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Service innovation and Organizational Performance Nexus: Mediating and Moderating roles of Customer Satisfaction and Employee Productivity

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Abstract: *Despite the increase in research interest on service innovation there remain some gaps to be looked at as innovation research on other sectors far outweighs that of service. This study investigated the effect of service innovation on organisational performance in the banking sector of Ghana. Data for the study was obtained from 700 respondents comprising 250 bank employees and 450 customers of banks operating in Ghana. Findings from this study revealed that, the cross-level interaction between service innovation and customer satisfaction was statistically significant. Again, findings from this study revealed that service innovation had a positive and significant effect on organizational performance; however, service innovation was found to have a positive but insignificant relationship with customer satisfaction. Furthermore, the findings revealed that organisational performance is influenced by customer satisfaction and innovation capability. Additionally, the study found that, innovation capability moderates the relationship between service innovation and organisational performance. Again, the result of the mediation test shows that customer satisfaction and employee productivity both partially and fully mediated the relationship between service innovation and organisational performance. The study contributes to the extant literature on service innovation in the banking sector from developing economy context.*

Keywords: *Service innovation; Organizational Performance; Customer Satisfaction; Innovation capability; Banks.*

I. Introduction

Services and innovations in services are considered as one of the key economic developmental drivers and engines of growth (Morrar, 2014). Countries historically recognized as industrial economies dominated by manufacturing sector are transforming and increasingly relying on services (Hsieh, Chiu, Wei, Yen, & Cheng, 2013). Services dominate the world economies (Q. Wang, Voss, Zhao, & Wang, 2015) comprising 70% of the GDP of OECD countries (F Gallouj & Windrum, 2009). Service innovation is being acknowledged for bringing economic well-being and growth (F. Gallouj, 2002) and may have a positive impact on the whole economy (Awais, 2011). Innovation is central to the existence and growth of any organization (Agarwal, Krishna, & Dev, 2003) or a country. It is recognized as a strategic driver of economic growth and performance, sustainable competitive advantage, and even survival (Durst, Mention, & Poutanen, 2015; Hong, Cheong, & Rizal, 2016; Merrilees, Rundle-Thiele, & Lye, 2011).

Extant literature on innovation has mainly focused on the manufacturing sector and the process of technological adoption by these industries (Babu et al., 2021). Nevertheless, this has seen a changing trend in recent times in lieu of the development and expansion of services. Services have a strong economic and social impact, therefore a sector of great potential to be explored in organizational research (Ibrahim & Yusheng, 2020). Along with the great strategic importance assumed by the theme of innovation in services, there has been an increased interest in research that seeks to understand the relationship between investments in innovation and performance of these innovations. Such interest converges with the fact that the economic order in which organizations operate entails a significant remodeling of competition, which leverages and influences the reciprocal discovery and exploitation of new opportunities, the ability to create innovative value propositions, and the capability to mobilize and manage global resources (Hagen, Denicolai, & Zucchella, 2014).
Characteristic for the various lines of inquiry is the consensus that service innovation follows a different logic than product innovation (Janssen, Castaldi, & Alexiev, 2015). Because of the characteristics of services (intangibility, heterogeneity, perishability and non-stockable and co-produced) and coproduced with clients, service innovation thus has different peculiarities as compared to other sectors like the manufacturing sector (F

Gallouj & Djellal, 2010). The intensive interaction with customers for instance and the tendency to fulfil actual needs makes service innovation a bit challenging compared to other innovation challenges encountered in product innovation (D´Alvano & Hidalgo, 2012). How managers should respond to this is a question asking for insight in firms' service innovation activities. Since there is limited understanding of how service innovation comes about, more detailed research into the organizational antecedents of service innovation has frequently been urged for (D´Alvano & Hidalgo, 2012; den Hertog, Van der Aa, & De Jong, 2010; F Gallouj & Djellal, 2010).

Service innovations require firms' customers and other service partners to be more deeply involved (Baines, Lightfoot, Benedettini, & Kay, 2013; Story, Raddats, Burton, Zolkiewski, & Baines, 2017). This requires firms to be able to orchestrate their service ecosystem (Kindström, Kowalkowski, & Sandberg, 2013; Martinez, Neely, Velu, Leinster-Evans, & Bisessar, 2017). For example, the banking sector provide similar products hence difficulty marketing of them, with limited space for product innovation. Service innovation plays a significant role in highly competitive banking industry. The idea of service innovation is therefore gradually gaining grounds in an intensely competitive and highly volatile banking sector that is exposed to the pressures of rapidly evolving consumer needs and wishes. Despite the uncertainty of this sector, banks have a responsibility of maximizing profitability and shareholder's wealth. The only way out for banks to achieve this desired result is through innovation (Prahalad & Hamel, 1990). In this regard, it is important to note that service innovation and performance are concepts that have the potential to be explored, so as to better understand the advances that have occurred in services and the impacts of these processes on the growth and performance of service firms (Ferraz & Santos, 2016).

Despite their immense socioeconomic importance, services and service innovation are under-researched phenomena (Jansen, Van Den Bosch, & Volberda, 2006). Even though there is a huge number of studies focusing on innovation management, there is a lack of studies focusing on the aspect of service innovation measurement and performance. Research on service innovation is attracting increased attention in the recent times and the concept of service innovation is becoming multidimensional (Hanif & Asgher, 2018). A review of literature on service innovation shows that despite the increase in research interest on this subject, there is still a lot to be done as innovation research in manufacturing sector far outweigh that of service (Jaw, Lo, & Lin, 2010). Despite the pleas for more research in this area, a service-related research gap remains mainly in the realm of service innovation (Chen, Tsou, & Ching, 2011). Thus, there is a call for further studies on service innovation in order to make development in that field (Rubalcaba, Michel, Sundbo, Brown, & Reynoso, 2012). The theory that establishes the relationship between service innovation and performance in various subsectors of services sector is sparse (Hanif & Asgher, 2018).

Furthermore, there are very few studies on the subject in a developing country context (Mahmoud, Anim, & Hinson, 2018; Yusheng & Ibrahim, 2019, 2020). There is theory/practice gap which needs to be bridged. More importantly, the effect of service innovation on organizational performance in the banking sector has not received much research attention. Given the limited understanding of service innovation, there is a call for further studies to provide empirical evidence to claims that service innovation influences organizational performance in an emerging market. Based on this assumption, this study seeks to explore the following; examine the effect of service innovation on the performance of banks in Ghana; assess the effect of service innovation on customer satisfaction; investigate the effect of customer satisfaction and innovation capability on organisational performance; assess the mediating effect of customer satisfaction in the relationship between service innovation and organisational performance; assess the moderating effect of innovation capability in service innovation and organisational performance linkage.

II. Materials and Method

Relationship between service innovation, customer satisfaction and organisational performance

Service innovation has been reported in previous research findings to have a positive influence on organisational performance as well as customer satisfaction (Gunday, Ulusoy, Kilic, & Alpkan, 2011; Ibrahim & Yusheng, 2020; Lilly & Juma, 2014; Ngumi, 2014; Yusheng & Ibrahim, 2019). Ngumi (2014) investigated the effect of banking innovations on financial performance of commercial banks in Kenya. Their findings revealed a significant positive impact of innovation on firm's growth. Their study further revealed that the combination of product and process innovation significantly improve the firm's growth. This finding supports other similar findings within the banking industry. Lilly and Juma (2014) also investigated the influence of strategic

innovation on performance of commercial banks in Kenya with a focus on commercial banks in Nairobi. Their findings revealed that product, process, organizational and market innovation have positive and significant impact on the performance of commercial banks in Ghana. Their study further found that product innovation has greater influence on bank performance in Kenya than the other three dimensions of innovation. Gunday et al. (2011) assessed the effect of innovation type on firm performance. Their study found a significant relationship between innovation type and firm performance. Again, their study found that, marketing innovation has positive impacts on financial performance, customer performance, and internal business processes performance. However, the marketing innovation was seen to have a negative impact on learning and growth performance.

Few studies have researched the effect of service innovation on customer satisfaction and concluded that, service innovation has a significant effect on customer satisfaction (Ameme & Wireko, 2016; Ibrahim & Yusheng, 2020; Mahmoud et al., 2018). Ibrahim and Yusheng (2020) in their study on the banking sector found that service innovation has a positive and significant effect on customer satisfaction. Ameme and Wireko (2016) assessed the impact of technological innovations on customers in the banking in Ghana. Their findings revealed that technological innovation adoption in the banking sector has a positive influence on customers' satisfaction. Also, Yusheng and Ibrahim (2019) in an earlier study, found that, customer satisfaction mediates the relationship between service innovation and organisational performance. From the above, we hypothesise that:
H1: There is a positive and significant relationship between service innovation and organisational performance
H2: Service innovation would have a positive and significant influence on customer satisfaction

Relationship between customer satisfaction, innovation capability and organisational performance
Customer satisfaction refers to the customer's overall evaluation of the product or service after its consumption (Choi et al., 2013). Within the banking sector, customer satisfaction is the extent to which customers are satisfied with the overall service experience (Palawatta, 2015). Previous research findings have revealed a significant relationship between customer satisfaction and firm performance of banks (Ibrahim & Abdallahamed, 2014; Ibrahim & Yusheng, 2020). Also, findings from previous studies have revealed a positive and significant effect of innovation capability and firm performance (Alam, 2013; Dalvand, Moshabaki, & Karampour, 2015; Huhtala, Sihvonen, Frösén, Jaakkola, & Tikkanen, 2014). Dalvand et al. (2015) investigated the impact of innovation capabilities on export performance of firms in Iran. Their study found positive relationship between effective and operational capabilities and export performance. Alam (2013) also investigated the relationship between innovation capabilities, business performance, marketing performance and financial performance in the manufacturing sector in Malaysia and found that, firm's innovation capabilities have greater impact on the overall performance. Huhtala et al. (2014) also investigated the effect of market orientation, innovation capability and business performance in Finland. Their study revealed that innovation capability mediates the performance effect of MO, while innovation capability mediates the relationship between customer orientation and business performance. From the foregoing, we hypothesise that:

H3: Customer satisfaction has a positive and significant effect on firm performance

H4: There is a positive and significant relationship between innovation capability and firm performance

H5: Innovation capability has a moderating role in the relationship between service innovation and organisational performance

H6: Customer satisfaction is expected to mediate the relationship between service innovation and organisational performance

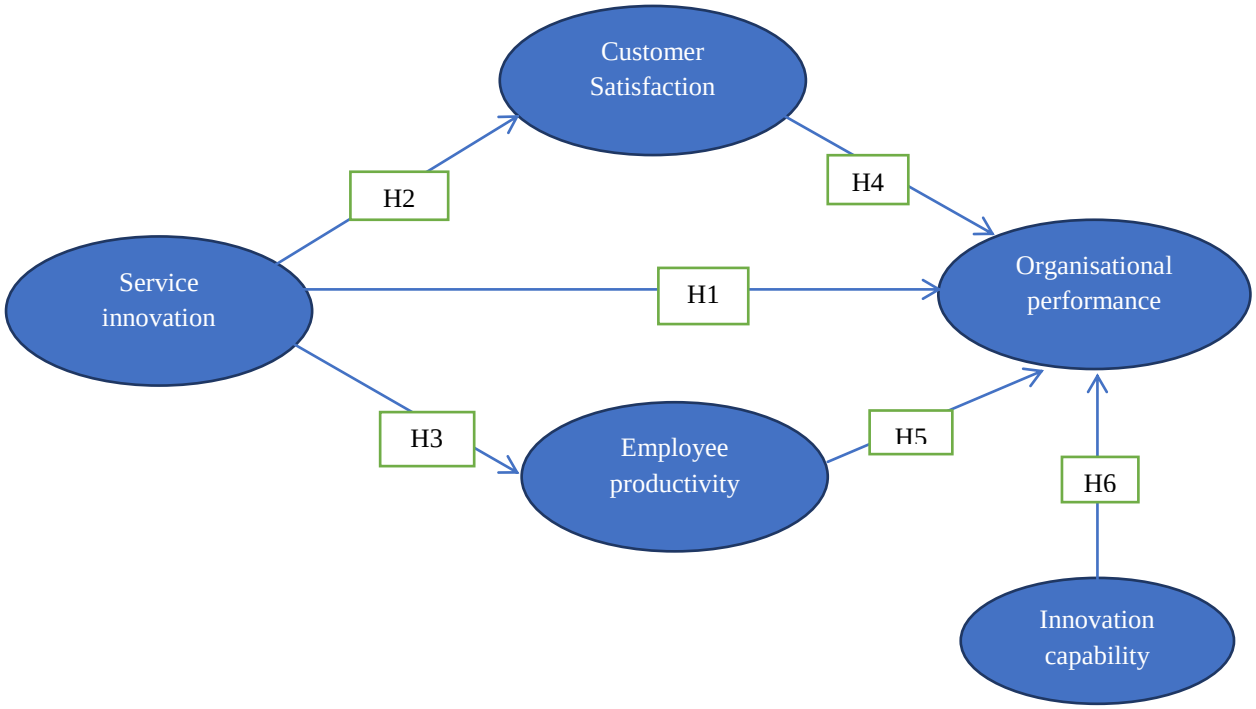

Figure 1. Conceptual model and hypothesis

Methodology

The study is an exploratory analysis intended to consider the effect of service innovation on organisational performance; the effect of customer satisfaction on organisational performance; as well as, the interaction effect of customer satisfaction in the relationship between service innovation on organisational performance. The study employed the cluster sampling, purposive sampling as well as the convenient and simple random sampling to select the research sample for the study. The research sample was drawn from two sampling frames: (1) bank employees and (2) bank customers. In all, a total of 700 data sample was used for the study comprising bank employees and bank customers. The cluster sampling was used to group the banks operating in the Ashanti Region of Ghana (The largest region in Ghana in terms of population and land mark) into different clusters based on geographical location. The convenient sampling technique was then used to select about 30 bank branches operating in the region. The purposive sampling method was then used to select 10 employees from each of the 30 bank branches sampled for the study. This brings the total of bank employees selected to 300 respondents. The bank respondents included branch managers, marketing executives, customer service executives and other important officers in the bank with the requisite information about the bank's operation. After the initial screening of the data to remove outliers and incomplete responses, a total of 250 responses were found useful for the analysis. The convenient sampling was also used to select the second sample for the study. The second sample comprised bank customers of the major banks operating in Ghana. A total of 500 sample was identified and the questionnaire distributed to them at the banking halls as well as some selected households and other workplaces. The convenient sampling method was used to collect data from this group. A total of 450 data sample was used for the data analysis after the initial screening of the data to remove outliers and incomplete responses.

Data collection instrument and procedure

For the purpose of this research the quantitative approach was adopted to understand the effect of service innovation on organisational performance in the banking sector of Ghana. The cross-sectional survey design was used to gather the data. Cross-sectional survey is defined as a data collection method where a researcher collects data from a representative cross section of the population of interest in order to understand the situation (Creswell & Creswell, 2017). The cross-sectional survey design was chosen because it allows for data to be collected on a large number of so that results can be generalized (Creswell & Creswell, 2017).

The quantitative measure of the study was obtained through structured questionnaire. A Likert scale which ranged from 1 = strongly disagree to 5 = strongly agree was used to. The questions used were adapted from previous researchers who have used similar questions in their studies. Since two samples were used in this study, two different questionnaire set was designed for each of the samples. The questionnaire was designed by the researcher by adapting items from previous studies to collect quantitative data. Measures for the service innovation questions were adapted from previous studies (Mahmoud et al., 2018; Rajapathirana & Hui, 2018; Yusheng & Ibrahim, 2019) and had 5 items variables and was measured using the Likert scale which ranged from 1 = strongly disagree to 5 = strongly agree. The customer satisfaction construct had 4 variables which was adapted from earlier studies (Ibrahim & Yusheng, 2020; Nefat, Belazić, & Alerić, 2012; C. N. Wang, Nguyen, & Tran, 2014; Yusheng & Ibrahim, 2019) and was measured using the Likert scale which ranged from 1 = strongly disagree to 5 = strongly agree. Also, the organisational performance construct had five items (***market share, return on assets, return on investment, growth in investments and overall performance***) measured on 5-point Likert scale (1 = Not very effective and 5 = Very effective) and the scale was adopted from previous research (Huhtala et al., 2014; Ibrahim & Yusheng, 2020; Rajapathirana & Hui, 2018). Data was collected between June 2018 to August 2018. The researcher collected additional data for the study due to some problems identified with the first data collected in December 2020 to Feb 2021. The researcher used informed consent form to seek permission from the respondents and assured the respondents of anonymity and confidentiality of their responses.

Data analysis

The Statistical Package for Social Sciences (SPSS V. 22) and SmartPLS v.3 were the main statistical tools used to analyse this research. The data was analysed using appropriate models for the reason of appropriateness, convenience, clarity and simplicity. Thus, the Structural Equation Modeling (SEM) was used to assess impact of service innovation on performance of banks in Ghana. To analyse the data in this study, we first performed exploratory factor analysis, and confirmatory factor analysis. These are discussed next.

Exploratory Factor Analysis (EFA)

EFA was performed with the purpose to investigate the factor loadings of individual construct in the conceptual model. As argued by scholars, reducing the number of items facilitates ease of interpretation. Principal component analysis with orthogonal rotation (Varimax rotation) was observed (Hair et al., 2017). This was performed for the measures of SI on organisational performance (CSAT and EP) and overall OP. This method was applied because it is within the scope of social sciences (Brown, 2014). The orthogonal rotation (varimax) factor matrix helps in understanding more of the explanatory variables and enhances theoretical factor pattern (Visinescu & Evangelopoulos, 2014).

Considering the measurement of the indicators of the scale regarding the constructs, reliability of scales was observed with Cronbach alpha criterion. The Cross loading of factors were not left out in this study because it helps the researcher to determine the degree of correlation of factor indicators such as convergent validity and discriminant validity. This was done because it aids the internal consistency of the factor indicators. In this regard, individual construct factor indicators were examined thoroughly by using eigen-value criteria more than 1. By implication items that have factor loadings more than 0.50 were maintained. Furthermore, common method bias was performed by the scholar via Harman's one –factor test with the rational to scrutinize the data collected from the field (Podsakoff et al., 2003, 2012). Factor indicators were determined to ascertain whether an individual factor could be the reason for the most of the variance. On this account, the outcomes of principal component analysis demonstrate that each factor accounted for 35.48% less than 50% of the variance, which was unable to be accounted from the majority of the variance (Podsakoff et al., 2003, 2012). Thus, the study's data is free from common method bias.

In this study, EFA with the orthogonal rotation (Varimax rotation) was taken care of by observing factor items extracted to examine the SI on Organisational performance, customer satisfaction and employee productivity as well the effect of CSAT and EP on OP dimensions was conducted. The factor item retained was based on the Eigen value more than 1.0 criterion as can be seen in Table 2. Each measure had satisfied the internal consistency based on the fact that cronbach's alpha was above 0.70. The factors epitomize satisfactory convergent validity since their loadings exceeded the accepted threshold of 0.4 for a sample size of 300 (Hair, Ringle, & Sarstedt, 2011; Hair et al., 2017). The aspects also epitomize adequate discriminant validity, as the correlation matrix shows no correlations which are above 0.70 and this suggest that the data is free from cross loadings issues.

With respect to sample sufficiency, the researcher conducted KMO Barlet's test to the measure of overall sampling adequacy as shown in Table 1.

Table 1. KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.820
Bartlett's Test of Sphericity	Approx. Chi-Square	4062.386
	Df	190
	Sig.	.000

Confirmatory factor analysis of the study variables

This study made use of five constructs in the framework as the main constructs (i.e., the SI, EP, CSAT, IC and OP) of this research. The study initially examined the distinct item reliabilities for the measurement model.

Factor loadings of the constructs

As shown in Table 2, the factor loading of all items of the latent variables meets the standard range of 0.7 for individual factor loading (Carmines & Zeller, 1979). Factor analysis is one of the important elements of the CFA, used to determine the acceptable loadings of the constructs and to reduce the factors which are not demonstrating the satisfactory loadings. This enables to analyze the correct and precise data.

Reliabilities and Validities of the study variables

Table 2 shows the item loadings and constructs reliability with regards to the variables used in this study. All the variables returned Cronbach's alphas above 0.70 threshold. This means that items used are highly reliable for the measurement of each construct. Construct validity assesses the degree to which a measurement represents and logically connects the observed phenomenon to the construct through the fundamental theory (Fornell & Larcker, 1981). It is assessed through convergent validity and discriminant validity (Ringle et al., 2015). Convergent validity was considered adequate since the average variance extracted (AVEs) and composite reliability (CR) are above the minimum thresholds of 0.50 and 0.70 respectively (Fornell & Larcker, 1981; Ringle et al., 2015).

Table 2. Item loading and construct reliability

	FL	CA	RHO_A	CR	AVE
Csat1	0.915	0.890	0.915	0.931	0.818
Csat2	0.915				
Csat3	0.883				
Epi	0.875	0.825	0.827	0.896	0.741
Ep2	0.846				
Ep3	0.861				
Ic1	0.845	0.782	0.783	0.873	0.697
Ic2	0.821				
Ic3	0.837				
Op1	0.851	0.796	0.803	0.880	0.709
Op2	0.828				
Op3	0.847				
Si1	0.805	0.870	0.873	0.903	0.608
Si2	0.821				
Si3	0.783				
Si4	0.723				
Si5	0.738				
Si6	0.804				

Notes: FL – Item Loadings, CS – Customer satisfaction; EP – Employee productivity/performance; IC— Innovation capability; OP -- Organizational Performance; SI – Service Innovation; AVE-Average variance extracted, CR- Composite reliability, CA – Cronbach's alpha

Results of the study

Structural assessment of the effect service innovation on organisational performance

The Partial Least Square-SEM unlike the Covariance-Based-SEM does not have a standard goodness-of-fit statistic, and efforts to establish a consistent statistic have proved problematic (Hesler & Sartedt, 2013). Rather, the measurement of the model's quality relies on its ability to predict the endogenous constructs. The coefficient of determination R^2, cross-validated redundancy *Q2* and the path coefficients are the criterion used to assess its reliability.

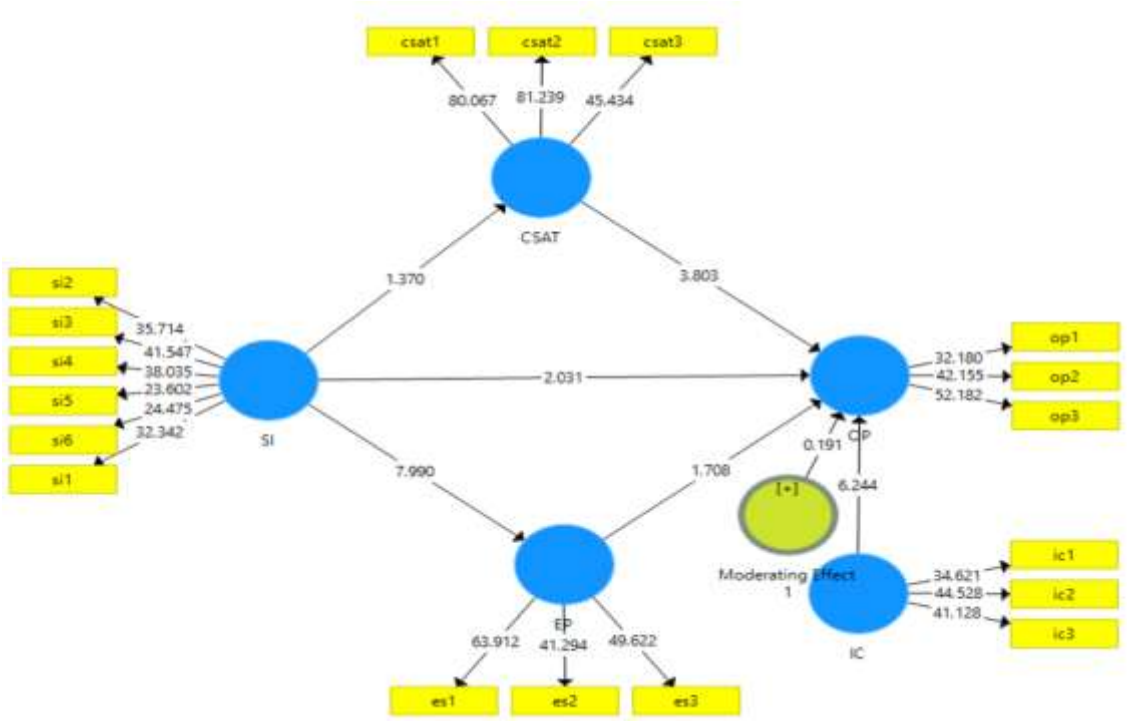

Figure 3. Structural model showing cross loadings and path coefficients in the constructs

Figure 3 shows the structural model assessment to evaluate the relationship between endogenous and exogenous variables. The structural model assesses the connection between latent constructs (Hair et al., 2017). To explore the importance of the path coefficient and analyze this, bootstrapping was used. The assessment includes path coefficients to estimate the significance of the structural model relationships and to evaluate the effect of the exogenous variable on an endogenous variable. From Figure 2, Service innovation related positively with organisational performance (0.100), customer satisfaction (0.084) and employee productivity (0.484) respectively. Customer satisfaction related negatively with organisational performance (-0.192). Employee productivity and innovation capability however, related positively with organisational performance (0.084) and (0.309) respectively.

The values of the structural model showed significant acceptable estimates, as shown in Table 2. The differentiation between the square root values of AVE which are shown in diagonals and the relation between the composite (i.e., the bottom triangle of the correlation matrix) specifies the validity of the difference. On Average, each relationship has a more grounded connection with its variables than different scholars claimed (Fornell & Larcker, 1981).

Measure of discriminant validity

Again, one of the methods of ensuring reliability of the scales is through discriminant validity. Discriminant analysis requires a factor to correlate higher than with any other construct on its scale (Messick, 1988). One of the frequently used measures for the discriminant validity is the Fornell-Lacker criterion and cross-loadings.

However, the Fornell-Lacker criterion and cross-loadings allow for reliably detecting discriminant validity issues. A more reliable alternative measure is the Heterotrait-Monotrait Ratio (HTMT). Table 4 shows that HTMT values for all pairs of constructs in a matrix format. As can be seen, the HTMT values are lower than the more conservative threshold value of 0.85. In addition to examining the HTMT ratios, the HTMT values should be significantly different from 1. The columns labeled **2.5%** and **97.5%** indicate the lower and upper bounds of the 95% (bias-corrected and accelerated) confidence interval (Table 4). As can be seen, neither of the confidence intervals includes the value of 1. For example, the lower and upper bounds of the confidence interval of HTMT for the relationship between IC and OP are 0.211 and 0.406 respectively. Since the conservative HTMT threshold of 0.85 already supports the discriminant validity (Table 4), the bootstrap confidence interval results of the HTMT criterion also is in favor of the discriminant validity of the constructs. The model's evaluation criteria thus has been met which provides support for the measure's reliability and validity.

Table 3. Fornell-Lacker Ratio Criterion

Constructs	CS	EP	IC	OP	SI
CS	0.905				
EP	-0.039	0.861			
IC	-0.526	-0.053	0.835		
OP	-0.348	0.121	0.397	0.842	
SI	0.084	0.452	-0.081	0.096	0.780

Table 4 Heterotrait-Monotrait Ratio Criterion

Constructs	CSAT	EP	IC	OP	SI
CSAT					
EP	0.053				
IC	0.627	0.068			
OP	0.402	0.153	0.496		
SI	0.096	0.531	0.100	0.120	

Table 5. Results of R^2 and Q^2 effect size

Path relationship	R^2	Adjusted R^2	Q^2	Remarks
SI -> OP	0.214	0.205	0.139	Small
SI -> CSAT	0.007	0.004	0.004	Small
SI -> EP	0.204	0.202	0.137	Small
CSAT -> OP			0.0	Small
EP -> OP			0.0	Small
IC -> OP			0.0	Small

Small: $0.0 < Q^2$ effect size < 0.15; Medium: $0.15 < Q^2$ effect size < 0.35; Large: Q^2 effect size > 0.35

Hypothesis testing and structural relationship

The structural model assesses the association between latent constructs (Hair et al., 2017). The structural model was assessed through the regression weights, t-values, p-values for significance of t-statistics (Ringle et al., 2015). The results of structural model for testing the research hypotheses are presented in Table 6.

To analyze the significance of the path estimates, bootstrapping (5000 subsample two tail test) was utilized. The findings of the path analysis show the direct effect of service innovation on organisational performance and employee productivity were supported (H1 and H3; $p < 0.001$); this led to the acceptance of H1 and H3 (see Table 6). The effect of service innovation on customer satisfaction was however not supported (H2; $p>.05$). Service innovation had a positive and significant effect on organisational performance ($\beta = 0.100$; $t = 2.03$; $p<0.05$), as well as positive effect on employee productivity ($\beta = 0.452$; $t = 8.0$; $p<0.001$). However, service innovation had a positive but insignificant effect on customer satisfaction ($\beta = 0.084$; $t = 1.37$; $p > 0.05$).

The second model also shows a positive and significant relationship between customer satisfaction and employee productivity and organisational performance. Customer satisfaction and employee productivity had significant effects on organisational performance (H4 and H5; $p < 0.001$) and this led to the acceptance of H4 and H5. Customer satisfaction had a negative but significant effect on organisational performance ($\beta = -0.192$; $t = 3.803$; $p<0.001$); this led to the acceptance of H4. Also, employee productivity had a positive and significant effect on organisational performance ($\beta = 0.084$; $t = 1.78$; $p<0.5$) which led us to the acceptance of hypothesis H5. The Beta score (0.084) means that when product innovation increases by 1%, organisational performance increases by about 8.4%. Innovation capability also had a positive and significant relationship with organisational performance ($\beta = 0.309$; $t = 6.24$; $p < 0.001$); this also led to the acceptance of H6 (see Table 6).

Table 6. Bootstrap estimates of direct path coefficient

Hypothesis	Path Relationship	Path Coefficient	STDEV	t-value	p-value
H1	SI -> OP	0.088*	0.048	1.828	0.068
H2	SI -> CSAT	-0.082*	0.045	1.807	0.071
H3	SI -> EP	0.452***	0.054	8.293	0.000
H4	CSAT -> OP	0.302***	0.051	5.978	0.000
H5	EP -> OP	0.084*	0.047	1.796	0.073
H6	IC -> OP	-0.215***	0.058	3.696	0.000

Note: Significant: *p<0.10, **p<0.05, *** p<0.001

Mediation Test

To establish the meditation effects, all significant parameters were tested using guidelines from Baron and Kenny (1986) for partial and full mediation conditions. Following the steps provided by Baron and Kenny (1986), Judd and Kenny (1981), and James and Brett (1984), first, OP (dependent variable) was regressed on Service Innovation (independent variable) and this also showed a significant effect (SI → OP, β=0.048, p=0.033). Second, CSAT (mediator) was regressed on service innovation (independent variable) and it showed a significant effect (SI → CSAT, β=-0.040, p=0.082). Third, OP (dependent variable) was regressed on CSAT (mediator) and SI (independent variable) and the effect was also significant (SI → CSAT → OP, β=0.064, p=0.002 was recorded for the first path, (β=0.397, p=0.000) was recorded for the second path. The results of the regressions are presented in Table 7. The assumption was that if all the first three or all the four steps are achieved, then mediation testing would be possible. From Table 7, the first three steps in the Kenny and Baron (1986) steps are achieved indicating mediation possibility.

Table 7. Mediation Analysis: Customer satisfaction as Mediator

Model	Regression path	β estimate	t-value	p-value
1	SI → OP	0.048	2.14	0.033
2	SI → CSAT	-0.040	-1.74	0.082
3	CSAT → OP	0.397	9.38	0.000
4	SI → OP	0.064	3.10	0.002

Notes: p-values of ***Represent 0.000 significance level

Now, determining the type of mediation whether full or partial, since the first three steps are met and the fourth condition not met, the mediation is a partial one. Full mediation holds that all the four steps should be met.

Table 8. Mediation Analysis: Employee Productivity as Mediator

Model	Regression path	β estimate	t-value	p-value	
1	SI → OP		0.048	2.14	0.033
2	SI → EP	0.240	10.65	***	
3	EP → OP		0.092	1.95	0.052
4	SI → OP		0.026	1.04	0.299

Notes: p-values of ***Represent 0.000 significance level

In this second mediation test, first, OP (dependent variable) was regressed on service innovation (independent variable) and this also showed a positive and significant effect (SI→ OP, β=0.048, p=0.033). Second, EP (mediator) was regressed on service innovation (independent variable) and it showed a significant effect (SI → EP, β=0.240, p=0.000). Third, OP (dependent variable) was regressed on the service innovation (independent variable) and EP (mediator) and the effect was significant for the first path (SI → EP → OP, β=0.092, p=0.052 was recorded for the first path, (β=0.026, p=0.299) was recorded for the second path. The results of the regressions are presented in Table 8. The assumption was that if all the first three or all the four steps are achieved, then mediation testing would be possible. From Table 6.4, all the four steps in the Kenny and Baron (1986) steps are achieved indicating mediation possibility.

Now, determining the type of mediation whether full or partial, all the four steps are achieved. The mediation is a therefore a full mediation. Full mediation holds that all the four steps should be met. In the fourth model, the effect of the predictor variable on the outcome variable (OP) was not significant when the mediator (EP) was controlled in the third model indicating a full mediation. This means that Employee Productivity fully mediated the relationship between Service Innovation and Organisational Performance in this study according to the Baron and Kenny (1986), Judd and Kenny (1981), and James and Brett (1984) mediation test.

Discussion and Conclusion

This study assessed the effect of service innovation on organisational performance in the banking sector of Ghana. Findings from this study revealed that service innovation has a direct and positive influence on organisational performance. Banks should look for the best type of innovation that is likely to contribute significantly to its performance than adopting bundles of different types of innovation. In effect, organisations should focus more on organisational innovation dimension as well as market innovation to spur the needed growth and increase performance.

Again, this study found that service innovation has positive but insignificant effect on customer satisfaction. It is expected that improving service delivery and reducing stress involved in customer engagements during banking service should improve the satisfaction of customers as they are now given the best of service through innovation in the service delivery process. However, this finding seems to suggest that the banks are not doing enough to get customers enjoying improved banking services or that the banks are not adopting the right kind of innovation that resonate with customers. This finding contradicts earlier findings that found a positive relationship between service innovation and customer satisfaction (see Yusheng & Ibrahim, 2018; Eklof et al., 2018).

Additionally, this study found a positive and direct relationship between service innovation and employee productivity. This suggests that the introduction of service operations with innovative solutions by the banks would have a positive influence on employees' productivity. There could be other factors aside service innovations that could lead employees to be productive. This finding corroborates earlier findings by Mutuku and Nyaribo (2015) who assert that service innovation would increase employees output by making them more productive. This means that banks adoption of these innovative services like the ATM, internet banking, telephone banking etc. are supposed to ease the process of banking and make employees more productive. This suggests that improving the innovativeness of banks will enhance overall bank performance including

innovative performance, production performance, market performance and financial performance (Gunday et al., 2011). This finding suggests that the more banks adopt innovation in their activities, the better they perform in terms of market performance, financial performance, and customer value creation.

The results further showed that customer satisfaction has a negative but significant relationship with organisational performance. This could be because once customers are satisfied with the level of service as provided by the bank as a result of using innovative technologies, this would influence how the customers perceive the outcome of the encounter either positive or negative. In this case, the finding shows that customers are satisfied with the level of service and this would mean doing more business with the bank which would enhance the performance of the bank. This finding supports previous results (Yusheng & Ibrahim, 2018; Kotler, 2017; Gustafsson et al., 2005; Eklof et al., 2018). Kotler (2017) stated that satisfied customers would engage more with the business in terms of repeat purchases which would increase sales and revenue for the firm.

Employee productivity was also shown to a positive and significant effect on organisational performance. This shows that, the more productive employees are the better the chances of the firm in enhancing its performance. Employee productivity means that employees are able to increase their output at a given input with all the necessary tools and support. As noted by Singh and Kamlesh (2013), to attain or obtain a sustained and continuous performance, banks must be committed to increasing the knowledge and skills sets of their employees since employee productivity depends on how efficient employees are (Yadav & Garima, 2015; Kaur & Bhatia, 2016).

Again, innovation capability was revealed to have a positive and significant on organisational performance. Innovation capability according to Vicente, Abrantes and Teixeira (2015) is the firm's capacity to develop new product through the combination of innovation behaviour, strategic capability, and internal technological process. Banks are therefore required to build their capacity to innovate as this would propel them towards achieving sustained competitiveness which in the long run would influence their performance. Also, this finding supports Adler and Shenbar (1990) point that innovation capability helps firms apply appropriate technologies to develop new product that meets the market needs and eliminate competitive threats. Banks therefore need to focus much of their efforts and attention in searching, developing and implementing new innovation capabilities to stay competitive. This is because the business landscape is changing and non-financial institutions are now developing products and services that compete effectively and in indirectly with financial institutions through various mobile money platforms that allow individuals and businesses deposit, transfer and pay for goods and services without the use of banks. This is in line with a study by Accenture where it was observed that, there would be a decrease in the use of traditional payment instruments in favour of digital payments in few years (Accenture Consulting, 2015).

With regards to the mediation test, the results show that customer satisfaction and employee productivity mediates the relationship between service innovation and organisational performance. This finding means that, firms especially banks should pay particular attention to customer satisfaction and employee productivity as both have the tendency to influence the performance of firms. Organisations should pay particular attention to customer needs, wants and expectations as these also determine the success or otherwise of the firm. Murali, Pugazhendhi and Muralidharan (2016) argue that implementing a customer satisfaction philosophy requires certain steps such as understanding customers, identifying customers' needs, wants and expectations and finally, measuring their perceptions (Sichinsambwe, Chishimba & Sikombe, 2017). Notwithstanding, focusing on the needs of employees could also propel them to work extra hard which enhances their productivity and overall perfromance of the firm.

Policy implication of the research study

Adoption of innovative business solutions not only lead to better provision of services to customers but also ensure employee job satisfaction and increase productivity for the firm. This suggests that service firms must invest wisely and co-ordinate their service innovation activities well, so as to ensure outstanding service delivery and provide innovative solutions to customers. This will enable companies to gain consumers' top of the mind consideration to build and enhance loyalty.

Service companies should also be aware that employee satisfaction is very important to the realization of the objectives of the firm. This is because dissatisfied employees would not have the zeal or inspiration to carry out their assigned tasks effectively. On the other hand, employees who are satisfied with their work would be more willing to provide better services which would result in efficiency and effectiveness. One of the factors that can

contribute to employee job satisfaction is the nature of work itself. That is, how the work is structured and the availability of the needed tools to carry out work. As such, it behooves on management to ensure that work activities are smooth and easy to carry out by employing new methods and technologies that would simplify work methods and activities to be more comfortable and convenient.

Management should increase their investment in technology to reduce incidents of technology breakdown during service operations to ensure unrestricted service delivery and access 24/7.
Another important issue worthy of attention by management is to engage in constant training for their staff engaged in providing technical assistant to customers to be informed of the needed solutions during service delivery failures in order to respond and address customer complaints adequately and satisfactorily.

Furthermore, since technology innovation entails teaming up with other players like telecommunication companies and other internet service providers, management of banks should draw up plan to constantly get feedback and also establish regular meetings to effectively enhance service provision by these third parties.

Additionally, management should invest in modern ICT to enhance their operations and ensure efficient and effective service delivery. This could result in the removal of time-consuming business processes, and the use of information and self-service technologies to reduce the duplication of human effort in the service delivery process. It could also help ensure that business processes are relatively short, easy and simple to follow by customers.

To solve the problem of lack of patronage of banks by Ghanaians, banks should integrate their services with other social media and payment platforms like WhatsApp and the Mobile Money services that enable consumers pay for services directly from their phones (similar to WeChat in China). This would enable them reach more customers who would be required to link their bank accounts to the social media services for payment purposes.

Banks should also upgrade their self-service platforms by installing ATMs that accepts both deposit and dispense cash. This would enable banks operate 24/7 in its true form and also do away with the long queues experienced by banks during service hours.
Finally, banks should also install automated queuing systems to automate customer services. This would ensure that queues in the banking halls are orderly and transparent as well as fair. It would also enable tellers work with speed to serve customers.

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