unexpected changes in the turbulent business environment. According to Alhadid and Abu-ruhman (2015), agility is an important concept, where starting with a quick response to change and uncertainty in an environment, where organisations must act to overcome obstacles or gain and win opportunities.

2.3 Empirical Review:

The link between knowledge utilisation and organisational resilience has been assessed by several scholars. For instance, Umoh and Amah (2013) examined the relationship between knowledge management and organisational resilience. The sample for the study consisted of one hundred and twenty-eight (128) employees from the thirty-four manufacturing companies that are registered with the manufacturers Association of Nigeria, Rivers State Council. The study utilized both quantitative data and the spearman rank correlation coefficient and Multiple Regression Model using the Statistical Package for Social Sciences (SPSS) version 15 were utilised for the analysis of data. The finding revealed a positive and significant relationship between knowledge management and organisational resilience. Specifically, knowledge acquisition, knowledge storage, knowledge sharing and knowledge utilization were revealed to have a positive and significant influence on organisational resilience. Moreso, Aladwan (2017) investigated the impact of knowledge management processes on the workforce agility at pharmaceutical companies in Jordan. The study used the quantitative method by collecting data via questionnaire. 250 copies of questionnaire were distributed among managers and head of departments working at (11) pharmaceutical companies in Jordan that registered in Jordanian Association of Pharmaceutical Manufacturers. Out of 250 copies of questionnaire, 210 were retrieved, 10 questionnaires were discarded for large missing data. The study found that knowledge management processes (creation, acquisition, sharing, and application) have significant impact on workforce agility (proactive, adaptive, and flexible). On the other hand, Hegazy and Ghorab (2014) investigated the effect of knowledge discovery, knowledge capture, knowledge sharing and knowledge application on business processes' effectiveness, efficiency, and innovation and employees' learning, adaptability, and job satisfaction. A detailed questionnaire was developed and a sample size of 84 represents end users, were captured. Partial least squares (PLS) was employed. The choice was motivated by several considerations. Data was analyzed using Smart PLS software. The study found that supporting knowledge sharing through a corporate portal was positively associated with business processes' innovation; and employees' learning, and adaptability.

3.0 Research Methods:

The philosophical context of the study, is positivism, and the cross-sectional survey research design was adopted, as the researcher did not have control over the study the variables. The population of this study comprises all the Pre-Shipment Inspection, Monitoring and Evaluation Companies in South-South, Nigeria. Data retrieved from the Nigerian Upstream Regulatory Commission (https://www.nuprc.gov.ng), reveals that there are 28 Pre-Shipment Inspection, Monitoring and Evaluation Companies in Nigeria. However, for ease of accessibility, this study focused on the 20 Pre-Shipment Inspection Companies in South-South, Nigeria which handle crude oil inspection. The elements of the accessible population are the 480 middle and top-level managers of all the 20 Pre-Shipment Inspection Companies, in South-South, Nigeria. Krejcie & Morgan's (1970) formula was utilised to determine a sample size of 235 respondents, and the Bowley's proportional sample allocation formula was used to get the representative proportionate sample. The simple random sampling was adopted. The questionnaire was the source of data collection. However, only 202 copies of the instrument, representing 86.0% were retrieved utilised. The hypotheses were tested at 0.05 level of significance, using the Structural Equation Modelling.

Table 1.1: Reliability Statistics

SN	CONSTRUCT	NO. OF ITEMS	CRONBACH'S ALPHA
1.	Knowledge Utilisation	5	0.853
2.	Adaptability	4	0.786
3.	Agility	7	0.874

Source: Researcher's Desk, SPSS data output 2023.

The instrument was subjected to test of reliability with the following Cronbach's alpha values: Knowledge Utilisation (0.853), Adaptability (0.786) and Agility (0.874). As recommended by Nunnally and Bernstein, (1994) an alpha value of 0.7 and above indicates reliability of the measure.

Table 1.2: Normality Statistics

Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std. Dev	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
KNOWLEDGE AQUISITION	202	2	10	6.00	1.772	.177	.171	-.235	.341

ADAPTABILITY	202	3	10	8.10	1.346	-1.023	.171	1.851	.341
AGILITY	202	4	10	8.04	1.221	-.904	.171	1.966	.341

Source: Researcher's Desk, SPSS data output 2023.

3.1 Assessment of Normality:

Table 1.2 shows the mean, standard deviation, skewness and kurtosis values for each construct. Tabachnick and Fidell (2007) noted that the normal range for skewness-kurtosis value should be ±2.58. All the items in the dataset were found to be normally distributed with the skewness in each case in the range of ±1.0, with standard error of 0.171, and kurtosis values in the range of ±1.0, with standard error of 0.341. This confirms that there was no major issue of non-normality of the data.

3.2 Assessment of Homogeneity of Variance:

In this study, Levene's test in SPSS 25.0 was used to determine the presence of homogeneity of variance in the dataset using Age of Respondents as a non-metric variable on the one-way ANOVA. The results of the ANOVA and Levene's tests revealed that all of the latent variables were non-significant (i.e. $p>0.05$), thus we have not violated the assumption of homogeneity of variance.

3.3 Assessment of Linearity

Tabachnick and Fidell (2007) mentioned that linearity between two variables is assessed roughly by inspection of bivariate scatterplots. If both variables are normally distributed and linearly related, the scatterplot is oval-shaped, but if one of the variables is nonnormal, then the scatterplot between latent constructs is not oval-shaped. The evidence from the scatterplots of all the latent constructs, shows that the assumption of linearity was not violated.

3.4 Measurement Model:

The measurement model is in two stages: (i) the examination of the goodness of fit indices after the indicators have been loaded into the latent variable, and (ii) the interpretation of the parameter estimates (Ukoha, 2010). The suggested goodness of fit indices provided in Hu and Bentler (1999), states that acceptable model fit is defined by the following criteria: RMSEA (≤0.6), SRMR (≤0.8), CFI (≥0.95), TLI (≥0.95), GFI (≥0.90), NFI (≥0.95) PCLOSE (≥0.5) and AGFI (≥0.90) (Byrne, 2013). Where : RMSEA = Root Mean Squared Error of Approximation, CFI = Comparative Fit Index, TLI = Turker-Lewis index, GFI = Goodness-of-Fit-Index, AGFI = Adjusted Goodness-of-Fit-Index, SRMR = Standardized Root Mean Residual, NFI = Normed Fit Index and PCLOSE = Probability of Close Fit.
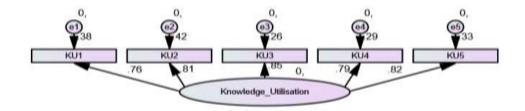

Figure 1.1: Measurement Model of Knowledge Utilisation

Table 1.3: Measurement Model Analysis of Knowledge Utilisation

Model	Chi-Square(df), Significance	χ^2/df	NFI	TLI	CFI	RMSEA	Variable	Factor Loading Estimates	Error VAR
Knowledge Utilisation	(5df) =36.585,	7.317	0.862	0.752	0.876	0.177	KU1	0.76	0.38
							KU2	0.81	0.42
							KU3	0.85	0.26
							KU4	0.79	0.29
							KU5	0.82	0.33

Source: Amos 24.0 output on research data, 2023

The results of the goodness of fit indices indicated mediocre fit to the data for one-factor model (chi-square (5df)=36.585, χ^2/df=7.317, RMSEA=0.177, CFI=876, NFI=0.862 and TLI=752). Table 4.1.36 summarized the goodness of fit indices, the factor loading estimates and the error variances. Factor loading estimates revealed that five indicators were strongly related to latent factor -knowledge utilisation - and were statistically significant. The indicators KU1, KU2, KU3, KU4 and KU5 had factor loadings of 0.76, 0.81, 0.85, 0.79, and 0.82 respectively and error variances of 0.38, 0.42, 0.26, 0.29, and 0.33 respectively. To improve the model, covariances were added between the error terms err1 and err2, err3 and err4, and err5 . After the model modification, the results of the goodness of fit indices indicated acceptable fit to the data for one-factor model (chi-square (6df)=10.447, χ^2/df=1.741, p=0.107, RMSEA=0.057, CFI=994, NFI=0.987 and TLI=985). All the other freely estimated standardized parameters were statistically significant.
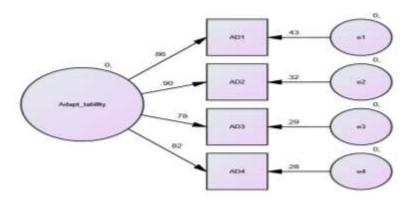

Figure 1.2: Modified Measurement Model of Adaptability

Table 1.4: Measurement Model Analysis of Adaptability

Model	Chi-Square(df), Significance	χ^2/df	NFI	TLI	CFI	RMSEA	Variable	Factor Loading Estimates	Error VAR
Adaptability	(2df) =12.057	6.028	0.949	0.968	0.956	0.158	AD1	0.86	0.43
							AD2	0.90	0.32
							AD3	0.78	0.29
							AD4	0.82	0.28

Source: Amos 24.0 output on research data, 2023

The model was overidentified with two degrees of freedom. Guided by suggestions provided in (1) Hu and Bentler (1999), acceptable model fit was defined by the following criteria: RMSEA (≤0.6), CFI (≥0.95), TLI (≥0.95), PCLOSE≥0.5, and NFI≥0.95; (2) Hair (2006) who suggested the following indices to indicate acceptable fit GFI>0.90); NFI>090; PNFI>0.60; RMSR<0.10; CFI>0.90; AGFI>0.80; RMSEA<0.08. The results of the goodness of fit indices indicated acceptable fit to the data for one-factor model (chi-square (2df)=12.057, χ^2/df=6.028, RMSEA=0.158, CFI=0.956, NFI=0.949 and TLI=0.968). Table 4.1.39 summarized the goodness of fit indices, the factor loading estimates and the error variances. Factor loading estimates revealed that the four indicators were related to latent factor -adaptability. The indicators AD1-AD4 had factor loadings of 0.86, 0.90, 0.78, and 0.82 respectively and error variances of 0.43, 0.32, 0.29, and 0.28 respectively. All freely estimated standardized parameters were statistically significant. These parameters are consistent with the position that these are reliable indicators of the construct of adaptability.
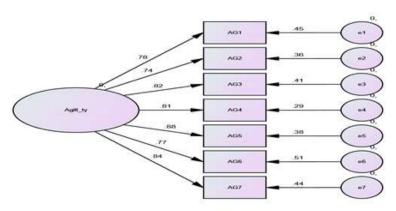

Figure 1.3: Modified Measurement Model of Agility

Table 1.5: Measurement Model Analysis of Agility

Model	Chi-Square(df), Significance	χ^2/df	NFI	TLI	CFI	RMSEA	Variable	Factor Loading Estimates	Error VAR
Agility	(14df) =121.98	8.713	0.978	0.963	0.955	0.196	AG1	0.78	0.45
							AG2	0.74	0.36
							AG3	0.82	0.41
							AG4	0.81	0.29
							AG5	0.88	0.38
							AG6	0.77	0.51
							AG7	0.84	0.44

Source: Amos 24.0 output on research data, 2023

The results of the goodness of fit indices indicated acceptable fit to the data for one-factor model (chi-square (14df)=121.98, χ^2/df=8.713, RMSEA=0.196, CFI=0.955, NFI=0.978 and TLI=0.963). The indicators AG1-AG7 had factor loadings of 0.78, 0.74, 0.82, 0.81, 0.88, 0.77 and 0.84 respectively and error variances of 0.45, 0.36, 0.41, 0.29, 0.38, 0.51 and 0.44 respectively.

Table 1.6 : Correlations and Average Variance Extracted

Variable	KU	AD	AG	AVE	Sq. Root of AVE
KU	**1.0**	0.059	0.035	**0.80**	**0.91**
AD	0.059	**1.0**	0.588	**0.82**	**0.90**
AG	0.035	0.588	**1.0**	**0.81**	**0.93**

3.4.1 Convergent Validity: The results in Tables 1.6 show that all variables have average variance extracted (AVE) values exceeding the 0.50 threshold recommended by Fornell and Larcker (1981). Thus, the model, has evidence of convergent validity.

3.4.2 Discriminant Validity: The square root of AVE of each construct is greater than its correlations with other constructs. Thus, the model has evidence of discriminant validity.
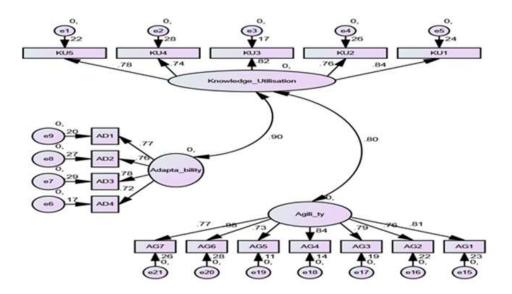
3.5 Structural Model

Figure 1.4 Structural model (linking the hypotheses)

Table 1.7 : Test of Hypotheses

S/N	Stage	Hypotheses	Estimate ≥ 0.7	C.R) ≥ 1.96	P-value < 0.05	Remark	Decision
1	KU →AD (Hypothesis 4)	There is no significant relationship between knowledge utilisation and adaptability.	0.895	4.495	0.009	Positive and Significant	Not supported
2	KU →AG (Hypothesis 5)	There is no significant relationship between knowledge utilisation and agility.	0.803	3.711	0.007	Positive and Significant	Not supported

3.6 Interpretation of Results (Inferential Analysis):

The first hypothesis (Ho:1), states that there is no significant relationship between knowledge utilisation and adaptability. However, table 1.7 indicates that knowledge utilisation has a positive and significant relationship with and adaptability of Pre-Shipment inspection companies in South-South Nigeria (β=0.895, C.R=4.495, p=0.009). Thus, Ho:1 was not supported and the alternate hypothesis is hereby accepted. Statistically, it shows that a unit increase in knowledge utilisation is associated with 89.5% increase in adaptability. Therefore, when managers effectively manage different sources and types of knowledge and utilizes available knowledge in improving services provided to its customers, the company will have a program for frequently adopting new technologies and skills. The second hypothesis (Ho:2), states that there is no significant relationship between knowledge utilisation and agility. However, table 1.7 suggests that knowledge utilisation has a positive and significant relationship with agility of Pre-Shipment inspection companies in South-South Nigeria (β=0.803, C.R=3.711, p=0.007). Thus, Ho:2 was not supported and the alternate hypothesis is hereby accepted. Statistically, it shows that a unit increase in knowledge utilisation is associated with 80.3% increase in agility. Therefore, when managers provide incentive and benefit policies for new idea suggestions in utilizing existing knowledge, the organization will quickly responds to changes in overall client demand and quickly reacts to new service launches by competitors.

3.7 Discussion of Findings:

4.2.5 Relationship between knowledge utilisation and adaptability: The result shows that there is a positive and significant relationship between knowledge utilisation and adaptability of Pre-Shipment inspection companies in South-South, Nigeria. This position is corroborated by Obeidat, Al-Suradi, Masa'deh and Tarhini (2016) who found that there is a significant and positive impact of knowledge management processes on innovation in Jordanian consulting firms, as well as a significant and positive effect of codification and personalization approaches on innovation, while the social network approach has a significant negative impact with innovation. Furthermore, this finding is in agreement with Aladwan (2017) who found that knowledge management processes (creation, acquisition, sharing, and application) have significant impact on workforce agility (proactive, adaptive, and flexible). This finding further validates the theoretical assertion extracted from the Upper echelons theory which states that organizational outcomes – both strategies and effectiveness – are reflections of the values and cognitive bases of powerful actors (senior executives) in the organization (Carpenter, Geletkanycz, & Sanders, 2004; Hambrick & Mason, 1984).

4.2.6 Relationship between knowledge utilisation and agility: The result shows that there is a strong and significant relationship between knowledge utilisation and agility of Pre-Shipment inspection companies in South-South, Nigeria. This position is corroborated by Chebet and Njuguna (2020) who found that knowledge management practices had a significant with agility, and to a great extent affected the service delivery at Oxfam International in Kenya. This study is also in consonance with Aladwan (2017) who found that knowledge management processes (creation, acquisition, sharing, and application) have significant impact on workforce agility (proactive, adaptive, and flexible). Furthermore, this finding supports the theoretical assertion extracted from the Social (or Observational) Learning Theory (McLeod, 2011) which stipulates that people can learn new behaviours by observing others. Thus, the finding supports the social learning theory by enabling managers of Pre-Shipment inspection companies understand the intricacies of how people learn from one another through observation, imitation and modeling.

3.8 Conclusion and Recommendations:

The study concludes that knowledge utilisation will boost the measures of organisational resilience, when the firm utilizes available knowledge in improving services provided to its customers, effectively manages different sources and types of knowledge and new knowledge is applied to find ways of overcoming the barriers to resilience. It is hereby recommended that Managers of Pre-Shipment inspection companies should improve their level of knowledge utilisation by effectively managing different sources and types of knowledge, utilizing available knowledge in improving services provided to its customers, having incentive and benefit policies for new idea suggestions in utilizing existing knowledge and applying new knowledge to find ways of overcoming the barriers to resilience.

3.9 Contributions to knowledge:

The findings of this study reinforce the theoretical assertions of the upper echelon theory (Hambrick & Mason, 1984), and the social learning theory (Bandura (1977) by measuring and validating a model which captures the structural affinity between knowledge utilisation and organisational resilience by specifically focusing on pre-shipment inspection companies in South-South, Nigeria.

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