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The Role of Technology and Trust in Operational Performance for Iraqi FMCG's

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Abstract. The purpose of this research is to understand the link between trust, technology and supply chain collaboration and their impact on firms' operational performances. Design/methodology/approach based on extant literature, a hypothesized model was developed and tested using structural equation modelling (PLS). A survey was conducted to collect data from the supply chain managers of fast-moving consumer goods (FMCG) companies in Iraq. The study findings suggest that trust evolves and is shaped over time through an on-going relationship and can form a competitive capability that may not be easy for competitors to replicate. Both trust and technology are found to have a significant impact on supply chain collaboration and on firms' operational performances. One of the major limitations of the study is that the data was obtained from one single economy, which restricts its generalizability across other economies. The study was a cross-sectional and descriptive sample of the FMCG industry at a given point in time. A more stringent test of the relationships between trust, technology, supply chain collaboration, and operational performance requires an in-depth case study or longitudinal study.

Keywords: FMCG; Operation performance; Technology; Trust

1. Introduction

Collaboration is the focused support required to sustain an exchange relationship. Till now, researchers have explored the subtleties of supply chain collaboration (SCC) (Fawcett *et al.*, 2012), its planes, results, and performance (Zacharia, Nix, and Lusch, 2009), buyer-supplier correspondence in terms of creation expansion, the role of technology (Fawcett *et al.*, 2011) and application of the model (Fawcett *et al.*, 2008). Moreover, Al-Doori *et al.*, (2021) believe that effective collaboration can help firms to achieve drastic results by maximizing SCA (Supply Chain Activities). Fawcett *et al.* (2012) considers trust to be an important factor in the supply chain collaboration though its efficacy is still vague. Fawcett *et al.*, (2015) deliberate devices of (SCC) Supply Chain Collaboration and believes technology and trust to be the sociological and structural resistor of collaboration. Both resistors are considered to be interrelated and work together to eradicate difficulties. Similarly, Ramanathan and Gunasekaran (2014) assume effective collaboration opens better opportunities for the future. Mutual trust is an essential prerequisite for collaboration between the two firms. Though merely trusting the partner to give desired performance can be a risk. Business collaborations may also be interrupted by external forces, miscommunication, or internal interests. Generally, trust is believed to be vital as it

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ensures supportive behaviour and encourages adaptive organizational structures Abdulameer, Yaacob, and Ibrahim (2020), decline destructive conflict, reduce operation cost, enable instant formulation for specific purpose teams at work (Mohammadi and Mukhtar, 2018), and encourage an effective solution to catastrophes. Therefore, this study tends to develop and propose a theoretical agenda that describes the association among trust, technology, collaboration, and their character in spreading organizational performance, specifically operations. Numerous empirical studies have been found to explain the relationship between enablers for collaboration and positive collaboration and its influence on businesses operative presentation and this study discovered an association between SCC (Supply Chain Collaboration) and firm operational presentation (Luo *et al.*, 2022). Likewise, (Autry, 2013) came up with the conclusion that there is a positive relation between collaboration and operative presentation.

2. Literature Review

2.1. Trust and Supply Chain Collaboration

After reviewing the literature on the impact of trust technology on operational performance through mediation of Supply chain Collaboration Overall, four variables were used in this research. two of which are independent, one mediator and one dependent i.e. faith, knowledge, Source cable teamwork, and working presentation individually. That research was observed in Thailand, and the main objective of this article was to have a deep understanding of relationship among technology, trust & operational performances through mediating role of supply chain collaboration (Babkin *et al*., 2021). The model was developed and analyzed through survey of 200 people belonging to the supply chain at decision making position in debauched poignant shopper properties (FMCG) in the particular origin of Thailand. The investigation discoveries propose that through an ongoing association, faith advances and is formed after some period and can shape a serious ability that may not be simple for contenders to reproduce. Both faith and novelty remain originate to consume critical effect on SCC coordinated effort and on businesses' working recital (Shahbaz *et al.*, 2019).

2.2. Technology and Supply Chain Collaboration

Studied the importance of technology in the supply chain Coloration technology was considered as an independent variable, whereas supply chain collaboration was a dependent variable. This study mainly focused on firms' organizational endeavors to all things considered contend that supply chains is a key worry of store network the executive researchers, and specialists. One road, improving shared social capacities that help store network mix, offers a guarantee. In any case, the viability of coordinated effort as an inventory network asset has been addressed because of concerns related to communitarian innovations, and along these lines, earlier research has required a more profound assessment of the job that advances play in encouraging mix (Shahbaz *et al.,* 2022).Using a Service-Dominant Logic perspective that emphasizes the importance of service in business, and grounded in Resource Advantage Theory, this study tests a model that examines the relationship between levels of resources, cooperation, integration, and interfirm coordination advancements, and their related performance outcomes (Autry *et al.,* 2014). The study explores how these factors are connected and how they impact business performance. An example of 282 store network directors from various businesses was studied, with proposed connections inspected utilizing basic condition displaying. Test results show that joint effort and incorporation associate to shape higher request assets that impact firm execution results through interfirm coordination advances.

2.3. Supply Chain Collaboration and Operation Performance

Studied the impact of trust technology on operational performance through mediation of Supply chain Collaboration. Overall, four variables were used in this research, of which two are independent, one mediator, and one dependent i.e., faith, knowledge, Source cable teamwork, and working presentation individually. That research was observed in Thailand. The main objective of this article was to have a deep understanding of relationship among technology, trust & operational performances through the mediating role of supply chain collaboration. The model was developed and analyzed over SEM (AMOS) survey of 200 people belonging to the supply chain at decision making position in debauched poignant shopper properties (FMCG) in the particular origin in Thailand. The investigation discoveries propose that through an on-going association, faith advances and is formed after some period and can shape a serious ability that may not be simple for contenders to reproduce. Both faith and novelty remain originate to consume critical effect on SCC coordinated effort and on businesses' working recital. find out the operational performance practices and their adoption of them and the implementation of those practices on the performance of the supply chain and also on the performance of the firm. This research is performed in India in their retail industry. The sample size is 125, which were collected by the heads only using the Quantitative approach. The purpose of this study was to determine the relationship between supply chain performance, firm performance, and supply chain management. They used regression analysis. Results show that all three have a positive relationship between them, and firm performance has the maximum weightage in terms of impact in India (Shahbaz *et al*., 2019).

Barber *et al.* (2017) finds out that SCC (Supply Chain Collaboration) and operation presentation of manufacturing firms. This schoolwork was conducted in Jordan firms of Manufacturing. A quantitative approach was used to collect the data using a questionnaire. We got 249 respondents as a sample of our research. For the analysis, we used Structural Equation Modelling to check the data results. Furthermore, the relationship of MFP and the SCP both are positive in relation to each other. Lastly, SSCM has a positive impact on the performance of the firm. Researches to find the SSCM on the food firms and to find their performance regarding ISO 9001 assurance of food safety. Kazmi *et al.* (2021) conducted a study in which they collected data from 162 Chinese food firms using a questionnaire and quantitative techniques. The researchers utilized the Structural Equation Modeling (SEM) approach on Partial Least Squares (PLS) software to interpret the collected data. The study results indicate that a friendly environment and sustainable practices can have a positive impact on the performance of food firms, supporting the study hypothesis. Moreover, the researchers found a positive correlation between social and environmental performance of the firms. Lee (2015) Investigated operational performances in terms of a Green Supply Chain in the the Environmental perspective of the Supplier. The research is conducted in South Korea, and the author investigates the GSCM effect on performances regarding environmental and operational activities. Moreover, using Quantitative approach and exploratory factor analysis through using SPSS. Targeted the supplying industries in Korea, having a sample size of 207 using SEM modeling for the results. The results indicate the win situation in both operation and the environment of the Korea supply chain industries. Lastly, GSCM contributes more to the environment.

2.4. Hypothesis

Ha1: There is a significant relationship between trust and supply chain collaboration.
Ha2: There is a significant relationship between trust and operational performance.
Ha3: There is a significant relationship between technology and supply chain collaboration.
Ha4: There is a significant relationship between technology and operational performance.

Ha5: There is a significant relationship between supply chain collaboration and operational performance.
Ha6: The relationship between trust and operational performance is mediated by supply chain collaboration.
Ha7: The relationship between technology and operational performance is mediated by supply chain collaboration.

2.5. Theoretical Framework

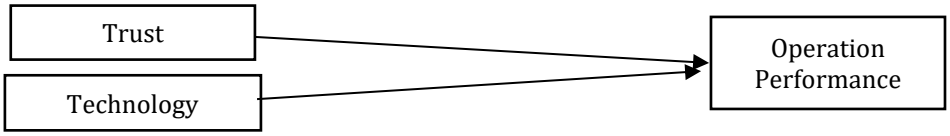

Figure 1 (Research Framework)

3. Methodology

The research philosophy of this study is positivism, as there are hypothesis testing and data generalizability. The research strategy is deductive, as the aim of this study is theory testing and empirical verification of the existing framework. The quantitative method has been used in this research to the Relationship between trust, technology, and information sharing on operational performance with Mediating Role of Supply Chain Collaboration. Quantitative study always used questionnaires as the data collection method. This research approach is principally used for explanatory research. Furthermore, quantitative research approach is mostly done to develop theories and mathematical models associated with a particular observable fact. Quantitative approach is an unbiased technique because it contains three main characteristics that are structured questions, interviews, and statistical data.

4. Results and Discussion

This chapter will explain the whole results in data analysis section. All the analysis is constructed using the Smart PLS 3 Software which includes validity, reliability, path coefficient and discriminate validity. Table 1 shows that the research respondents are 89% Male, while 11% are females from FMCG sector 178 and 22 as follow total 200 Gender Respondents. The highest age bracket among the 70 respondents was 51 years and above, comprising 35% of the total, followed by the age bracket of 41 to 50, which accounted for 29.5% of the respondents. Only a few respondents (1.5%) fell into other age brackets. Furthermore, 40% of the respondents held master's degrees, while 31% held bachelor's degrees. Among the respondents, 33.5% had 6 to 10 years of work experience, and 29.5% had more than 11 years of experience. In terms of income, 61% of respondents aged 51 and above had a high-income level, while only 6.5% of total respondents earned between 20k to 30k.

Table 1 Demographics statistics

Variable	Category	Frequency	Percentage (%)
Gender	Male	178	89%
	Female	22	11%
		200	**100%**
Age	25 to 30	32	16%
	31 to 40	39	19.5%
	41 to 50	59	29.5%
	51 and above	70	35%
		200	**100%**

4.1. Measurement of the Model Analysis

To review the model measurement, partial least square software has been used in table 2. PLS is the inactive variable meaning the procedure that merges various denied and poor builds explicitly see an estimation bungle. Partial Least Squares (PLS) path down. In particular, the luminous PLS is utilized as it takes into thought assessing both the estimation display and support model simultaneously.

The idea of the estimation show was tried by assessing the individual thing and scale enduring quality taken after by convergent and discriminant validity of constructs' measures. At begins the correlations were displayed between the variables, Trust, Technology, Collaboration, and Operational performance.

4.2. Convergent Validity

Convergent validity refers to the amount of accord between two or more two measures of a similar construct (Colicchia *et al.* 2019). Evidence of convergent validity was assessed by study of difference extract for each factor (Fornell and Larcker, 1981). According to (Fornell and Larcker, 1981) if the extracted variance value is exceeded from 0.50it shows that convergent validity is established. Furthermore, results indicate that the variance extracted in four scales 0.55 to 0.927.

Table 2 Factor loadings, Cronbach's alpha, composite reliability, and AVE

Construct Reliability and Validity					
Constructs	Items	Loading	AVE	Composite Reliability	Cronbach Alpha
Trust	Tru1	0.900	0.758	0.94	0.921
	Tru2	0.862			
	Tru3	0.811			
	Tru4	0.874			
	Tru5	0.877			
Technology	Tec1	0.749	0.648	0.901	0.864
	Tec2	0.761			
	Tec3	0.808			
	Tec4	0.838			
	Tec5	0.552			
Collaboration	Col1	0.733	0.561	0.883	0.836
	Col2	0.831			
	Col3	0.751			
	Col4	0.863			
	Col5	0.692			
Operational Performance	OP-P1	0.741	0.603	0.864	0.803
	OP-P2	0.676			
	OP-P3	0.862			
	OP-P4	0.752			
	OP-P5	0.625			

4.3. Discriminant Validity

Table 3 concludes the result of Discriminant validity as it shows that no single factor is the same as every other factor in the model. The discriminant validity was evaluated by two criteria (Fornell and Larcker, 1981) and cross-loading criterion. Discriminant validity can be measured by comparing an indicator outer loading on the other related construct and it should be greater than all of its loading than other constructs (Gandhi *et al.* 2017). All the items measuring a particular construct loaded higher on that construct and loaded lower on the other constructs that confirms the discriminant validity of the constructs. The Discriminant validity is adequate when variables have an AVE stacking greater than 0.5,

and it should not be less than half of the estimation fluctuation wedged by the development (Riazi and Nawi, 2018).

Table 3 Forrnell -Larcker

Variables	Coll	Opp	Tec	Tru
Coll	**0.777**			
Opp	0.481	**0.749**		
Tec	0.456	0.633	**0.805**	
Tru	0.474	0.614	0.453	**0.871**

4.4. Cross Loading

Table 4 shows the cross-loading of each item of their particular variable. Each value in a row should have a greater value deferentially within its variable. The above table 4.3 of HTMT tells the discriminant validity through the results generated. The values obtained of AT, CT, EI, PU, PT, and US are all less than 0.90. Structural Model Analysis. A structural model analyzes the statistics concerning some endogenous and latent variables. The most convenient feature in Partial Least Squares (PLS) method is that it can examine structural model and hypothesis by calculating path coefficients. Since PLS does not necessitate a normally distributed data, it is evaluated with R-squared calculation for latent dependent variables (Qu and Yang 2015). The hypotheses were tested by running a bootstrapping procedure as suggested by (Şahin, and Topal, 2019).

Table 4 Cross Loading

	Coll	OPP	Tec	Tru
OP-P4	0.415	**0.752**	0.606	0.560
OP-P5	0.349	**0.699**	0.360	0.445
Tec1	0.339	0.625	**0.864**	0.512
Tec2	0.135	0.549	**0.749**	0.219
Tec3	0.422	0.477	**0.761**	0.271
Tec4	0.519	0.477	**0.808**	0.457
Tec5	0.376	0.406	**0.838**	0.310
Tru1	0.459	0.651	0.552	**0.903**
Tru2	0.501	0.623	0.439	**0.900**
Tru3	0.331	0.473	0.333	**0.862**
Tru4	0.447	0.373	0.264	**0.811**
Tru5	0.277	0.481	0.311	**0.874**
Coll1	**0.733**	0.463	0.310	0.315
Coll2	**0.831**	0.321	0.293	0.310
Coll3	**0.751**	0.255	0.276	0.260
Coll4	**0.863**	0.360	0.384	0.391
Coll5	**0.692**	0.402	0.446	0.488
OP-P1	0.446	**0.741**	0.427	0.448
OP-P2	0.254	**0.676**	0.470	0.347
OP-P3	0.307	**0.862**	0.458	0.456

5. Conclusions

The existing research analysed the relationship among technology, trust, collaboration, and firm performance while focusing on the FMCG sector in Iraq. The analysis deeply explains that trust and technology are the factors associated with increasing collaboration with great effect. If it is said that effective collaboration in supply chain partner adds value that led better operational performance. In other words, collaboration can be characterized as either tangible or intangible. The intangible outcomes can be categorized as communication and relationship, higher level of trust, on-time information sharing, and

quickly respond to problem solving the innovation. Other factors include intangible factors, which mean continuous improvement in all processes. Though, Supply Chain collaboration is a tangible strategy.

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