A Study on the Evolution and Assessment of ICT practices in the Indian Rural Sector Banking.

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Abstract: In order to survive in the cut throat competition, the banking sector has been adopting technical aspects. The information communication technological aspects of the banks help to attain the competitive advantage over the other. This research paper is emphasized to evaluate the information and communication technologies adopted by the banking sector in India. However, this paper is also aimed to assess the impact of information and communication technology in the Indian banking. The study focused to understand this scenario in the Indian rural sector. The samples are drawn from 300 rural banking customers and analyzed the data.

Keywords: Information communication technology; Banking; Rural Banking; Competitive Advantage

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1.   Introduction

The growing competition, dynamic customerwants and demands in this competitive business world needed the banks worldwide to use competitive strategies in order to gain competitive edge. The advent of new technologies, globalization of the economies, changing customer needs have led the banks to bring in changes in organizational business practices. The advancements in the field of ICT in the banking industry have continuously played animportant role in improving the service delivery standards of banks.Now a days, the internet banking has become the main attraction to most of the bank customers in the world. Every customer is getting impressed with this service. Customer from the comfort of his house can transact business from various parts of the country and world through this facility of internet banking. The reason why the customers choose the internet banking is the speed and cost effectiveness of transactions. They also presume full security and protection to their money in case of funds transfers and the ease of operation(Sivakoti Reddy, M. (2019)..

In addition to business class transactions, most of the individual customers are also enjoying the benefits of internet banking, by making payment of bills pertaining to various services like electricity bills, phone bills, various taxes payable to the government etc., by resorting to anywhere and anytime banking. Internet banking is more reliable and effective, as the funds transfers are effective and less time consuming. When the service of Internet banking was provided, it was not so easy to the customers. The customer needed to remember two levels of passwords, one for viewing his accounts and the other password for actually making a transaction. Over the years, the process was made easy and customer friendly. For execution of transactions, banks are providing 'One Time Password' (OTP) to the customer. Even if the customer forgets the password, he is alerted to furnish the OTP which is sent to him over e-mail or his registered mobile phone. The customer is prompted to furnish the OTP to confirm the identity. Once the OTP turns out to be correct, customer can do the transaction, without any hazard (Sivakoti Reddy, M., Murali Krishna, S.M. (2019).

Banks aim of introduction of technology and e-banking are multifold. These can be categorized into two, namely customer centric and cost saving for banks. Customers are the maximum beneficiaries of the technology and e-banking (Sivakoti Reddy, M., Venkateswarlu, N. (2019). In this era of advanced technology, people find no time to go to the bank branch and wait for hours together to get their financial transactions done. Fortunately, the customer can now open term deposit and other accounts in his bank at the comfort of his home through his personal computer or Android Phone with internet connection. He can make funds transfers from one account to another account. He can make his bills payments and other payments online, using his internet banking account or ATM cards.

2.   Evolution ofbanking in India:

In ancient era of India, the money lending was done by the traditional banking community called Kabuliwalas. The Kabuliwalas and other indigenous bankers were having skills of lending money to the needy people for

various purposes like running small production units and consumption expenses on the occasions like marriages and other functions. They used to recover the moneys in easy installments. Sometimes, they used to recover only interest and the principle remained forever. With this type of lending some land lords and sahukars have also misused their money power and made the borrowers as their bonded labor. They were very shrewd money lenders and maintained their accounts as 'chittas' which were their ledgers. They used to obtain the pro-notes from the illiterate borrowers with their finger prints as evidence of borrowing money.Upto early 1900s, the institutionalized banking was first done through the foreign banks. There were no indigenous banks. In early 1900s, as a part of Home Rule Movement, some Swadeshi banks were started by the local entrepreneurs in various cities. Those days, these banks were very posh and common people cannot even enter these banks. Most of the present nationalized banks were started as the Swadeshi banks. Though these banks were started, major portion of the banking was still done with the giant foreign banks (Addela, S., Sivakoti Reddy, M. (2019).

3.   Adoption of ICT & e-banking:

Banks aim of introduction of technology and e-banking are multifold. These can be categorized into two, namely customer centric and cost saving for banks. Customers are the maximum beneficiaries of the technology and e-banking. In this era of advanced technology, people find no time to go to the bank branch and wait for hours together to get their financial transactions done. Fortunately, the customer can now open term deposit and other accounts in his bank at the comfort of his home through his personal computer or Android Phone with internet connection. He can make funds transfers from one account to another account. He can make his bills payments and other payments online, using his internet banking account or ATM cards.For the cash needs, the customer is depending on the ATMs. In this digital era, need for physical money is getting reduced. Cash is not required for making various payments like children's School / College fees, power and phone bills, payments for purchases in malls etc (Vijaya, P., Sivakoti Reddy, M. (2019). All these payments can be made online or with plastic money, even without having physical cash. Goods and services can even be purchased in online marketing portals like Amazon, Flipkartetc, by making payments online or using credit and credit cards.

On the other hand, the implementation of electronic banking in the form of Core Banking solutions has reduced the costs for banks. Now a days, man power costs have gone up by a large extent. Average cost of each employee in the banks is working out to lakhs of rupees per month. Fortunately, due to adoption of e- banking and the customers staying away from the banks have reduced the no. of staff members required to carry out the transactions. The banks have hence drastically reduced the manpower. Even the existing employees are put to other uses like marketing need of banks.

4.   Review of Literature:

The studies on e-banking initiatives to improve the customer service by banks mostly show that the facilities and expectations of customers in this area are differing and there exist some gaps in quality between the customer expectations and the facilities provided by various banks, both in public sector and private sector. Such gap is higher in the public-sector banks compared with their counterparts in private sector.Firstly, let us consider the technology of banking facility provided by banks to the customers. This facility is provided by banks to its selected customers using the medium of Internet through the banks website. Using this mode of e-banking, a customer can have access to his account in the bank, can view the balance and transactions in the account, carry out transactions like transferring of funds to other accounts in the same bank, as well as other banks, and make his utility bill payments and a host of other transactions.

Customer's favorable approach towards technology banking is the need of the day. The services are to be available anywhere they want to access and at any time of their convenience. However this does not mean that the branches have no role to play(Manukonda et al. (2019). According to Wang (2016), in general marketing aims at maintaining and enhancing the use of goods and services. As Levinthal and Fichrnan (1988) observed "Relationship duration and customer feelings were found to be best predictors of the development of relationship". Traditional branch banking continues to a limited level. However the ambit of delivery channels expanded and continues to expand, as per Delvin (1995). Customer usage is essential as it builds customers habits and reduces customer uncertainty, as per Sheth and Parvatiar (1995). As observed by Kimball and George (1995), developing alternative channels is essential system to attract new customers for all the financial institutions.

First self-service device introduced by banks was the Automated Teller Machine (ATM). This was aimed at providing convenience to customers while the banks can cut down on the manpower costs. Phone banking is the next banking service delivery channel provided through various channels. Nevens (1999) has stated that the cost of transaction of banks fell by over 80% when handled electronically. By the middle of 1990s, most of the financial institutions have offered the net banking delivery channel to their customers. Gradually, the internet is recognized as a best channel to the phone banking system (Claessens et.al (2001).

As per the Eurobarometer Survey, 2002, internet occupied the strategic role followed in respect of banking operations and services, training, education, and health. Banks are now providing a host of services to their customers through the medium of internet, as it is cheaper than the other channels of communication with banks having less number of staff and fewer physical branch visiting customers (Gopalakrishnan et. al. 2003). However, the response from the customers to Internet banking is not so strong as the banks have expected. According to Furnel (2004), customers are apprehensive of the confidentiality and security of the banks internet banking system. Weitet.al. (2006) observed that internet banking system enables customers' access their bank accounts remotely and manage them. In the past decades, self-service systems have replaced the direct visit of the customers to bank branches (Eriksson and Nilsson (2007)).Rogers and Shoemaker (1871) narrated that Consumers or customers undergo the system ofinformation, persuasion, decision and confirmation before becoming ready to adopt the service or product. Adoption or rejection of a new and innovative product or service starts right when the customer becomes to know of the product (Sivakoti Reddy, M., Naga Bhaskar, M., Nagabhushan, A.(2019).

5. Research gaps:

Despite the existing literature on banker's and customer's perception towards the e-banking practices, research on the influence of e-banking on organizational performance is scarce and show contradictory results. Some practioners have posited that e-banking practices are ineffective and not well understood in enhancing the customer satisfaction. Dowling (2002) suggests that e-banking practices do not necessarily foster organizational performance and customer satisfaction. Conversely, a few studies show that e-banking practices have a positive impact on consumers' transactional decision.

The divergent views suggest a need to fully know the concept of e-banking in the Indian banking scenario better. There are still no clear indicators as to whether these initiatives are successful with some research supporting the value of e-banking programs to customers while others are not as supportive of its value. There is also the possibility that what e-banking programmes in one country may not work in another, and that there may be variation across countries and across different cultures. In this connection, little research has investigated about the knowledge, perceptions, feelings, emotions and gratifications on e-banking impact over the organizational performance and customer satisfaction in Indian banking scenario. Therefore, this study aimed to provide exploratory evidence in two-fold as in the first phase the study reveals the bank employees perception towards to e-banking on organizational performance and in the second phase the study focused to identify the impact of e-banking factors over the organizational performance as well as customer satisfaction level.

6. Research Design:

Within the given limited amount of information available on banker's and customer's perception towards the organizational performance and the customer satisfaction in an Indian context it is believed that adopting both qualitative and quantitative research approaches to explore and examine the determinant attributes of customer's perceptions towards the e-banking to determine the organizational performance and the customer performance in the Indian banking sector. In the qualitative approach exploratory study is conducted to identify determinant attributes of customer's perception towards the e-banking in the Indian banking sector. Furthermore, the researcher collected the required samples from the rural banking customers. With a structures questionnaire the researcher collected 300 samples for this study.

7. Data Analysis:

$H1_0$: Tangability will not have significant effect over Oragnisational performance

To test the above hypothesis, the researcher used the summated scores of all the items which are validated in the exploratory factor analysis for the variable of Competitive advantage as the independent variable. The same phenomenon is carried out for the dependent variable too and regressed them. The results revealed a model summary table presented in below table – 1.

Table - 1: Model Summary for Tangability over Organisational Performance

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std.Error of the Estimate**
1	0.686	0.471	0.470	0.60919
a. Predictor: (Constant), MOrgPerf				

The results revealed that the regression coeffecient R^2 which explains a high variance i.e47.1 percent in the model. The model also disclosed the value of R^2 is 47.1 and the adjusted R^2 is 47.0 percent in the model. The standard error estimate of the model is found to be 0.60919. This is clearly indicating that the independent variable of tangability has the significant impact over the dependent variable. Further, the analysis yielded the ANOVA results of the models and the results are tabulated in table – 2:

Table - 2: ANOVA results of Tangability over Organisational Performance

ANOVA						
Model		**Sum of Squares**	**df**	**Mean square**	**F**	**Sig.**
1	**Regression**	**192.812**	**1**	**192.812**	**519.553**	**0.000**
	Residual	**216.728**	**584**	**0.371**	**--**	**--**
	Total	**409.540**	**585**	**--**	**--**	**--**
Dependent Variable: Organizational Performance						
Predictions: (Constant), MCompAd						

The analysis of variance in the model is explained in the ANOVA results of the model. The concerned F-value of the model is found to be 519.553 and the p-value is found to be 0.000 which is significant. The beta coefficients of the concerned model is presented in the following table – 3.

Table - 3: Beta Coefficients of the model Reliability over Organisaitonal Performance.

Model	Variable	Unstandardized Coefficients		Standardized Coefficients	t-Value	Sig.
		B	**Std.Error**	**Beta**		
1	**(Constant)**	**-0.004**	**0.164**	**--**	**-0.027**	**0.000**
	Responsiveness	**0.926**	**0.041**	**0.686**	**22.794**	**0.000**
Dependent Variable: Organizational Performance						

The concerned model derived one regression model which derived the constant as -0.004 and the beta coeffecient of the independent variable i.eTangability is 0.926. The standard error of the model is found to be 0.041, t-value of the concerned model is found to be 22.794 and the p-value is found to be 0.000. Based on the results of this model we can derive regression equations as mentioned below.

OrganisaitonalPerforamance = -0.004 + 0.926 (Tangability) + e

$H2_0$: Reliability will not have significant effect over oragnisational performance

To test the above hypothesis, the researcher used the summated scores of all the items which are validated in the exploratory factor analysis for the variable of Competitive advantage as the independent variable. The same phenomenon is carried out for the dependent variable too and regressed them. The results revealed a model summary table presented in below table – 4.

Table - 4: Model Summary for Reliability over Organisational Performance

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std.Error of the Estimate**
1	**0.686**	**0.471**	**0.470**	**0.60919**
a. Predictor: (Constant), CompAd				

The results revealed that the regression coefficient R^2 which explains a high variance i.e47.1 percent in the model. The model also disclosed the value of R is 0.686 and the adjusted R^2 is 47.1 percent in the model. The standard error estimate of the model is found to be 0.60919. This is clearly indicating that the independent variable of reliability has the significant impact over the dependent variable. Further, the analysis yielded the ANOVA results of the models and the results are tabulated in table – 5

Table - 5: ANOVA results of Reliability over Organisational Performance

ANOVA						
Model		**Sum of Squares**	**df**	**Mean square**	**F**	**Sig.**
1	**Regression**	192.812	1	192.812	519.553	0.000
	Residual	216.728	584	0.371	--	--
	Total	409.540	585	--	--	--
Dependent Variable: Reliability						
Predictions: (Constant), MOrgPer						

The analysis of variance in the model is explained in the ANOVA results of the model. The concerned F-value of the model is found to be 519.553 and the p-value is found to be 0.000 which is significant. The beta coefficients of the concerned model is presented in the following table – 6.

Table - 6: Beta Coefficients of the model Reliability over Organisaitonal Performance.

Model	**Variable**	**Unstandardized Coefficients**		**Standardized Coefficients**	**t-Value**	**Sig.**
		B	**Std.Error**	**Beta**		
1	**(Constant)**	-0.004	0.164	--	-0.027	0.000
	Responsiveness	0.926	0.041	0.686	22.794	0.000
Dependent Variable: Organizational Performance						

The concerned model derived one regression model which derived the constant as -0.004 and the beta coeffecient of the independent variable i.e Reliability is 0.926. The standard error of the model is found to be 0.041, t-value of the concerned model is found to be 92.6 and the p-value is found to be 0.000. Based on the results of this model we can derive regression equations as mentioned below.

OrganisaitonalPerforamance = -0.004 + 0.926 (Reliability) + e

$H3_0$: Responsiveness will not have significant effect on Organisational Performance

In the above-mentioned hypothesis, the relationship between the independent variable i.e Responsiveness and the dependent variable i.eOrganisational Performance is tested by using simple linear regression analysis (SLRA). To perform this, the mean score of Responsiveness is regressed upon the mean score of Organisational Performance. The results of the concerned analysis are presented in Table - 7. The results revealed that the predictor variables contribute significantly and had moderate impact on the dependent variable of Organisational Performance. The percentage of variance in dependent variable (Organisational Performance) that is together explained by the independent variable (Responsiveness) in the model R^2= 0.219. The corresponding ANOVA value (F =279.126, p=0.000) for the regression models had indicated the validation with Organisational Performance.

Table-7: Regression Model Summaries for the Responsiveness on Organisational Performance

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std.Error of the Estimate**
1	0.468	0.219	0.218	0.853
a. Predictor: (Constant), CompAd				

The coefficient summary shown in Table 5.33disclosed that the βcoefficient is 0.542; t-static value is 16.711 and p=0.000 which indicates that Responsiveness was significant predictor of Organisational Performance. The results are implicated that predictor variable is related with dependent variable. Hence, null hypothesis is disproved and alternate hypothesis (H3) is accepted as their p-values were less than 0.05.

Here the following simple linear regression model

Organisational Performance (Y) = 2.507+ 0.542 (Responsiveness) X

Table-8: Predictor effects and Beta Estimates (Unstandardized) for Organisational Performance associated with the Responsiveness

Model	Variable	Unstandardized Coefficients		Standardized Coefficients	t-Value	Sig.
		B	Std.Error	Beta		
1	(Constant)	2.507	0.192	--	13.063	0.000
	Responsiveness	0.542	0.032	0.468	16.711	0.000
Dependent Variable: Organizational Performance						

$H4_0$: Assurance will not have significant effect on Organisational Performance

In the above-mentioned hypothesis, the relationship between the independent variable i.e Assurance and the dependent variable i.eOrganisational Performance is tested by using simple linear regression analysis (SLRA). To perform this, the mean score of Assurance is regressed upon the mean score of Organisational Performance. The results of the concerned analysis are presented in Table 5.32. The results revealed that the predictor variables contribute significantly and had moderate impact on the dependent variable of Organisational Performance. The percentage of variance in dependent variable (Organisational Performance) that is together explained by the independent variable (Assurance) in the model R^2= 0.108. The corresponding ANOVA value (F =121.162, p=0.000) for the regression models had indicated the validation with Organisational Performance.

Table-9: Regression Model Summaries for the Assurance on Organisational Performance

Model Summary				
Model	R	R Square	Adjusted R Square	Std.Error of the Estimate
1	0.329	0.108	0.107	0.91147
a. Predictor: (Constant), Assurance				

The coefficient summary shown in Table 5.33disclosed that the βcoefficient is 0.354; t-static value is 11.007 and p=0.000 which indicates that Assurance was significant predictor of Organisational Performance. The results are implicated that predictor variable is related with dependent variable. Hence, null hypothesis is disproved and alternate hypothesis (H4) is accepted as their p-values were less than 0.05.

Here the following simple linear regression model

Organisational Performance (Y) = 3.573+ 0.354 (Assurance) X

Table-10: Predictor effects and Beta Estimates (Unstandardized) for Organisational Performance associated with the Assurance

Model	Variable	Unstandardized Coefficients		Standardized Coefficients	t-Value	Sig.
		B	Std.Error	Beta		
1	(Constant)	3.573	0.194	--	18.434	0.000
	Responsiveness	0.354	0.032	0.329	11.007	0.000
Dependent Variable: Organizational Performance						

$H5_0$: Empathy will not have significant effect on Organisational Performance

In the above-mentioned hypothesis, the relationship between the independent variable i.e Empathy and the dependent variable i.eOrganisational Performance is tested by using simple linear regression analysis (SLRA). To perform this, the mean score of Empathy is regressed upon the mean score of Organisational Performance. The results of the concerned analysis are presented in Table 5.32. The results revealed that the predictor variables contribute significantly and had moderate impact on the dependent variable of Organisational Performance. The

percentage of variance in dependent variable (Organisational Performance) that is together explained by the independent variable (Empathy) in the model R^2= 0.237. The corresponding ANOVA value (F =309.476, p=0.000) for the regression models had indicated the validation with Organisational Performance.

Table-11: Regression Model Summaries for the Empathy on Organisational Performance

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std.Error of the Estimate**
1	**0.487**	**0.237**	**0.236**	**0.843**
a. **Predictor: (Constant), Empathy**				

The coefficient summary shown in Table 5.33disclosed that the βcoefficient is 0.521; t-static value is 17.592 and p=0.000 which indicates that Empathy was significant predictor of Organisational Performance. The results are implicated that predictor variable is related with dependent variable. Hence, null hypothesis is disproved and alternate hypothesis (H5) is accepted as their p-values were less than 0.05.

Here the following simple linear regression model

Organisational Performance (Y) = 2.747+ 0.521 (Empathy) X

Table-12: Predictor effects and Beta Estimates (Unstandardized) for Organisational Performance associated with the Empathy

Model	Variable	Unstandardized Coefficients		Standardized Coefficients	t-Value	Sig.
		B	**Std.Error**	**Beta**		
1	**(Constant)**	**2.747**	**0.169**	**--**	**16.258**	**0.000**
	Empathy	**0.521**	**0.030**	**0.487**	**17.592**	**0.000**
Dependent Variable: Organizational Performance						

H6$_0$: Organisational Performance will not have significant effect on Customer Satisfaction

In the above-mentioned hypothesis, the relationship between the independent variable i.eOrganisational Performance and the dependent variable i.e Customer Satisfaction is tested by using simple linear regression analysis (SLRA). To perform this, the mean score of Organisational Performance is regressed upon the mean score of Customer Satisfaction. The results of the concerned analysis are presented in Table - 13. The results revealed that the predictor variables contribute significantly and had moderate impact on the dependent variable of Customer Satisfaction. The percentage of variance in dependent variable (Customer Satisfaction) that is together explained by the independent variable (Organisational Performance) in the model R^2= 0.486. The corresponding ANOVA value (F =943.405, p=0.000) for the regression models had indicated the validation with Customer Satisfaction.

Table-13: Regression Model Summaries for the Organisational Performance on Customer Satisfaction

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std.Error of the Estimate**
1	**0.697**	**0.486**	**0.485**	**0.855**
a. **Predictor: (Constant), Organizational Performance**				

The coefficient summary shown in Table 5.33disclosed that the βcoefficient is 0.862; t-static value is 30.715 and p=0.000 which indicates that Organisational Performance was significant predictor of Customer Satisfaction. The results are implicated that predictor variable is related with dependent variable. Hence, null hypothesis is disproved and alternate hypothesis (H6) is accepted as their p-values were less than 0.05.

Here the following simple linear regression model

Customer Satisfaction (Y) = 0.291+ 0.862 (Organisational Performance) X

Table-14: Predictor effects and Beta Estimates (Unstandardized) for Customer Satisfaction   associated with the Organisational Performance

Model	Variable	Unstandardized Coefficients		Standardized Coefficients	t-Value	Sig.
		B	Std.Error	Beta		
1	(Constant)	0.291	0.162	--	1.802	0.000
	Organizational Performance	0.862	0.028	0.697	30.715	0.000
Dependent Variable: Customer Satisfaction						

8.   Conclusion:

The current findings of the study contribute to understand the effect of information and communication technology over the organizational performance in terms. The researcher tried to disclose the perceptions of the customers towards the information and communication technology's impact over the organizational performance in the Indian banking industry. The researcher also tested the impact of organizational performance over the customer satisfaction. The study will be considered as the value addition and the added knowledge to the very scant academic literature so far. The overall results of the study revealed the perception of the customers with reference to the impact of information and communication technology's impact over the organizational performance. The researcher proposed that the factors of competitive advantage and the cost leadership are impacting the organizational performance. The variables of tangibility, reliability, responsiveness, assurance and empathy are considered to test the impact of information and communication technology over the organizational performance in the customer's view. Further, the researcher tested the impact of organizational performance over the customer satisfaction in the context of information and communication technology in Indian banking sector

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