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Abstract:-

Organizations for Survival require the effective use of information and decision technologies to gather, manage, and exploit knowledge. There is growing use of information technology (IT) for better management decisions in insurance industry. The present study attempted to investigate the importance of IT and environment turbulence (ET) on organization's competitive advantages. Drawing on literatures, it was hypothesized that IT was major source of competitive advantage. This research proposed a conceptual framework to examine the effects of IT on competitive advantages. Survey data were collected by appropriate questionnaire and interview used to examine the conceptual model. The results obtained supported the research hypotheses that IT was significant source of competitive advantage. The moderating effects of ET reinforced this claim that as environments have become more turbulent, the strategic role of IT would become even more prominent.

Keywords:

Information Technology, Competitive Advantages, Environment Turbulence, Life Insurance Companies.

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AN EMPIRICAL STUDY OF INFORMATION TECHNOLOGY AND ENVIRONMENT TURBULENCES FOR COMPETITIVE ADVANTAGES WITH SPECIAL REFERENCE TO INSURANCE INDUSTRY

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INTRODUCTION:

The use of IT to make better management decisions is becoming more prevalent in organizations of different industries, especially in insurance industry. The lack of empirical research on why IT is important makes the rationale to invest in IT weak, especially when researches show inconsistent returns on investment in IT. In the present study, based on the gaps found, an attempt will be made to assess and answer the problems of why IT is critical in business regarding to competitive advantages and how IT interacts with other business resources in order to create strategic values.

Information technology is significant source of competitive advantages because IT is a contributing factor to the improvement of organization performance. Nowadays, most organizations are information technology enabled, especially in industries with rapid product and customer changes. Prior studies (Akkermans et al., 2003; Sambamurthy et al., 2003; Tiwana and Konsynski, 2010; Lin, 2010; Bush et al., 2010) have shown that information technology was a key factor for business intelligence, organizational agility, and organization performance. Information technology is a key enabler for timely integration and reconfiguration. Therefore, information technology can be a direct contributor to business intelligence and organizational agility. Some summarized studies on information technology are shown in the Table 1.

Table 1
Summary of Information Technology Studies

Author (s) of Information Technology Studies	Contributions
Kim (2001)	Six key information technology capabilities concepts as identified by Kim (2001) are: integration, collaboration, data management, security, The necessity of basic services like (planning and training) and the other category services were those information technology capabilities difficult to classify more specifically. That category included concepts related to integration, collaboration, data management, security, utility and others.
Lewis & Byrd (2003)	Their study presented a tool for measuring information technology from a 7 – dimension perspective.
Mithas et al. (2007)	Mithas et al. argued that three capabilities bridge information technology and business performance: customer, process, and performance management. Their study was among the first to identify the fundamental mechanisms of how information technology capabilities generate value.
Dai, Kauffman, & March (2009)	They found that: 1) information technology investment was more valuable when uncertainty was higher; (2) cost advantage of information technology investment was made greater by demand uncertainty for information technology products and services; (3) in duopoly competition, information technology value went up with product or service substitutability level; and (4) with higher demand unpredictability, inter – firm competition had a lower impact on information technology value.
Fink & Neumann (2010)	They examined information technology from a multidimensional perspective and the effect of information technology flexibility on business value. They defined the flexibility – enabling aspects of information technology capabilities, identified major technical and human fields that influenced process, established process dimensions as building strategy and competitive edge sources, and identified the effects.
Durmusoglu (2011)	Investigated that how higher management view on information technology determined the company's information technology potentials and information technology affected new product development (NPD) process results like cost, cycle time, and quality.
Bhatt & Emdad (2013)	Presented a model that measured the relationship between information technology, customer focus, and business advantages. They found that information technology had major effects on customer responsiveness, but no significant connection with product/service innovation. Information technology, customer responsiveness, and product/service innovation were considerably related business advantages.

Competitive advantage was traditionally defined as superior economic performance in strategic management research (Porter, 1980; Ghemawat, 1991; Teece et al., 1997). More recent studies have redefined competitive advantage as an organization's ability to create more economic value than its competitors (Barney, 1991; Peteraf and Barney, 2003). Strategic management researchers have presented different models to identify the sources of an organization's competitive advantage such as Porter's competitive forces model (Porter, 1980) are shown in the Figure 1 as follows:

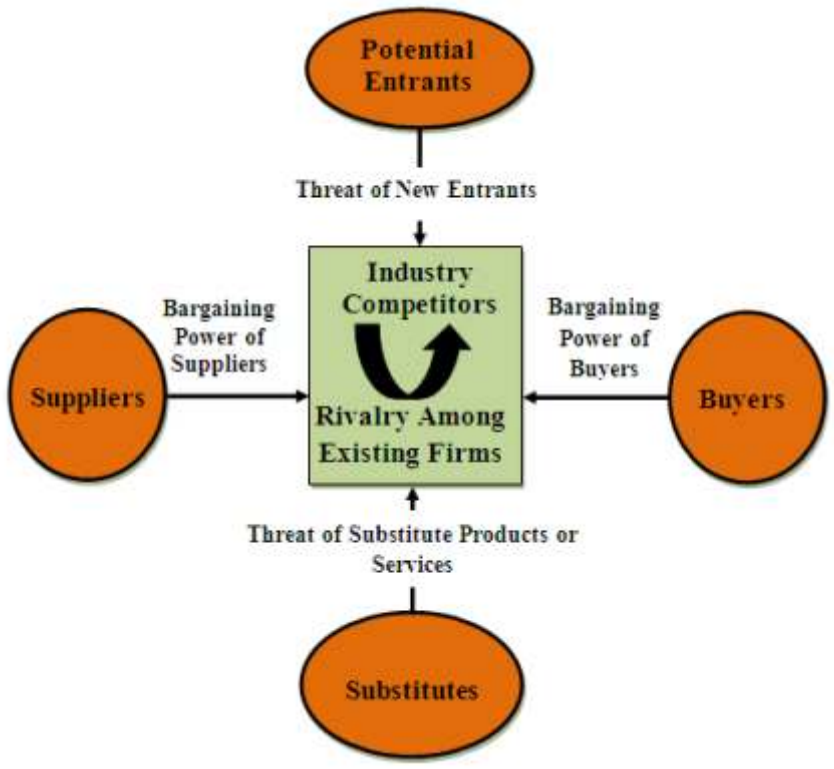

Figure 1: Five Competitive Forces that Determine Industry Profitability

Competitive advantage is a capacity or a unique position that an organization develops to outperform its competitors. Competitive advantage grows out of a value – creating strategy. The domains of the competitive dynamics research model explain where competitive advantage comes. The model domain examines competitive advantage from the industrial level, which is represented by Porter's five forces model (Porter, 1980; 1985). The five forces model indicates that an organization can gain advantage over its competitors if it has more power over its customers, partners, and / or new competitors and it can weaken the intensity of competitive rivalry and / or the threat of substitute products / services.

In the integrative model of information technology business value, Melville et al. (2004) emphasized the impacts of industrial characteristics on the relationship between information technology – enabled resources and firm performance. Dess and Beard (1984) defined a turbulent business environment as the frequency and extent of change in critical market variables. These market variables may include changes in market conditions and technology (Jaworski and Kohli 1993). A turbulent environment was also referred to as a hypercompetitive environment (Mithas et al., 2011) and generally defined as "general conditions of uncertainty" (Rai and Tang, 2010). El Sawy and Pavlou (2008) characterized a turbulent environment with "unpredictability arising from unexpected changes in market demand and consumer preferences, new technology developments, and technological breakthroughs." They found out that there were three types of capabilities that influence strategic advantage in such turbulent environments: (1) operational (ability to execute processes), (2) dynamic (the planned ability to reconfigure operational capabilities), and (3) improvisational (the learned ability to spontaneously reconfigure operational capabilities). The last two capabilities were dynamic capabilities in general; therefore, there is a connection between the dynamic capability and competitive advantage that could be influenced by environmental turbulences. This position has been proposed and tested in many other information system and competitive dynamic research (Jaworski and Kohli, 1993; Pavlou and El Sawy, 2006; Johannesson and Palona, 2010; Rai and Tang, 2010; Mithas et al., 2011; Tallon and Pinsonneault, 2011). As argued in the prior sections, organizational operation is a dynamic capability with emphasis on speed; therefore, in a turbulent environment, organizational operation is a force that will influence strategic advantage. It implied that in a less turbulent environment, organizational operation may not be that important in influencing strategic advantage. In general, it is agreed that information technology creates values under certain conditions (Kohli and Grover, 2008). Current research also lacks in the information system research on how turbulent environment moderates the impact of information technology on Competitive advantages.

OBJECTIVES OF THE STUDY

In the light of assumption that use of IT system in organizations can encourage considerably the creating of strategic values, and also the researcher in order to make study scientific and systematic, the overall objectives have been framed as follows:

- To analyze theoretical and fundamental effects of IT on competitive advantage.
- To examine the effects of environmental turbulence on the relationship of IT with competitive

advantage.

- To investigate and compare the degree use of IT and competitive advantage among life insurance companies under study.

HYPOTHESES OF THE STUDY

H_a1: Information technology will positively affect on competitive advantages.

H_a2: Environment turbulence will reinforce the positive effect of IT on CA.

RESEARCH METHODOLOGY

Summarized research methodology is shown in Table 2.

Table 2
Summary of research methodology

Research Methodology	
Type of Research Design	Descriptive Research Design
Approach & Strategy of Research	Deductive & Quantitative
Method of Research	Survey
Time Horizon	Cross Sectional
Scope of Research	3 Life Insurance Companies in Karnataka State of India
Sampling Scheme	Non Probability/Non Random
Sampling Technique	Convenience & Judgment
Sample Size	300 Respondents
Sample Unit	
Sources of Data Collection	Primary & Secondary Sources
Tools of Collecting Data	For Primary Source: Questionnaire & Interview For Secondary Source: Web, Magazines, Journals, Official Reports & Documents
Tools of Analyzing Data	Spearman Test, Man-Whitney U Test, Kruskal Wallis Test

RESEARCH MODEL

In order to draw the dynamic capability framework and current literature on IT, competitive advantage, and environment turbulence, this study developed a research model as shown in Figure 2.

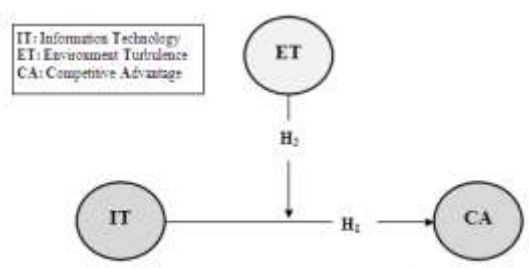

Figure 2: Conceptual Model

SAMPLE PROFILE

The numbers of male and married respondents are more than the female and unmarried respondents. The majority of the respondents are up to the age of 45 years old. The majority of respondents are graduated (30.67%), postgraduate (29.66%), and professional (25.67%) respectively. And also the majority of respondents are income group of 50,000 to 75,000 Rs. in all three life insurance companies under study. Brief profile of the surveyed managers, employees, and experts of selected life insurance companies is given in Table 3.

Table 3
Demographics of Sample Respondents

Demographic Variables		Companies	Frequency	%
Gender	Male	LIC	69	69.0
		ICICI	62	62.0
		SBI	66	66.0
		Total	197	**65.67**
	Female	LIC	31	31.0
		ICICI	38	38.0
		SBI	34	34.0
		Total	103	**34.33**
Marital	Married	LIC	89	89.0
		ICICI	82	82.0
		SBI	68	68.0
		Total	239	**79.70**
	Unmarried	LIC	11	11.0
		ICICI	18	18.0
		SBI	32	32.0
		Total	61	**20.30**
Age	Below 25 yrs.	LIC	3	3.0
		ICICI	6	6.0
		SBI	4	4.0
		Total	13	**4.30**
	26 to 35 yrs.	LIC	16	16.0
		ICICI	19	19.0
		SBI	25	25.0
		Total	60	**20.0**
	36 to 45 yrs.	LIC	25	25.0
		ICICI	52	52.0
		SBI	49	49.0
		Total	126	**42.00**
	46 to 55 yrs.	LIC	49	49.0
		ICICI	12	12.0
		SBI	19	19.0
		Total	80	**26.70**
	56 to 65 yrs.	LIC	11	11.0
		ICICI	3	3.0
		SBI	5	5.0
		Total	19	**6.30**
	66 to 75 yrs.	LIC	2	2.0
		ICICI	0	0.0
		SBI	0	0.0
		Total	2	**0.70**
	Older than 70 yrs.	LIC	0	0.0
		ICICI	0	0.0
		SBI	0	0.0
		Total	0	**0.0**
Education	10th Pass	LIC	3	3.0
		ICICI	4	4.0
		SBI	5	5.0
		Total	12	**4.0**
	12th Pass	LIC	6	6.0
		ICICI	8	8.0
		SBI	6	6.0
		Total	20	**6.67**
	Graduate	LIC	35	35.0
		ICICI	32	32.0
		SBI	25	25.0
		Total	92	**30.67**
	Postgraduate	LIC	30	30.0
		ICICI	28	28.0
		SBI	31	31.0
		Total	89	**29.66**
	Professional	LIC	23	23.0
		ICICI	24	24.0
		SBI	30	30.0
		Total	77	**25.67**
	Ph.D.	LIC	3	3.0
		ICICI	4	4.0
		SBI	3	3.0
		Total	10	**3.33**
Monthly Income	Below ₹ 25,000	LIC	5	5.0
		ICICI	4	4.0
		SBI	6	6.0
		Total	15	**5.0**
	₹ 25,000 – ₹ 50,000	LIC	27	27.0
		ICICI	23	23.0
		SBI	19	19.0
		Total	69	**23.0**
	₹ 50,000 – ₹ 75,000	LIC	49	49.0
		ICICI	58	58.0
		SBI	60	60.0
		Total	167	**55.66**
	₹ 75,000 – ₹ 1,00,000	LIC	13	13.0
		ICICI	12	12.0
		SBI	11	11.0
		Total	36	**12.0**
	Above ₹ 1,00,000	LIC	6	6.0
		ICICI	3	3.0
		SBI	4	4.0
		Total	13	**4.33**

Source: Field Survey

DATA ANALYSIS AND INTERPRETATION

In this section the constructs, which are defined in the present study, such as IT, environment turbulence and competitive advantage are evaluated. These constructs are hypothesized to measure the

impacts of IT on competitive advantages in three selected life insurance companies. Thus, the hypotheses are evaluated as follows:

Testing of Hypothesis 1

In this hypothesis, IT and competitive advantages are as independent and dependent variables, respectively. Results of relationship between these two variables are shown in the Tables 4 and 5.

$H_0$1: IT will not positively impact on competitive advantages.
H_a1: IT will positively impact on competitive advantages.

Table 4
Results of Spearman's Correlation Test with Competitive Advantages as Dependent Variable

			IT	CA
Spearman's rho	**IT**	Correlation Coefficient	1.000	0.513**
		Sig. (2 – tailed)		0.000
		N	300	300
	CA	Correlation Coefficient	0.513**	1.000
		Sig. (2 – tailed)	0.000	
		N	300	300

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

Table 5
Results of Spearman's Correlation Test with Competitive Advantage as Dependent Variable

Dependent Variable / Independent Variable	CA		Hypothesis Supported?
	r	P	
IT	0.42	0.000	Yes

For the Table 5, the significance value [p – value] is 0.000. At 1% level of significance, p – value is less than a. Therefore H01 is rejected at both 5% and 1% level of significance. This indicates that to maximize making of competitive advantages, IT should be built more in organizations.

Testing of Hypothesis 2

In this hypothesis, environment turbulence and IT are as independent and dependent variables, respectively. Results of relationship between these variables are shown in the Tables 6 and 7.

$H_0$2: ET will not reinforce the positive impact of IT on competitive advantages.
H_a2: ET will reinforce the positive impact of IT on competitive advantages.

Table 6
Results of Spearman's Correlation Test with IT as Dependent Variable

			ET	IT
Spearman's rho	**ET**	Correlation Coefficient	1.000	0.303**
		Sig. (2 – tailed)		0.000
		N	300	300
	IT	Correlation Coefficient	0.303**	1.000
		Sig. (2 – tailed)	0.000	
		N	300	300

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

Table 7
Summary of Spearman's Correlation Test with IT as Dependent Variable

Dependent variable / Independent Variable	IT		Hypothesis Supported?
	r	P	
ET	0.38	0.000	Yes

As indicated in Table 7, the path coefficient = 0.303 and the significance value [p – value] is 0.000. At 1% level of significance, p – value is less than a. Therefore H02 is rejected at both 5% and 1% level of

significance. This finding shows that IT is more important in enabling and making competitive advantages in more turbulent environments than in less turbulent environments.

FINDINGS OF THE STUDY

A. Summaries of Demographic Findings

- Male are more than the female's respondents in all life insurance companies under study.
- Married are more than the unmarried respondents in all three life insurance companies under study.
- More respondents are in the age of 36 to 45 years, in all three life insurance companies.
- More respondents in LIC and ICICI are graduated, (35%) and (32%) respectively, and in SBI are post graduated (31%).
- More respondents lie in the income group of 50,000 to 75,000 Rs.

B. Summaries of Research Model Findings

Summaries of research model findings and coefficients are displayed in Figure 3.

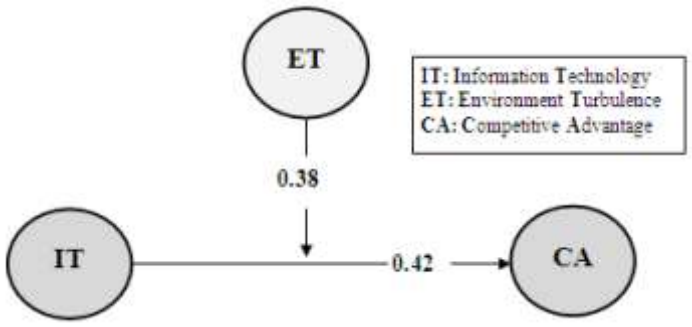

Figure 3: Results of Conceptual Model Analysis

The Values of correlation coefficient indicate the existence of average and relatively strong direct relationships between variables because the values are positive and close to the number positive 1.

C. Summaries of Research Hypotheses Findings

Summaries of research hypotheses findings are displayed in Table 8.

Table 8
Summaries of research hypotheses findings

Hypotheses	Independent Variable	Dependent Variable	Path Coefficient	Moderate Variable	Hypothesis Supported?
H_a1	IT	CA	0.42	-	Yes
H_a2	IT	CA	0.38	ET	Yes

CONCLUSIONS

IT helps to increase strategic values in life insurance companies. Effective use of a specific information system can be a source of strategic differentiation by responding to opportunities and threats. IT s are critical components need to be carefully built, and their flexibility and uses have strategic impacts on strategic performances of life insurance companies. The moderating effects of ET become more turbulent, the strategic role of IT will become even more prominent.

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