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Article

Investigating the relationship between IT capability and organizational performance: An empirical evidence from Indian banking units

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Investigating the relationship between IT capability and Organizational Performance: An Empirical evidence from Indian Banking Units

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ABSTRACT:

The purpose of this paper is to empirically analyze the effect of information technology (IT) capability on organizational performance through a resource based view (RBV). Primary data collected from 50 IT executives and 250 managers are used for this study and multiple linear regression (MLR) is employed to assess the link between IT capability dimensions (IT knowledge, IT objects, and IT operations) and organizational performance. This study concludes that IT capability has a significant positive relationship with organizational performance. This study is relevant to IT literature as it contributes a thorough analysis on key dimensions under IT capability that represent a significant link with organizational performance.

KEY WORDS: IT capability, resource based view, multiple linear regression, organizational performance.

1. INTRODUCTION

It is essential for every organization to manage important information in an effective manner, as it may provide a basis for gaining an edge over the competitors. Well managed information can create and add value to the business and hence act as an intangible resource that is needed to capture and leverage other critical firm resources (Sampller, 1998; Tippins and Sohi, 2003; Gibb and Haar, 2007). Researchers on the business value of Information Technology (IT) investigate the organizational performance impacts of IT and found out that information technology may indeed contribute to the improvement of organizational performance (Brynjolfsson and Hitt, 1996; Devaraj and Kohli, 2003; Barua et al., 1995). Under high market competition, globalization, technological changes, etc. firms can experience performance gains and competitive advantage with their IT entrenched across a sequence of firm linkages, such as capabilities, strategy, and infrastructure (Henderson and Venkatraman, 1993).

It has been observed that financial organizations such as banking firms are frequently utilizing computer-based technology since last two decades to facilitate better services and as the modern technology evolves the speed of adoption of IT is expected to grow further. Managing the information is a key activity in banking as it plays an important role in the process of decision making. The modern handling of IT by electronic means help in data accumulation, accessing, storage, processing, transportation, etc. which ease up the daily banking operations.

The objective of this paper is to examine the direct effects of IT capabilities on organizational performance by analyzing three major IT capability dimensions suggested by Tippins and Sohi (2003). The major research gap revealed from the previous literature is the lack of detailed examination of these dimensions. Therefore, a thorough investigation on exploring the effects of the critical IT capability components on attaining enhanced organizational performance validates the novelty of this work. This analysis refers to a resource-based view of the firm which asserts development of unique and diversely distributed resources that are not easily copied, imitated, or substituted and help the organization to outperform its competitors (Barney, 1991).

2. LITERATURE REVIEW

The concept of IT capability was coined by Ross et al. (1996) and they have defined IT capability as the ability to assemble, integrate and employ IT- based resources to assist firms to add value to their business and to gain a performance advantage over competitors. They have described IT capability as a compressive embodiment of three types dimensions namely IT human assets, technological asset and relational assets. Various authors have explained IT capability based on their conceptual and analytical backgrounds. For example Heijden (2000) pointed out that IT capability refers to the relationships between IT department and other business departments with specific focus on organization's information technology function. IT capability is also elucidated as the ability of a firm to assemble and convey IT based assets in consolidation with different firm assets, and capabilities and the key elements comprised of human IT resources, IT infrastructure, and intangible assets enabled by IT (Bharadwaj, 2000). Tippins and Sohi (2003) defined IT capabilities as the degree to which organizations are educated about IT, and proficiently use IT to oversee information inside the organization. They have also explained IT capabilities as IT competencies which may enhance organizational performance by reducing inefficiency, long term operational cost, transaction errors, etc.

From the resource-based view perspective, resources are imperative for achieving competitive advantage and act as drivers for superior long-term performance (Barney 1991; Grant 1991). IT is regarded an essential capital as it has the ability to coordinate with different organizational assets and capabilities in order to facilitate the realization of economies of scope (Afuah, 2003; Gurbaxani and Wang, 1991). RBV highlights IT as a key player in making the firms to be more diversified and assist the firms to be more vertically integrated (Ray et al., 2012).

Many researchers have adopted diverse conceptual, theoretical, empirical, and analytic approaches to explore the extent of IT application within firms to improve organizational performance (Brynjolfsson, 1993; Brynjolfsson and Yang, 1996; Dedrick et al., 2003; Wilson, 1995; Bharadwaj et al., 1999; Panda and Rath, 2014). Myriad of studies have investigated the relationship between IT and explicit components of firm strategy such as competitive advantage (Mata et al., 1995; Bhatt and Grover, 2005), environmental scanning (Maier et al., 1997), knowledge accumulation (Bettis and Hitt, 1995; Grant, 1996), and organizational performance (Dollinger, 1984; Powell and Dent-Micallef, 1997; Bharadwaj, 2000).

Application of RBV has the ability to categorize vital elements of superior business performance and it helps researchers to understand the role of information system within the firm (Wade and Hulland, 2004). Few research works have focused more specifically on IT capabilities and explored the impact of IT capabilities on firm performance using the concept of RBV (Bharadwaj, 2000; Li et al., 2006; Tippins and Sohi, 2003, Ringim et al., 2012; Santhanam and Hartono, 2003). The business value of IT is generally assessed by the organizational performance impacts of IT, which may comprise of productivity enhancement, profitability, operational cost reduction, inventory reduction, competitive advantage, and other measures of firm performance (Devaraj and Kohli, 2003; Mukhopadhyay et al., 1995; Hitt and Brynjolfsson, 1996; Kriebel and Kauffman, 1988). As explained by numerous resource based theories, IT capability is one of the important assets of firm's competitive advantage and firm's competitive position is an immediate reflection of its financial performance (Porter, 1985; Porter and Millar, 1985).

Effective management of IT is highly important for firms as it is able to fundamentally improve the firms' capability by means of searching, capturing, using, storing, and transferring information (Martin, 1988). IT also plays a key role in organizational strategy making as it can receive and administer information regarding firm's market position in a timely manner, providing them with competitive advantage and timely received information can be utilized by the firms far quicker than the competitors with response to business environmental changes.

Under the resource-based view, complementarity and co-specialization are two important aspects that the organization should follow to protect and further enhance the essential advantages accomplished from IT (Powell and Dent-Micallef, 1997). Complementarity exists when the value of one asset is upgraded by the vicinity of an alternate asset (Powell and Dent-Micallef, 1997) and the real value of IT is enhanced when firms exercise it to acquire knowledge about its clients, markets and different elements that impact performance. If one resource has little or no value without another, then there exists a co-specialization (Clemons and Row, 1991).

This paper primarily focuses upon the three major dimensions of IT capability suggested by Tippins and Sohi (2003), which include IT knowledge, IT operations, and IT objects. IT knowledge is a distinct subset of the more general know-how embedded inside an organization regarding technical knowledge and other aspects of IT that may

be hard to calculate (Capon and Glazer, 1987). IT operations are the organizational activities that are needed to meet specific goals (Mitcham and Mackey, 1983) and these activities may incorporate some methods, skills, and processes required to complete the task (Granstrand, 1982). Finally, IT objects are referred as the artifacts comprised of the computer-based physical tools, which support the “acquisition, processing, storage, dissemination, and use” of information (Martin, 1988). Conceptualization of IT objects generally includes computer-based hardware, software, and IT support staffs. Many studies suggest a positive impact of IT capability on firm performance (Bharadwaj, 2000; Li et al., 2006; Tippins and Sohi, 2003; Weihong et al., 2010). Owing to the previous literature, the overall objective of this work is to investigate the relationship between IT capability attributes and organizational performance through a resource-based view which proposes the following hypotheses stated as:

Hypotheses:

H_1 - IT capability has a significant positive impact on organizational performance.

H_{1a} - IT knowledge has a significant positive impact on organizational performance.

H_{1b} - IT operations have a significant positive impact on organizational performance.

H_{1c} - IT objects have a significant positive impact on organizational performance.

These above cited hypotheses can be well illustrated in the form of a conceptual model as represented below.

Figure 1. Research Model

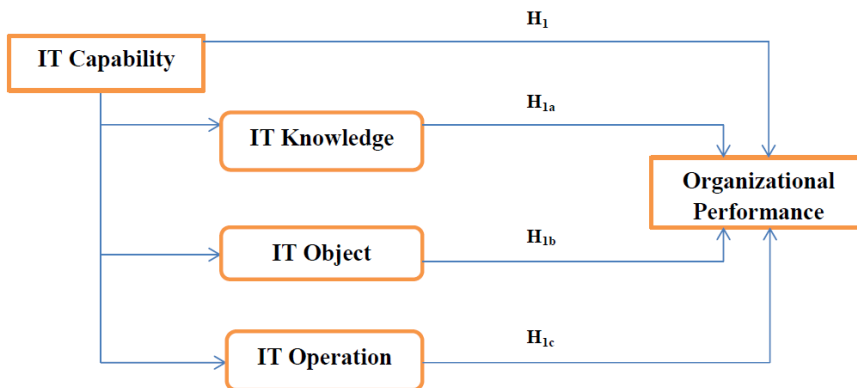


Figure no. 1 illustrates the linear relationship between IT capability along with three critical dimensions named as IT knowledge, IT operations, and IT objects with organizational performance.

3. RESEARCH METHODOLOGY

To check the suggested hypothesis put forward, statistical tools like SPSS is utilized for multivariate regression analysis (MLR), involving the investigation of the impact of IT capability dimensions on organizational performance.

3.1. Research Objective

The private sector banking units crosswise over India have encountered a series of considerable changes by making a complete paradigm shift in the working and transmission of services by successful utilization of IT. In most developing countries, banks experience huge competitive pressure because of changing client demands, globalization, technological advances, etc. The impact of IT capability on organizational performance is examined by setting the following objectives:

- To identify the critical exploratory variables those constitute the individual IT capability dimensions.
- To explore the most significant attributes to improve the organizational performance.
- To establish a linear relationship between IT capability dimensions and organizational performance.

3.2. Scope of the Study

The Indian private sector banking groups have been utilizing core banking solutions (CBS), and other banking solutions for a very long time as compared to other banking sectors such as public sector banks, regional rural banks, etc. It is important to study how they exploit IT as their organizational competence for enhanced financial performance. The study has been conducted over the period of one month (Sept 15th to Oct 15th, 2014). During this time frame, Housing Development Finance Corporation (HDFC) bank, Axis bank, and Industrial Credit and Investment Corporation of India (ICICI) banks were the top three private banks functioning across India on the basis of total assets, net profit, and net sales (Source: www.moneycontrol.com). Therefore, this research highlights the impact of IT capability dimensions on organizational performance of these three top performing private sector banking units operating in the state of Odisha, in eastern India. Banks functioning in the urban regions are selected as a target sample frame and the scope of the study is limited to the IT executives and managers working in the middle and senior level of management.

3.3. Participants

A total of 450 structured questionnaires were distributed out of which 390 responses were returned, but 300 were found to be useable for further analysis representing 66% valid response rate. The study was carried out using simple random sampling method and the questionnaires were distributed using both online and offline mode. 170 questionnaires were collected by online mode (25 IT executives and 145 managers) and 130 questionnaires were collected by hand delivery (15 IT executives and 115 managers). The male and female responses were around 58% and 42% respectively. Demographic responses such as respondents' age, and year of work-experience along with the response rate is represented in table 1.

Table 1. Respondents' Profile

Respondents' Age (Years)	Work-Experience (Years)	Response rate
18-25	0-5	12%
26-35	6-10	25%
36-45	11-15	24%
46-55	16-20	22%
56-60	21 and more	17%

3.4. Measures

A self-designed, pre-tested questionnaire survey method was demonstrated to measure the effectiveness of IT capability on organizational performance. The major independent variable utilized for this study is IT capability comprising of three important attributes, namely IT knowledge, IT objects, and IT operations (Tippins and Sohi, 2003). IT knowledge was measured using five items, IT objects and operation were measured using 4 items each. In total thirteen items were examined, where few of the items were selected from the literature as shown in table no. 2. Cronbach's alpha coefficient is used as an estimation value for the test of reliability of the selected items under this study. According to Hair et. al (2010), a Cronbach' alpha value of 0.6 and more generally measures effective reliability for judging a scale. For IT knowledge, objects and operations, Cronbach' alpha value calculated were 0.808, 0.760, 0.758 respectively, suggesting higher reliability of items (Table 2). Organizational performance constitutes the major outcome variable and the questionnaire contained items relating to return on asset (ROA) value of the banks for the last three years, which is a reflection of banks' financial performance (Devaraj and Kohli, 2003). A 5-point Likert-type rating scale was used to measure the responses, where 1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, and 5 = *strongly agree*. The descriptive statistical measures such as mean and standard deviation represent the quantitative features of the variables as represented in table no. 3.

Table 2. Studied variables with reliability

IT Capability	No.of items	Name of items	Reliability
IT knowledge	5	<ul style="list-style-type: none"> • High Computational Skill (ITKN1) • Technical IT Expertise (ITKN2) (Gibb and Haar, 2007; Tippins and Sohi, 2003) • Knowledge about Key IT Trends (ITKN 3) • Theoretical Knowledge and Technical Skills (ITKN 4) (Tippins and Sohi, 2003). • Computer-based Innovation (ITKN 5) (Tippins and Sohi, 2003) 	0.808
IT object	4	<ul style="list-style-type: none"> • User-friendly Hardware and Softwares (ITOB 1) • Well trained support staffs (ITOB 2) (Tippins and Sohi, 2003) • Sufficient fund allocation (ITOB 3) (Gibb and Haar, 2007; Tippins and Sohi, 2003) • Updated and modern IT infrastructure (ITOB 4) 	0.760
IT operation	4	<ul style="list-style-type: none"> • Effective Processes and services (ITOP 1) • Customer Information Management (ITOP 2) (Tippins and Sohi, 2003) • Market Information Assessment (ITOP 3) (Tippins and Sohi, 2003) • Marketing of Product and services (ITOP 4) 	0.758

Table 3. Descriptive Statistics of the Studied Variables

	Mean	Std. Deviation		Mean	Std. Deviation		Mean	Std. Deviation	N
ITKN1	3.510	.965	ITOB1	3.423	1.138	ITOP1	3.430	1.135	300
ITKN2	3.500	1.074	ITOB2	3.500	1.074	ITOP2	3.470	1.043	300
ITKN3	3.676	1.096	ITOB3	3.676	1.096	ITOP3	3.456	1.139	300
ITKN4	3.516	1.026	ITOB4	3.490	1.089	ITOP4	3.503	1.071	300
ITKN5	3.620	1.194							
Org.Perf	4.230	1.158							

4. METHOD

4.1. Correlation Analysis

To measure the strength and direction of the linear relationship between the variable, correlation analysis has been conducted which represents a sort of statistical relationship among them. This analysis suggested the existence of a significant relationship between all the attributes explored under IT capability and organizational performance (Table 4).

Table 4. Correlation between IT Capability dimensions and organizational performance

IT Knowledge	Pearson's Correlation	IT Objects	Pearson's Correlation	IT Operations	Pearson's Correlation
ITKN1	.454**	ITOB1	.177**	ITOP1	.176**
ITKN2	.445**	ITOB2	.445**	ITOP2	.471**
ITKN3	.651**	ITOB3	.651**	ITOP3	.318**
ITKN4	.710**	ITOB4	.695**	ITOP4	.710**
ITKN5	.165**				

** . Correlation is significant at the 0.01 level (2-tailed)

4.2. Multiple Linear Regression Analysis

The empirical analysis involved in this study is a linear regression technique, which establishes a straight-line relationship between variables. Two commonly used regression analysis involves :

- a. Univariate linear regression, and
- b. Multivariate linear regression.

Univariate linear regression is represented as:

$$y = \alpha_0 + \alpha_1 x$$

Where 'y' is the dependent variable, 'x' is the independent variable and α_0 and α_1 are constants.

In case of multivariate linear regression, the linear regression equation is based on:

$$y = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3 + \dots + \alpha_n x_n$$

Where y represents the dependent variable (organizational performance), x_1, x_2, \dots, x_n are the independent variables (IT capability dimensions), and $\alpha_0, \alpha_1, \dots, \alpha_n$ are constants.

5. DISCUSSION OF RESULTS

A numerical relationship is derived that best approximates all the individual data points. IT capability dimensions such as IT knowledge, IT objects, and IT operations are examined to study the most contributory explanatory variables that best calculate the outcome.

The R square values obtained for IT knowledge, IT objects, and IT operations are 0.654, 0.650, and 0.651 respectively (Table 4), which represent a good fit of the variables and these relationships explained on average 65% of variance.

5.1. Analysis of variance (ANOVA)

ANOVA is used as an exploratory tool to explain variability among the observations, which also checks the level of significance. Table no. 4 represents the F-statistics result of 110.948, 136.796, and 137.466 for IT knowledge, IT objects, and IT operations respectively.

5.2. Test for autocorrelation

The Durbin-Watson (d) test is performed to test the issue of autocorrelation among the attributes. The d-value derived for all the three major dimensions is represented as 1.752, 1.887, and 1.837, which suggests the absence of autocorrelation problem among the study variables as the obtained values are close to the ideal value of 2 (Table 4).

Table 4. Model Summary and ANOVA

Model	R	R Square	Adjusted R Square	Durbin-Watson	F	Sig.
1. IT Knowledge	.808	.654	.648	1.752	110.948	.000
2. IT Objects	.806	.650	.645	1.887	136.796	.000
3. IT Operations	.807	.651	.646	1.837	137.466	.000

5.3. Test for multicollinearity

The most commonly used standard range of tolerance and variance inflation factor (VIF) is 0 to 1 and 1 to 5, respectively and these tolerance and VIF values calculated in the collinearity diagnostics clarify the absence of any multicollinearity issue among the predictor variables (Table 5, 6, and 7).

Table 5. Coefficient Table for IT Knowledge

Variables	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.192	.184		6.471	.000		
Technical IT Expertise	.199	.042	.185	4.735	.000	.774	1.292
Key IT Trends	.336	.056	.318	5.979	.000	.417	2.398
Theoretical Knowledge and Technical Skills	.705	.058	.624	12.225	.000	.452	2.213

So the estimated model derived is as follows:

$$\text{Org. Performance} = 1.192 + .199 (\text{Technical IT Expertise}) + .336 (\text{Key IT Trends}) + .705 (\text{Theoretical Knowledge and Technical Skills})$$

Table 6. Coefficient Table for IT Objects

Variables	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.037	.173		5.978	.000		
Well trained support staffs	.252	.042	.234	5.956	.000	.770	1.299
Sufficient fund allocation	.429	.051	.406	8.440	.000	.513	1.950
Updated IT infrastructure	.512	.047	.482	10.913	.000	.609	1.642

So the estimated model derived is as follows:

Org. Performance = 1.037 +.252 (Well trained support staffs) +.429 (Sufficient fund allocation) +.512 (Updated IT infrastructure)

Table no. 7 Coefficient Table for IT Operations

Variables	Unstandardized Coefficients		Standardized Coefficients Beta	t-value	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
(Constant)	.947	.176		5.394	.000		
Customer Information Management	.314	.043	.284	7.344	.000	.793	1.261
Market Information Assessment	.423	.060	.416	7.058	.000	.340	2.937
Marketing of Product and services	.725	.041	.671	17.618	.000	.817	1.225

So the estimated model derived is as follows:

Org. Performance = 0.947 +.314 (Customer Information Management) +.423 (Market Information Assessment) +.725 (Marketing of Product and services)

The core objective of this study was to explore the link between IT capability dimensions and performance of the top performing private sector banking groups operating in India from a resource based view. The coefficient table no. 5 represents that technical IT expertise, key IT trends, and integration of theoretical knowledge and technical skills under IT knowledge dimension explain a positive relationship with organizational performance. Attributes such as well-trained support staffs, sufficient fund allocation, and updated IT infrastructure under IT objects (Table 6) and customer information management, market information assessment, marketing of product and services under IT operations (Table 7) also illustrate a linear positive impact on organizational performance. This analysis infers that IT capability has a significant positive association with organizational performance (Quinn et al., 1994; Bharadwaj, 2000; Santhanam and Hartono, 2003; Ringim et al.). These coefficient tables (Table 5, 6, and 7) of individual IT capability dimensions explain that the majority of these variables exhibit a positive relationship with the dependent variable which reveal that the postulated main hypothesis (H₁) along with the three sub hypotheses (H_{1a}, H_{1b}, H_{1c}) have been demonstrated successfully and sufficient evidence is obtained to support them.

Hence, it is essential that banking units must stress on improving their organizational IT capability by increasing their resources supported by IT knowledge, objects, and operations. In order to survive in this cut throat era of competition, the top performing private banking groups operating in India have become technologically oriented banks to achieve competitive advantage and high performance in the long run. This study is helpful to the IT executives and decision makers of the banks to properly handle IT so as to ease up the everyday banking operations and to avail services more convenient for customers through e-banking, telephone banking, and mobile banking, etc. Meticulous assessment of various IT capability dimensions suggest that banks must employ IT in an effective manner to extract the best out of it.

With the growth and adoption of IT in the overall Indian market, customers demand effortless access to their banks in the comfort of their homes or using their mobile phones and the facility to seamlessly transact across all branches of the banks. The majority of the banks have implemented core banking solutions (CBS) for quite some time now, which is one of the initial steps towards the automation of a bank's business processes. It also delivers a bank with a compact, flexible, and accessible base on which additional systems can be built and coordinated into a vigorous extensible banking solution. This investigation highlights the importance of advanced technology for successful

implementation of CBS towards achieving enhanced performance. Efficient IT experts with appropriate technical knowledge and skills have the ability to follow the modern IT trends and facilitate the organization to implement those in the right fashion. At present numerous banks are identifying the requirement for a strategic transformation of their everyday processes. Incrementing CASA (current account, saving account) becomes a challenging issue for banking functions if the banks do not provide CBS along with other banking facilities such as anywhere banking, internet banking, etc.

Before the implementation of core banking solutions, maximum number of banks failed to offer a general perspective of customer relations crosswise over products, networks, and transactions. The real-time checking of a bank's contact for a specific client was particularly difficult, as the computer systems of most of the banks were very old. To overcome these challenges banks have additionally assorted applications to assist channels such as automated teller machines (ATMs), internet or phone banking, etc. IT enables the banks to manage the customer information in a systematic manner and also supports proper market assessment. Technology drives marketing of the banking products and services via channels such as internet banking, mobile banking, video banking, etc. Hence it is crucial for every organization to allocate sufficient fund for effective IT implementation. Maintaining the existing systems and upgradation of old transaction systems are also exceedingly desirable. Knowledgeable and well-trained support staffs act as key personnels for providing assistance in case of any technical failure. The overall findings derived from this analysis is that the private sector banks are successfully utilizing IT as an organizational competence along with other available resources to survive in this competitive banking environment and to reduce operational cost and gain a high return on investment (ROI).

6. CONCLUSIONS

This analysis is based on a cross-sectional survey in which the assessments of the participants are done at one point of time, however cannot demonstrate causal relationships on a longitudinal basis. Identification and contacting the key persons are done in an explicit manner and an attempt was made to gather the best responses for this study, but the precision of their responses may be biased by the participants' knowledge in the management of the organizations and frame of reference at the point in time. Organizational performance is explored from a resource based view, which defines resources as assets, processes, and capabilities. This concept has its origins from economic principles having managerial perspective, where it is commonly criticized for drawing vigorously from economics. The generalizability of the results is only limited to three top performing large sized private banking firms such as HDFC, ICICI and Axis bank. In all single-respondent surveys common method variance is inherent. IT capability is investigated for only three dimensions named as IT knowledge, IT objects, and IT operations. Various other dimensions such as technology assets, relational assets, etc. can also be thoroughly analyzed as key predictors to increase organizational performance. The conclusion derived from this research explicitly holds good for the large private sector top performing banking industry, but cannot be generalized in a larger context in the cross cultural scenario.

Various longitudinal studies can also be conducted to accurately predict the impact of IT capabilities on firm performance. The same type of analysis may also holds good for other type of commercial banks like public sector units, foreign banks, regional-rural banks, cooperative banks, and different financial institutions etc. where the ability of modern technology for improved performance and to gain competitive advantages is well manifested. The various mediating elements, for example firm size, organizational structure, etc. are also essential for enhanced performance and future research may also incorporate these.

The overall findings derived from this work propose several implications that support appropriate operational efficiency of private sector banking units regarding the enhanced organizational performance and competitive advantage in the long run. Under the RBV concept, the findings also reveal that superior IT competency outperform their competitors. Managers and decision makers should also focus on increased capabilities and efficiencies associated with IT-enabled resources. This empirical investigation helps in building the conceptual framework of business performance along with a new insight to business practitioners and academic knowledge.

References

- Afuah, A. (2003). Redefining firm boundaries in the face of the internet: Are firms really shrinking? *Academy of Management Review*, 28 (1), 34-53.
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17 (1), 99-120.
- Barua, A., Kriebel, C. H. & Mukhopadhyay, T. (1995). Information technology and business value: An analytical and empirical investigation. *Information Systems Research*, 6 (1), 3–23.
- Bettis R. A. & Hitt M. A. (1995). The new competitive landscape. *Strategic Management Journal*, Summer Special Issue 16: 7–19.
- Bharadwaj, A. S. (2000). A resource-based perspective on information technology capabilities and firm performance: An empirical investigation. *MIS Quarterly*, 24 (1), 169-182.
- Bharadwaj, A.S., Bharadwaj, S.G., & Konsynski, B. (1999). Information technology effects on firm performance as measured by tobin's q. *Management Science*, 45 (7), 1008-1024.
- Bhatt, G.D. & Grover, V. (2005). Types of information technology capabilities and their role in competitive advantage: an empirical study. *Journal of Management Information Systems*, 22 (2), 253-277.
- Brynjolfsson, E., & Hitt, L. (1996). Paradox Lost? Firm-Level Evidence on the Returns to Information Systems Spending. *Management Science*, 42 (4), 541-558.
- Brynjolfsson, E. (1993). The Productivity Paradox of Information Technology. *Communications of the ACM*, 36 (12), 66-77.
- Brynjolfsson, E., & Yang, S. (1996). Information Technology and Productivity: A Review of the Literature. *Advances in Computers*, 43, 179-214.

- Capon, N. & Glazer, R. (1987). Marketing and Technology: A Strategic Coalignment. *Journal of Marketing*, 51, 1–14.
- Clemons, E. K. & Row, M. C. (1991). Sustaining IT advantage: the role of structural differences. *MIS Quarterly* 15 (3), 275–294.
- Dedrick, J., Gurbaxani, V. & Kraemer, K. L. (2003). Information technology and economic performance: A critical review of the empirical evidence. *ACM Computing Surveys*, 35 (1), 1-28.
- Devaraj, S. & Kohli, R. (2003). Performance Impacts of Information Technology: Is Actual Usage the Missing Link?. *Management Science*, 49 (3), 273-289.
- Dollinger M. J. (1984). Environmental boundary spanning and information processing effects on organizational performance. *Academy of Management Journal*, 27 (2), 351–368.
- Gibb, J. & Haar, J. (2007). Proceedings of European and Mediterranean Conference on Information Systems, June 24-26, Polytechnic University of Valencia, Spain
- Granstrand, O. (1982). *Technology, Management, and Markets*. St Martin's Press: New York.
- Grant, R. M. (1991). The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation. *California Management Review*, 33 (1), 114-135.
- Gurbaxani, V. & Wang, S. (1991). The impact of information systems on organizations and markets. *Communications of the ACM*, 34 (1), 59-75.
- Henderson, J. C., & Venkatraman, N. (1993). Strategic alignment: Leveraging information technology for transforming organizations. *IBM Systems Journal*, 32, 4-16.
- Heijden, H. V. D. (2000). Measuring IT core capabilities for electronic commerce results from a confirmatory factor analysis. Paper presented at the 21st International Conference of Information Systems, Australia
- Hair, J., Black, W. C., Babin, B.J. & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.). Pearson Education International, New Jersey.
- Kriebel, C. H., & Kauffman, R. (1988). Modeling and Measuring the Business Value of Information Technology," in *Measuring Business Value of Information Technologies*, P. Berger, J. G. Kobiulus, and D. E. Sutherland (Eds.), ICIT Press, Washington, DC,.
- Li, E. Y., Chen, J. S., & Huang, Y. H. (2006). A framework for investigating the impact of IT capability and organisational capability on firm performance in the late industrialising context. *International Journal of Technology Management*, 36 (1/2/3), 209-229.
- Mata, F. J., Fuerst, W.L. & Barney, J. B. (1995). Information technology and sustained competitive advantage: A resource-based analysis. *MIS Quarterly*, 19 (4), 487-505.
- Maier, J. L., Rainer, R. K. Jr., & Snyder, C. A. (1997). Environmental scanning for information technology: an empirical investigation. *Journal of Management Information Systems* 14(2), 177–201.
- Martin, W. J. (1988). *The Information Society*. Eastern Press: London.

- Mitcham, C. and Mackey, R. (1983). *Philosophy and Technology: Readings in the Philosophical Problems of Technology*. Free Press: New York.
- Panda, S. & Rath. S. K. (2014). An Empirical Analysis on Impact of Information Technology (IT) Capabilities on Firm Performance. *Indore Management Journal, Special Issue*, 49-60.
- Powell, T. C., & Dent-Micallef, A. (1997). Information technology as competitive advantage: the role of human, business, and technology resources. *Strategic Management Journal*, 18 (5), 375– 405.
- Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*, Free Press, New York.
- Porter, M. E. & Millar, V. E. (1985). How information gives you competitive advantage. *Harvard Business Review*, 63 (4), 149-160.
- Ray, G., Xue, L. & Barney, J. B. (2012). Impact of Information Technology (IT) on Firm Scope and Performance: The Role of Asset Characteristics. *Academy of Management Journal*, 56 (4), 1125-1147.
- Ross, J., Beath, C. & Goodhue, D. (1996). Develop long-term competitiveness through information technology assets. *Sloan Management Review*, 38 (1), 31-42.
- Ringim, K. J., Razalli, M. R., & Hasnan, N. (2012). The relationship between information technology capability and organizational performance in Nigerian banks. *International Journal of Technology and Management*, 1 (1), 1-10.
- Sampller J. L. (1998). Redefining industry structure for the information age. *Strategic Management Journal*, 19 (4), 343–355.
- Santhanam, R. & Hartono, E. (2003). Issues in linking information technology capability to firm performance. *MIS Quarterly*, 27 (1), 125-153.
- Tippins, M. J. & Sohi, R. S. (2003). IT competency and firm performance: Is organizational learning a missing link?. *Strategic Management Journal*, 24 (8), 745-761.
- Wade, M. & Hulland, J. (2004). Review: The Resource-Based View and Information System Research: Review, Extension, and Suggestions for Future Research. *MIS Quarterly*, 28 (1), 107-142.
- Weihong, X., Yongjian, W., Luan, J. & Guangyu, Z. (2010). A Study on The Relationship Between IT Capabilities, Organization Structure And Enterprise Performance. Empirical research through the manufacturing enterprises in PRD. *International Forum on Information Technology and Application*, Kunming, China, 3, 373-376.
- Wilson, D. D. (1995). IT Investment and Its Productivity Effects: An Organizational Sociologist's Perspective on Directions for Future Research," *Economics of Innovation and New Technology*, 14 (3), 235-251.

Top companies in India by net profits and investment, Retrieved on 27th October, 2014 from <http://www.moneycontrol.com/stocks/marketinfo/netprofit/bse/banks-private-sector.html>

