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ABSTRACT

Drawing upon the literature review and analysis of current published research, this paper identifies the issues in and highlights the importance of post-adoption stage. There has been a considerable amount of research undertaken which have studied different issues related to pre-adoption. The focus of majority of these studies generally lies in the exploration of research issues related to pre-adoption stage. Comparatively less attention has been given to understand the issues at post-adoption stage.

Exploring issues in Enterprise Information Systems Post-adoption Stage

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KEYWORDS

Enterprise information systems	Post adoption
Innovation	System support and maintenance

INTRODUCTION

The purpose of Enterprise Information Systems (EIS) is to connect and manage information flow within and across organizations. These systems allow managers to make decisions based on most up to date state of the business. EIS are integrated software applications that are implemented in an organization to automate complex transactions and improve overall organizational effectiveness (Davenport, 1998; Markus & Tanis, 2000). Historically these systems were installed to support back office tasks like integrating and automating complex transaction processes across company functions like finance and human resources (Davenport, 1998). Today, the functions of EIS have been greatly expanded to provide additional functionality such as customer relationship management, supply chain management, planning, performance management and advance analytics.

The research stream examining the adoption and use of EIS have evolved in to one of the most mature research streams in the Information Systems (IS) field (Jasperson, Carter, & Zmud, 2005; Venkatesh, Morris, Davis, & Davis, 2003). A great majority of the research efforts have been focused towards exploring pre-adoption behavioral and initial use factors. In recent years, EIS post-adoption behavioral studies have started to emerge in different IS publications but the main focus remains towards studying the same set of factors that lead to initial use and acceptance (Saeed & Abdinnour-Helm, 2008).

The purpose of this paper is to highlight the importance of post-adoption stage, identify research gaps in the literature, and explore academic as well as practitioner issues of this stage. An extensive literature review was conducted to describe the concept of post-adoption stag as perceived by previous research. This paper is an attempt to fill in the research gap and address practitioners concern by further exploring the area to better understand the issues associated with it. This paper assimilates knowledge from management and IS literature to fully describe and highlights issues in post-adoption stage.

This paper is organized as follow. First section includes literature review on post-adoption stage as perceived by previous research. Second section provides a detail on the conceptualization of post-adoption stage in EIS. Third section explains the issues related to post-adoption stage followed by further explanation on probable links between innovation and post-adoption activities.

LITERATURE REVIEW

Earlier studies have looked at the post-adoption stage from different perspectives. Some notable examples are from IS implementation literature that include IS implementation process model of incorporation (Kwon & Zmud, 1987) and routinization (Cooper & Zmud, 1990). These studies examine post-adoption behaviors at an individual level and establish its theoretical basis on the innovation diffusion theory. The innovation diffusion theory formulate on the basis that diffusion of innovation can be viewed as an ongoing process where features and output of early stages are different from later stages (Agarwal & Prasad, 1997). Furthermore, Roger (1995) explains that diffusion of innovation is a process whereby innovation is communicated to members of the social community through numerous channels over time. Similarly, IS implementation can be viewed as continuous effort to diffuse an implemented IS to members of the social community over time (Kwon & Zmud, 1987).

The first IS implementation process model consists of six stages: initiation, adoption, adaptation, acceptance, use and incorporation (Kwon & Zmud, 1987) as shown in Table 1. These stages are then revised by Cooper and Zmud in 1990. The new model eliminates the use stage and divide incorporation stage in two stages namely routinization and infusion.

IS Implementation Process Model (Kwon & Zmud, 1987)					
Initiation	Adoption	Adaptation	Acceptance	Use	Incorporation
IS implementation Process Model (Cooper & Zmud, 1990)					
Initiation	Adoption	Adaptation	Acceptance	Routinization	Infusion

Table 1: Two IS implementation Process Models

As shown in the Table 1, adoption and acceptance are two different stages in the implementation process. Adoption at an individual level implies a potential adopter's decision to whether to use or not to use IS. At an organizational level, this means organization's decision to designate and ensure resources needed for change. Also, at this stage, there is a possibility that a potential adopter may

have knowledge of the IS but do not have hands on experience in using any particular IS (Karahanna, Straub, & Chervany, 1999). The adaptation stage includes the process in which an individual or an organization goes through number of cycles to fully accustom with newly adopted IS. At this stage, users go through user training to fully understand the capability of the IS. The acceptance stage occurs after adaptation and entails an organization's devotion of efforts to persuade users to use implemented IS at work. At an individual level, this would mean increased productivity, work performance after adapting and accepting the new IS (Agarwal & Karahanna, 2000).

At the acceptance stage, users commit themselves to use IS and to gain experiences. Some variables like attitude toward use, and intention to use, can be employed to form the measurement of IS acceptance. Even though adoption and acceptance are two different stages in the IS Implementation Process Model, several theories that explain these stages do not provide clear differentiation. Some of the popular theories include theory of the reasoned action (Davis, 1989; Karahanna, et al., 1999), theory of planned behavior (Taylor & Todd, 1995), technology acceptance (Davis, 1989; Kim & Malhotra, 2005) and unified theory of acceptance and use of technology (Venkatesh, et al., 2003) .

Several studies including Bhattacherjee (2001), Bhattacherjee and Premkumar(2004) and Jasperson et al. (2005) suggest that an initial adoption and acceptance stages are very important, but true value and return on the investment can only be measured at the later stages namely routinization and infusion. According to Saga and Zmud(1994), routinization is a permanent change in the organization's governing system to accommodate for the newly installed IS. At the individual level, this routinization implies a standardized usage behavior that is treated as normal. In last stage of infusion, organization integrate IS at its fullest potential into management and operational processes (Jones, Sundaram, & Chin, 2002). This implies applying advanced and more features of IS to further enhance a more comprehensive set of tasks at the workplace (Saga & Zmud, 1994).

In summary, first three stages of IS implementation refers to activities at an organization or departmental level, and last three stages illustrate activities both at micro (e.g., an individual) as well as macro level. In particular, last two stages of the IS implementation can be envisioned as post-acceptance stage (Hsieh & Wang, 2007). Furthermore all the stages identified in Table 1 do not necessarily mean that these stages have to come in sequential way. These stages of IS implementation can occur in parallel as well (Saga & Zmud, 1994). Furthermore, different terms like post adoption / acceptance / implementation are used interchangeably in these studies.

Although previous section has explained post-adoption stage using IS implementation process model, it is important to understand this stage in EIS. The following section explains the concept of post-adoption in EIS followed by discussion on issues in this stage.

CONCEPTUALIZATION OF THE POST-ADOPTION STAGE IN ENTERPRISE INFORMATION SYSTEMS

The concept of post-adoption stage in the EIS was presented by Markus and Tanis (2000) in 2000 . They used a process theory approach to divide the EIS pre-adoption and post-adoption experience lifecycle into four phases (Markus & Tanis, 2000). The process theory argues that sequences of events leads to certain output stages, following a set of process. These four phases are shown in the Figure 1:

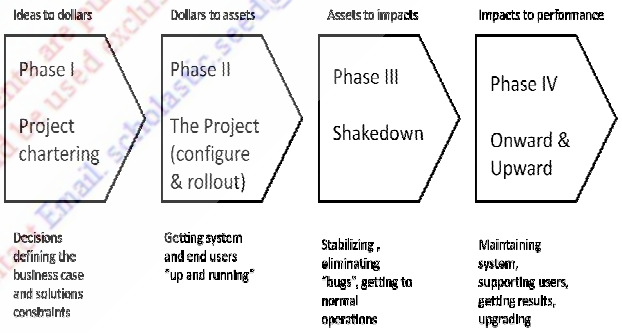

Figure 1: Enterprise Information Systems Experience Cycle (Markus & Tanis, 2000)

The project chartering phase consists of key decisions leading to funding of EIS. They suggest that some of the key actors of this phase include company executives, vendors, consultants, and IT specialists. Key activities include initiation of idea to adopt EIS, and identification and assignment of tasks to project champions. Additional activities

include the identification and selection of software and project scheduling and planning.

In the system configuration and rollout phase of a project, all activities are focused towards getting a system up and running in different organization units. Some of the key actors include project team members from different organization units, functional managers, vendors, IT specialists and consultants. All partners that are selected in the implementation of the project work closely with the project team to ensure that a project achieves the organizational goal of EIS implementation.

The shakedown phase refers to the period of time from when a system goes live until normal operation has been achieved. Some of the important key activities include errors or bug fixing, fine tuning the system, retraining additional staff members, and increasing staffing to handle the normal or temporary inefficiencies. In this phase, inefficiencies are realized to improve productivity (Markus & Tanis, 2000).

The onward and upward phase continues from normal operation until EIS is replaced with an improved, upgraded or a completely different new system. This is a stage when an organization discovers the true benefit of its EIS investment. Important people in this phase include end users, support personnel, and operational managers. Internal and external consultants and vendors may be also involved if upgrades are considered. Some of the key activities include the post implementation audits, benefit assessment and upgrading to new software releases.

Furthermore, Deloitte (1999) divides EIS implementation phases into three phases namely stabilize, synthesize and synergize. These three phases are also referred to as "second wave" implementation phase. In the first phase, organizations adopt a system and changes that occur due to this implementation. The second phase includes discovery of business benefits by the implementation of improved business processes and training of people to support new changes. The last phase, referred to as post-adoption stage, is where process optimization is achieved that results in business transformation.

The phases identified in Markus and Tanis's (2000) EIS cycle model are aligned with the stages of traditional systems development lifecycle (Nah, Lau, & Kuang, 2001) and IS implementation process models (Cooper & Zmud, 1990; Kwon & Zmud, 1987).

This study considers the post-adoption stage to be the same as the onward and upward phase and synergize phase as conceptualize in the case of EIS. The following section identifies research gaps related to post-adoption stage.

ISSUES AT THE POST-ADOPTION STAGE

There are several activities at the post-adoption stage to ensure that EIS continues to meet the business demand. Some suggest that these activities are complex in nature because of their dual nature of doing and managing character (Chapin, Hale, Khan, Ramil, & Tan, 2001). Nordstorm and Welander(2005) suggest two categories of these activities to capture the scope of post-adoption work. First category includes the activities that deal with the planning, managing and execution of change request. For example, a request to change, upgrade or fix a system by the customer. Second category includes all the activities that deal with providing the support. Some examples of these activities include providing support to users in problem situations, and, supporting the technology through which services are accessed. These activities are referred to as system support and maintenance (SSM) in IS literature.

SSM involves complex activities, both of the "doing" and the "managing" character (Chapin, et al., 2001). Khan & Zheng(2005) suggest that there is a need for "defined formalism describing various tasks, tools and methods are required" (pp. 7). Activities at the post- adoption phase are not only superficial operation work but could potentially link to the business pulses, i.e., the change of business environment or market climate via data maintenance in the decision support systems (Wang, Pauleen, & Ho, 2011). Some scholars suggest to explore the post-adoption stage and investigate the probable links with innovation (McElheran, 2011).

INNOVATION AND POST-ADOPTION USAGE BEHAVIOR

Prior IS literature suggests the degree of innovation depends upon level of IS usage at the post-adoption stage. Several studies including Schwarz (2003) and Sundaram et al. (2007) argue that level of innovation and learning increases with the utilization of IS in the organization. Here utilization refers to an extent at which the users integrate IS to support their work tasks. This study assimilates previous IS literature and identify key literature based on the type of IS usage and level of innovation. Table 2 presents empirical studies identified based on previous IS literature

IS usage level	Key Literature	Level of Innovativeness & Learning
Minimum	Routine/Standardize Use (Saga & Zmud, 1994; Schwarz, 2003; Sundaram, et al., 2007)	Low
Moderate	Extended/Deep structure Use (Burton-Jones & Straub, 2006; Schwarz, 2003; Swanson, 1994)	Medium
Maximum	Emergent/exploration Use (Agarwal & Karahanna, 2000; Ahuja & Thatcher, 2005; Jasperson, et al., 2005; Nambisan, Agarwal, & Tanniru, 1999; Nambisan & Baron, 2007; Wang & Hsieh, 2006)	High

Table 2: Post adoption IS Usage Behavior

In the table 2, minimum IS usage refers to the user's utilization of IS in a standardized or routine manner that is compatible with standard work processes. Different terms like standard use (Schwarz, 2003; Sundaram, et al., 2007), routine use or normal use (Saga & Zmud, 1994) emerge in the IS literature for this concept. The key characteristic inherent in this type of IS usage includes common expectations from a user once IS implementation has reached to post-adoption stage. This expectation include but not limited to knowing how predefined set of rules, policy or regulations related to IS use, so that it can facilitate the integration between IS use and work processes (Saga & Zmud, 1994).

Moderate level of IS usage refers to user's utilization of more IS functions or features to support work task performance. Extant literature suggests that similar concepts that explain this level of IS usage include but not limited to deep use (Saga & Zmud, 1994), extant function or feature use (Burton-Jones & Straub, 2006). The key characteristic of this level of IS usage is that it includes utilization of IS features or functionalities to accommodate additional work task. This level comes during the post-adoption stage where user become more familiar with IS functions due to extended use. Empirical evidence suggest that this level further increase the user capability and enable them to perform their tasks in more efficient and effective way (Hsieh & Wang, 2007).

Maximum level of IS usage refers to a stage where level of innovativeness and learning is at highest level through the utilization of IS. Previous studies identify different terms like emergent use (Agarwal & Karahanna, 2000), exploration use (Nambisan, et al., 1999) , or innovation IT use (Ahuja & Thatcher, 2005) to explain this stage. The key characteristic of this stage include the utilization of IS in a fashion that go beyond the way that imparted by original implementer or designer (Jasperson, et al., 2005). Furthermore, this stage includes users utilization at maximum level where intention to explore, or try to innovate with IT is at highest level.

Although previous research has shown link between post-adoption and innovation (Agarwal & Karahanna, 2000; Ahuja & Thatcher, 2005; Jasperson, et al., 2005; Nambisan, et al., 1999; Nambisan & Baron, 2007; Wang & Hsieh, 2006), there is little information available on the factors that influence innovation at post-adoption stage of EIS. Hence is important to explore this area and conduct additional research.

CONCLUSION

Previous empirical studies indicate that a post-adoption activity like SSM is often left to students, entry level workers or inexperienced personnel (Khan & Zheng, 2005; Polo, et al., 2003). SSM is not well regarded and a high staff turnover rate is common in support departments (Chapin, et al., 2001). The people who carry out this work may have few or no performance incentives attached to their work.

This paper explains the issues in post-adoption stage and highlights the importance of this stage. This area is considered important since it has the ability to provide a disruption-free environment and

the potential to support innovation in the organization. An extensive research is needed in future to further examine the potential effects and the role of post-adoption activities on innovation.

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Impact of ownership structure on e-recruitment practices in Banks in Sri Lanka

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ABSTRACT

This study aims to identify the relationship between nature of ownership and level of adoption of e-recruitment practices in banks in Sri Lanka. The main objectives of the study were to examine the levels of e-recruitment practices currently adopted and to be adopted in the near future, perceived constraints and motives of e-recruitment and the degree of managerial perception on e-recruitment practices, particularly in banking sector organizations in Sri Lanka, are among objectives. The study analyzed responses given by 46 managerial employees who are responsible for staff recruitment in the respective banks in Sri Lanka. The study revealed that the patterns of adopting e-recruitment practices among State Banks (SB), Local Private Banks (LPB) and Foreign Banks (FB) are varied, and LPB is toped. The study further revealed that though perception of HR practitioners, towards e-recruitment is positive in LPBs than FBs and SBs and perception among line managers and senior managers remain negative in all three sectors. Reduced time taken for hire and reduced administrative burden/paper work were identified as key motives while lack of knowledge and negative attitudes were identified as major constraints in practicing e-recruitment as a major source of recruitment in banking sector organizations in Sri Lanka. .

KEYWORDS

Recruitment	e-Recruitment,
Sri Lanka	Managerial perception
Banks	

INTRODUCTION

In the wake of the Internet's rapid expansion at the end of the twentieth century and its continuing success story at the beginning of the twenty-first, there is hardly a profession that hasn't been affected by internet and the World Wide Web (Blickenstorfer, 2006). In recent years, the internet has made an impact on the Human Resources field (Bussler & Davis, 2002) and some HR functions has developed commercially Recruitment is being assisted with higher involvement of the Internet.

HR practitioners are facing great challenges in hiring the most appropriate persons for the respective organizations within a short period while keeping the cost down. Here, there are two specific questions to be answered by HR practitioners;
Can the organizations allow HR practitioners 8-16 weeks (Yelland, 2002) for hiring a person for an important position, without badly affecting its business operations? How can HR practitioners reduce the period of time, without affecting the quality of hiring?
Organizations in today's increasingly competitive business world, such a delay in recruitment will make heavy disturbances or even on firm's existence and will have to compensate quality if it moves to quick hiring under traditional methods.

As a response to these challenges, in some countries internet based recruitment and selection systems called e-recruitment methods have been developed to reduce the cost and the time consumed for the hiring process while maintaining its quality (Byrne, 2000 Rembrandt, 2001; Walters, 2002; Yelland, 2002). It has achieved a significant level of success and now it is increasingly popular across the world (Evans et al., 2007; Holm, 2010; Marr, 2007).

Since the Sri Lankan economy too is affected by globalization, and the challenges in staff recruitment is not been much different in Sri Lanka from the global context, it's an emerging need to have more efficient systems like e-recruitment to be used in staff recruitment in Sri Lanka as well. However, until recent years it was hard to see any significant move towards internet based recruitment and selection systems (e-recruitment methods) being widely used in Sri Lanka. Even today, except for the corporate web sites of a few large organizations including multi-national companies and very few specialized web sites such as Topjobs (www.topjobs.lk), Jobsnet (www.jobsnet.lk) and Sri Lanka Job Bank (www.srilankajobs.net), many examples in practicing advanced e-recruitment methods in Sri Lanka cannot be seen.

In Sri Lanka, banking sector, being a prominent sector under the service category, can be identified as one of the leading sectors which is widely utilizing developments of ICT. Also it is expressed that Sri Lanka's ambition is to become the regional financial services hub for South Asia and has consolidated most technological advancements in that area. Such initiatives could be seen in corporate web sites of leading banks. However, it has not been witnessed that even the banking sector has utilized the full advantage of ICT for its non-operational (non-banking) activities including staff recruitment.

RESEARCH PROBLEM

HR professionals in many countries have been continuously researching on more efficient ways to perform organizational activities, incorporating the benefit of modern technology. The staff recruitment, as one of the most important managerial activities for the successful day-to-day functioning of any organization (CIPD, 2008) facing a challenge in hiring the most appropriate staff despite time/cost constraints. Therefore, the HR practitioners have to adopt emerging techniques such as Internet based methods which are among the most successful and increasingly popular such techniques (Evans et al., 2007; Holm, 2010; Marr, 2007) around the globe. Though e-recruitment methods are relatively modern practices (Byrne, 2002), relevant literature and surveys confirm that such methods are capable enough to take-up the challenge, by considerably reduce time and cost needed without compensating the quality of hiring (Byrne, 2000; Cappelli, 2001; Marr, 2007; Singh & Finn 2003 cited by Holm, 2010; Yelland, 2002).

Though there are many success stories in the global context i.e. *FedEx* , *KPMG*, *Reuters* (www.jeffgrout.com) in Sri Lanka, even in banking sector it appears that e-recruitment are neither widely practiced nor very popular among HR practitioners, but are still in their initial stages. However, such statements are not backed by strong evidence and it is needed to test, using empirical data which could answer the following questions, in respect of the banks in Sri Lanka;

1. What is the relationship between nature of ownership and level of adoption of e-recruitment practices in banks in Sri Lanka?
2. What is the degree of perception on e-recruitment, among HR practitioners who are responsible for staff recruitment in banks in Sri Lanka?
3. What are the future trends of Sri Lanka's banks relating to e-recruitment practice?
4. What are the critical factors which limit Sri Lanka's banks to practice e-recruitment as a major recruitment method?
5. What are the main drivers to adopt e-recruitment in banks in Sri Lanka?

LITERATURE REVIEW AND HYPOTHESES

As study done by IESE Business School in Spain (2001) on use of e-recruitment tools discovered that 51% of companies use e-mail as a recruitment tools, while owned corporate websites used only 44%. According to "*Recruitment practices and trends in Ireland* (2006)" done by the Public Appointment Services; 58% and 64% of Irish firms are using their corporate web sites and third party job websites respectively, among their recruitment practices. National news papers are used by 86% and rated by 30% as the main (top) recruitment method. 72% of public sector firms surveyed use the "corporate web site" as one of their major recruitment sources, while it is only 51% for private sector firms. Therefore, in Ireland, the level of adoption of the e-recruitment practices is different between public sector firms and private sector firms (Public Appointment Services, 2006).

However in Sri Lanka's context, as a whole the state sector is recognized as less IT-friendly. Until establishment of ICTA few years ago, the sector is hardly shown notable developments using Internet/WWW, when compare with advancements and innovations archived by the country's private sector. Here, it has been assumed that the same pattern can be seen in banking sector organizations too. The other hand, though number of technologically advanced and internationally reputed banks are operating in Sri Lanka, most of which are operating with one or few branches with very less number of employees. Probably, their staff recruitment function is neither very challenging nor need to adopt modern recruitment methods like e-recruitment. (e.g. Standard Chartered Bank – Sri Lanka, one of the two most popular foreign banks in Sri Lanka does not maintain separate web page for staff recruitment). Contrast, LPBs are fast growing in number of branches/employees. Based on the above literature it is hypothesized that

Hypothesis – 1**: There is a difference in the level of adoption of the e-recruitment practices between state owned (SB), local private (LPB) and locally operated foreign banks (FB) in Sri Lanka.**

H_{1a} – Level of adoption of e-recruitment practices in local private banks (LPB) is greater than state banks (SB).

H_{1b} – Level of adoption of e-recruitment practices in local private banks (LPB) is greater than foreign banks (FB).

Odumeru (2006) has done a cross sectional survey done in Nigeria, on the factor affecting the adoption of online recruiting technology using Rogers Diffusion of Innovation (DOI) Theory, and it was revealed that there is a strong relationship between attitude (or perception on relative advantages) towards e-recruitment and the use of the same. According to "Recruitment practices and trends in Ireland 2006" done by the Public Appointment Services (2006), views relating to online recruitment is positive among recruiters. Also 25% of Irish organizations are planning to enable candidates to complete applications online, while 34% of them are already facilitating it. Likewise, more companies are planning to adopt or upgrade more sophisticated e-recruitment practices. Also except "seeking candidates' feedback online", all other activities related to e-recruitment are expected to be increased in the future.E-recruiting has a limited ability to attract some types of job seekers because of lack of personal touch; lack of geographical targeting and all job seekers do not have internet access (Chang, 2001). So, e-recruitment may not be suitable for recruiting executive/top management level candidates (Arboledas et al., 2001; Arkin & Crabb, 1999; Brilliant People.com). e-recruitment tends to used only for junior positions and may not be suitable for recruiting executive/management level candidates (Arboledas et al., 2001). Such candidates still prefer personal contact (Arkin & Crabb, 1999) and concerned on data security issues relating to internet based methods. Therefore, e-

recruitment tends to be used only for junior positions and may not be suitable for recruiting executive/management level candidates (Arboledas et al., 2001; Brilliant People.com).

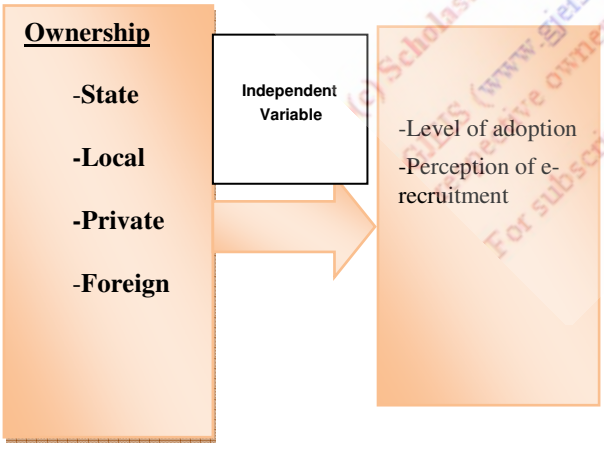
According to the finding of a survey conducted in Spain (IESE Business School, 2001) time saving for recruitment process (64%) is the main advantage e-recruitment. However, a report released in 2006 (Public Appointment Service, 2006), reduce recruitment cost (77%) was the main driver in Ireland. Ability to post jobs for job seekers internationally was ranked the top benefit of e-recruitment by Hamarna (2011) in the study done in Palestine. E-recruitment can eliminate a lot of paper work and speed-up the hiring process. (Richardson, 2000*).* The use of electronic recruiting instruments reduces the time invested in HR management by 25% to 30% (Blickenstorfer, M, 2006). E-recruitment achieves faster recruiting cycle through faster electronic communication i.e. faster posting jobs, receiving resumes, processing and screening fast. (Blickenstorfer, 2006; Othman & Musa, 2006). *).* Based on the above literature it is postulated that

Hypothesis – 2 **There is a difference in degree of perception on e-recruitment between state owned (SB), local private (LPB) and locally operated foreign banks (FB) in Sri Lanka.**

H_{2a} **– Degree of perception on e-recruitment is more favorable among managerial employees in local private banks (LPB) than state banks (SB).**

H_{2b} **– Degree of perception on e-recruitment is more favorable among managerial employees in local private banks (LPB) than state banks (FB).**

Figure 1: Conceptual framework



Banking sector is among the most ICT adopted sectors in Sri Lanka, consist of 22 LCB's and 09 LSB's. Managerial employees were selected for this empirical study as technology adoption theories emphasized that perception/attitudes managers is one of the major determinants of adoption of technological innovations like e-recruitment (Huy at el, 2012; Odumeru, Nigeria).

The sample; There were 93 questionnaires were distributed among managerial employees who are responsible for staff recruitment in LCBs and LSBs. Sent about three (3) questionnaires for Human Resources Departments of each bank and to be filled by randomly selected managerial employees engaged in staff recruitment in their respective departments. The rate of response and representation of banks/managerial employees in the sample as given in the table 01.

Table 1: Composition of the Population and the Sample (Banks)

No of Banks represented each category				
	State Owned	Privately Owned (local)	Locally Operated Foreign Banks	Total
No of Banks in the Population	7	13	11	31
No of Banks represented in Sample	5	8	6	19
Percentage	71%	62%	55%	61%
No of responses (sample)				
No of responses	19	18	9	46
Percentage	41%	39%	20%	100 %

METHOD OF DATA COLLECTION: PRIMARY DATA SOURCE

A questionnaire consists of MCQs and 5 point Likert scales was developed by the researchers used to collect data from respondents.

Mainly quantitative methods are used to analyze the data captured and present the research outcome. Statistical measures such as percentages, mean, mode, variance/standard deviation, t-tests, analysis of variance (ANOVA) have been used in data analysis. Since the study is to examine the behaviour, choices or perception towards e-recruitment practices, most of the data collected through the questionnaire was more qualitative (ordinal and discrete) in nature rather than quantitative (interval data or continuous data). However, in order to analysis results relating to number of questions/sub questions/statements (i.e. five-point Likert scale) or respondents as groups (i.e, state, local private and foreign banks) it has been frequently used central tendency measurements like Mean (Average). Also, when it makes comparison between groups of respondents or set of questions/statements, quantitative analysis methods have been used, considering the continuous/quantitative nature of such means.

Data Analysis and Testing of Hypotheses

Table 2: ANOVA (average responses between all three participants' groups)

ANOVA: Single Factor	α=	0.05				
SUMMARY						
Groups	*Count*	*Sum*	*Average*	Variance	SD	
State Banks	19	61.684	3.247	0.125900	0.355	
Local Private Banks	18	67.895	3.772	0.167511	0.409	
Foreign Banks	9	30.211	3.357	0.301779	0.549	
Total	46		3.474		0.477	
ANOVA						
Source of Variation	*SS*	*Df*	*MS*	*F*	*P-Value*	*F crit*
Between Groups	2.7045	2	1.35227	7.724003	0.001	3.21448
Within Groups	7.5281	43	0.17507			
Total	10.2327	45				

Source – Survey data

Table 2, shows that the results generated by one-way analysis of variance (ANOVA table), which test the equality of "average response given for 19 sub-questions/statements by survey participants in three groups i.e. state, local private and foreign banks". The table has illustrated a precise view of the responses given for question number 13, which consisted of 19 numbers of Likert type sub questions/statements aiming to measure the level of perception. The scale is from 1 (strongly disagree) to 5 (strongly agree) to the positive statements listed (Table 02 above). The table shows that average rating of 3.77 of local private, 3.25 of state banks and 3.36 for foreign banks while overall average rating stands at 3.47.

The ANOVA table confirms that the difference in average responses given by participants from three groups are statistically significant ($p<0.05$) at 95% confidence level, hence at least the average responses of one group of participants are differentiates from others.

Table 3: T-test – compare average responses, SB Vs LPB
Source – Survey data

t-Test: Two-Sample Assuming Unequal Variances	α=	**0.05**
Unequal Sample Sizes		
	State Banks	*Local Private (LPB)*
Mean	3.2465	3.7719
Variance	0.1259	0.1675
Observations	19	18
Hypothesized Mean Difference	0	
Df	34	
t Stat	4.162	
P(T<=t) one-tail	0.000	
T Critical one-tail	1.691	
P(T<=t) two-tail	0.000	
T Critical two-tail	2.032	

In terms of the survey data presented above, it is clear that more positive perception on e-recruitment

practices could be seen among managerial employees in local private banks (LPB) than in state sector banks (SB) and locally operated foreign banks (FB).

Table 4: T-test – compare average responses, FB Vs LPB

t-Test: Two-Sample Assuming Unequal Variances	**α=**	**0.05**
Unequal Sample Sizes		
	Local Private (LPB)	*Foreign Banks*
Mean	3.7719	3.3567
Variance	0.1675	0.3018
Observations	18	9
Hypothesized Mean Difference	0	
Df	17	
t Stat	2.006	
P(T<=t) one-tail	0.031	
T Critical one-tail	1.740	
P(T<=t) two-tail	0.061	

Source – Survey data

According to Table 4. Currently 85% of participants are accepting applications through E-mail and 70% post vacancy details in the web site/page, while 44% and 13% of them respectively are planning to do so. Also 59% of them are currently allowing candidates to forward resumes (e-mail) through their web site and another 15% of them are planning. 33% of them are planning to implement on-line self selection exercises (psychometric tests, writing ability … etc), though only 13% of them are currently using it. Also 24% banks are planning to have online application form to be filled and forwarded, on top of the 41% of them who are currently using it. When we consider all 19 activities listed relating to e-recruitment, an average of 30% participants is currently using them while we can expect the figure to increase up to 46% in medium-term.

Table 5: E-recruitment activities currently in-use and planned.

	Currently Use	Plan to Use	Total
a) Accept applications via E-mail	84.8%	4.3%	89.1%
b) Describe and advertise vacancies on web sites	69.6%	13.0%	82.6%
b) Post jobs on free Internet job boards/sites	21.7%	13.0%	34.8%
c) Have a dedicated recruitment website/page	47.8%	10.9%	58.7%
d) Post jobs on recruitment agency sites	45.7%	10.9%	56.5%
e) Respond to requests for further information on-line	45.7%	10.9%	56.5%
f) Let applications be forwarded through e-mail	58.7%	15.2%	73.9%
g) Applications completed on-line	41.3%	23.9%	65.2%
h) Build a database for future vacancies (computer based)	26.1%	17.4%	43.5%
i) Offer on-line self-selection exercises	13.0%	32.6%	45.7%
j) Initial screen on qualifications on-line	19.6%	26.1%	45.7%
k) Initial screen on competencies on-line	19.6%	8.7%	28.3%
l) Use personality tests at initial screen	10.9%	13.0%	23.9%
m) Use on-line testing at assessment stage	2.2%	21.7%	23.9%
n) Invite candidates to interview on-line	13.0%	10.9%	23.9%
o) Notify non-selected candidates on-line	23.9%	23.9%	47.8%
p) Make job offers on-line	10.9%	26.1%	37.0%
q) Give feedback to non-selected candidates on-line	8.7%	17.4%	26.1%
r) Seek candidate feedback on-line	4.3%	13.0%	17.4%

Source - Survey data

Therefore it can be projected that adoptions for e-recruitment practices among banks will be significantly improved in future.

According to Table 6, the majority (56%) of the participants ranked Lack of knowledge on e-recruitment applications as the main reason to limit the adoption of e-recruitment, while it was ranked among top three reasons by 73% of the participants. Respectively, 67% and 52% of the participants ranked Negative attitudes and difficulty in using for every position has been ranked as top three limitations. However limitations connected to data security and legal issues have been ranked among top three reasons by only 2.2% and 19.6% participants.

Based on the survey findings lack of knowledge could be identified as the main factor that limits adoption of e-recruitment practices among banks in Sri Lanka.

Table 6: Main Limitations

Limitation	Top1 -%	Top3 %
Lack of knowledge on e-recruitment applications	56.5%	73.9%
Initial investment is high	17.4%	21.7%
Factors relating to data security	2.2%	2.2%
Legal/policy issues	8.7%	19.6%
Difficult in using for every position	2.2%	52.2%
Lack of technological expertise	0.0%	28.3%
Negative attitude	13.0%	67.4%
Other	0.0%	0.0%

Source - Survey data

26% of the participants ranked Reduce recruiting cycle (i.e. time taken to hire) as the main factor which encourages adoption of e-recruitment practices, while Reducing administrative burden and Attract more skilful candidates are ranked among top three reasons by 17% and 13% respectively. However, 56%, 54% and 43% of the participants have respectively ranked Reduce administrative burden/paper work, Reduce recruiting cycle and Attract more skillful candidates among top 3 encouraging factors for e-recruitment practices.

Table 7: Main benefits of e-recruitment

Advantage	Top1 -%	Top3 %
Reduce advertising costs	10.9%	26.1%
Reduce recruiting cycle *ie* time taken to hire	26.1%	56.5%
Reduce administrative burden/paper work	17.4%	54.3%
Target a larger & more diverse candidate pool	8.7%	10.9%
Attract more skilful candidates (computer literate .etc)	13.0%	43.5%
Improve employer brand & image	0.0%	8.7%
Easy to build & manage candidate database	6.5%	13.0%
Reduce overall cost of recruitment	6.5%	21.7%
Because candidates prefer it	0.0%	0.0%
Other	0.0%	0.0%

Source - Survey data

Therefore, reduced recruitment cycle could be identified as the main driver encouraging the adoption of e-recruitment among banking sector organizations in Sri Lanka.

FINDINGS

The aim of the hypotheses H_{1a} and H_{1b} was to understand relationship between nature of ownership and level of adoption of e-recruitment practices in banks in Sri Lanka. Since it could be found that level of adoption of adoption of e-recruitment practices in local private banks (LPB) is greater than both state banks and foreign banks, the hypotheses H_{2a} and H_{2b} are proved. The lowest level of adoption could be seen in state banks (SB), while the highest level of adoption has been shown in local private banks (LPB) which lead FB marginally. However, FBs have not been ranked any of the e-recruitment methods among their top three. Among

the reasons that foreign banks reported less adoption level are that some of the foreign banks whose managerial employees were included in the sample operate in Sri Lanka having only one or very few branches with a limited number of staff (less than 100 and part of them are expatriates) and recruitments per annum is less than 25. Such banks were even reluctant to set up corporate web sites for Sri Lankan operations or add a separate recruitment page, whereas most local private banks whose staff strength is growing were willing to do so.

Compared with a survey done in Ireland, adoption to e-recruitment is more in the public sector than in the private sector organizations, which reports the use of corporate websites as a source of recruitment, is 72% in the public sector, while it is only 51% in the private sector. Overall popularity of e-recruitment in Sri Lanka's banking sector also appears relatively low and out of which company web site/page uses by 54% while third party websites used only by less than 30% of the participants. When compares with Ireland's, adoption for corporate web sites (i.e. 58%) is somewhat closed, but adoption for third party job sites are more than twice (i.e. 64%) in Ireland.

The survey data also confirms that e-recruitment practices have been widely used for recruit managerial/professional employees. However the finding is contradictory with the popular fact that the E-recruitment may not be suitable for recruiting executive/top management level candidates (Arboledas at el., 2001; Arkin & Crabb, 1999; Brilliant People.com).

The objective of the hypotheses H_{2a} and H_{2b} was to understand the degree of perception on e-recruitment, among managerial employees in banks in Sri Lanka. Positive perception has been reported in all 3 categories of banks (3 groups of respondents) while highest degree of positive perception could be seen among local private banks than state banks and locally operated foreign banks. Therefore, both H_{2a} and H_{2b} are also proved. However since the difference in degree of perception between state banks (SB) and foreign banks (FB) are statistically not significant, the degree of perception on e-recruitment among SB and FB could be considered as similar. Finding of state banks' less favorable perception on e-recruitment, confirms the popular fact that Sri Lanka's state sector is less ICT-friendly, while FBs' degree of perception on e-recruitment has largely affected by their very small scale operation (no of staff/branches) as explained above.

The other notable fact here is perception on e-recruitment among the line managers in all 3 categories of banks is negative while senior managers in state banks are also having negative perception. This situation is not only in Sri Lanka's banks but even in Ireland (Public Appointment Services, 2006) the negative perception among line managers could be seen (See table 2.17). Many research findings including TOE framework and Rogers' Innovation Diffusion Theory (IDT), confirm that attitude and perception of managers towards technological innovations like e-recruitment are among key determinants for adoption of new technology (Huy at el., 2012; Kim & Crowston, 2011). Here the perception/attitude of managers is negative, which may partly responsible for lower e-recruitment adoption.

Examine future trends relating to e-recruitment practices among Sri Lanka's banking sector organizations was one of the objectives of this study. The survey data confirmed that e-recruitment practices in the banking sector organizations in Sri Lanka are in a growth path. Higher degree of growth can be expected in recruitment of fresh graduates, clerical/secretarial occupations as well as recruitment of school leavers, than other categories of employment.

The survey data is revealed that the lack of knowledge as the most critical factor which limits practicing e-recruitment in banks in Sri Lanka. Also, recent study done in Sri Lanka on e-commerce implementation in Sri Lanka confirm that lack of knowledge among employees is a negative factor to implement e-commerce (which include e-recruitment as well), a technology innovation (SLBDC, 2002). Reduced recruiting cycle (i.e. time taken to hire) was found as the main drivers to adopt e-recruitment in Banking Sector organizations in Sri Lanka, similarly time saving was the main advantage at the study of IESE Business School in Spain. However, according to the survey done in Ireland, cost was the main driver, while ability to access diverse pool and reduce administrative burden ranked respectively at second and third. Lesser degree of economies of scale that could be enjoyed in Sri Lanka than in Ireland may be among many reasons that caused the difference in survey findings.

RECOMMENDATIONS

All most all banks are maintaining their own web sites. Those that have not separate section for recruitment of human resources, add separate section without delay in order to capitalize benefits of e-recruitment. In case that any bank don't have sufficient resources internally to manage its own, outsource by create a link to a third party recruitment site.

Despite of higher cost, the dominate position of national newspapers in advertise job vacancies was seen in the survey data as well. However it may be a practical idea to make the newspaper advertisement more precise as possible and invite readers/potential candidates to the web site/page for more details. (i.e. comprehensive vacancy information along with detailed job description, job locations, career path, salary and benefits, employment terms and conditions, company information, online application format with a facility to attach own resume etc).

Common recruitment web site recommends to be set-up by a recognized professional body (i.e. Sri Lanka Banks' Association, Association of Professional Bankers Sri Lanka … etc), exclusively for banking sector jobs. That can be further developed as a fully-fledged recruitment and assessment agency for the banking sector, which can obtain rating for psychometric, language, numerical or/and similar tests. So that it won't be necessary to invest every individual organization. Leading recruitment web sites like www.topjobs.lk and www.jobsnet.lk still does not offering sufficiently advanced e-recruitment tools like online interviews, online testing … etc, which can be add and can be become fully fledge e-recruitment service provider, beyond just a job vacancy advertiser and resume data base administrator. Also some reputed banks may prefer to have its own resume data base than sharing with common/third party web sites, probably due to data security concerns; therefore there will be IT/BPO firms specializing e-recruitment to be undertaken the management of such systems.

Since more e-recruitment activities can be expected in the future, more opportunities will also be opened for professional who are having higher degree of understanding on e-recruitment practices and strategies. In the other part of the world there are separate designations i.e. "online recruiters" "e-recruiters" introduced for qualified professionals in this area, therefore it is necessary to introduce a separate subject in the curriculums of professional HRM courses (i.e. Diploma level and above), then only there will be HR professionals with the sufficient knowledge in the area of e-recruitment.

Apart from that there should be frequent awareness programs conducted on e-recruitment practices, by way of seminars, training programs etc, this can be initiated by Institute of Personnel Management (IPM) or Institute of Bankers Sri Lanka (IBSL) … etc with the assistance obtain from international professional bodies like CIPD (UK), in order to make aware and update HR professionals and business strategists. Frequent awareness programs, experience sharing sessions and researches will help to dilute knowledge deficiency and negative attitudes, among the practitioners. Further the awareness programs which emphasized relative advantage, must be extended to senior managers and lime managers who can influence the technology adoption decisions, as some research findings confirmed that attitudes is largely determined by the perceived relative advantage of the technological innovation. (Huy at el., 2012; Odumeru; 2002)

Awareness should be improved among jobseekers (candidates) as well. Expansion of internet infrastructure and reducing the cost of it, as a result of stiff competition among key service providers, along with the increased proficiency in web application among educated youth, who are the potential candidate for the banking sector will, encourage any such initiatives. Also since internet access through (GPRS/3G/HSDPA) mobile phones becoming popular especially among young generation, it is important to be designed web portals suitable for such users (e.g. WAP). Then they can register with specialized job site and check whether any opportunity that matched with own resume.

Cost conscious companies/banks, apart from those time conscious, need to think of adopting some of the less popular e-recruitment activates like notify non-selected candidates and give them a feedback with escalating postage and printing costs.

CONCLUSION

The main purposes of this study were to understand relationship between nature of ownership and level of adoption of e-recruitment practices in banks in Sri Lanka. The sample of the study was randomly selected 46 managerial employees who responsible for staff recruitment function in 19 banks in Sri Lanka. Collection of data was done through specially designed questionnaire.

The findings of this study are important basically in practical aspect and also theoretical aspect by contributing to reducing the knowledge gap. Since the study explored that the main constraint for adoption of e-recruitment practices is lack of knowledge, through conducting specially designed programs as suggested, can mitigate such constraint in the development of modern e-recruitment practices. Also discussion on similar topics would stimulate IT professionals/enterprises towards e-recruitment as a potential e-business application; this study itself would be one of the key contributions.

The findings of this study would help both employers (i.e. organizations) and job seekers to adopt for less time consuming, less costly but more efficient recruitment practices, particularly in extremely competitive environments. In this highly competitive corporate world, employers may use e-recruitment practices in order to expedite recruitment and selection process without affecting its quality. Further some of the policy recommendations of this study may contribute to expand dimensions of the HR profession, particularly related to banking sector in Sri Lanka.

However, the study is basically on e-recruitment, relatively a new area, has not been subject to undergone frequent studies, especially in Sri Lanka context. The study investigate only in banking sector organizations which a part of service sector, and researched basically employers' point of views. Therefore it is important to carrying out further studies throughout different segments in order to generalize for Sri Lanka context, at least for service sector. Also it may be worthwhile to analysis case studies of some local companies which adopted for e-recruitment practices.

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Empirical study on obstacles in Information System Success

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ABSTRACT

To gain better competitive advantage in the market, the organization are using information systems. Most of the organizations either have established the information system or they upgrade their information system. But still there are lots of hurdles for gaining information system success. There have been a large number of analyses of critical success factors of information system projects in the literature, but there is shortfall in research efforts in studying failures globally and particularly in India. Therefore this paper attempts to study empirically the obstacles coming in Information system success. A questionnaire survey has been conducted to know the failures factors for not updating the information system timely. The survey has been done on two prominent telecommunication organization, one having successful IS (Reliance Communication) due to its continuous updation with respect to time, industry and executives other (Puncom, Mohali) don't have. As India is the second largest country in terms of mobile users in the world therefore the study of this industry is strategically and economically important due to its high potential for the growth of the country.

KEYWORDS

Information system (IS)	*Critical success factors (CSFs)*
continuous updation	*Indian telecommunication Industry*

INTRODUCTION

Information system is a suite having different software modules that integrates different functional departments in an organization. It provides the support for collaborating the different departments from planning, manufacturing to customer service, and finally to achieve the business goals. The market of various corporate information systems has grown tremendously. However, the implementation process of information systems is not only complex, but also organizationally disturbing and resource exhaustive. Many information system implementation projects gains incomplete success or the failures. The causes of failures are comprehensive which can be attributed to insufficient planning, stabilization, requirements and continuous updation of the system both at the business and project levels. Incompetent project management, minimum support from the corporate management etc. are also the contributory failure factors. The complexity in information system implementation has attracted much attention both from academic researchers and industrial practitioners. The reason behind this is that most of the studies conducted focus themselves on the success factors and neglect failure factors. Therefore study of the failures is equally important and yet not highlighted.

In this paper, the author attempted to discover the underlying critical success and failure factors of an information system projects if they are not updated continuously. A questionnaire survey of two information systems of telecommunication industry was conducted and analyzed.

LITERATURE REVIEW

The study [1] suggests that during the past two decades, investment in Information technology and Information system have increased significantly in the private and public sector organization whereas the rate of failure remains quite high.

The various factors responsible for IS failures [2] are:

- **Lack of top management commitment to the project;**
- Poor user commitment;
- Inadequate user involvement;
- Requirements not well understood;
- Failure to manage the expectation of users;
- Changing scope;
- Lack in skills;
- New technology;
- Insufficient Staffing;
- Lack of organizations' commitment to a systems development methodology;
- Poor estimation techniques;
- Inadequate people management skills;
- Failure to adapt to business change;
- Failure to manage the plan.

The **Standish Group prepared a report of a survey in which 365 [3] IS executives** participated. The reports suggests that IS/IT failures were covered up, ignored, and/or rationalized by IS/IT personnel. They advocate that the CEO's role in IS/IT planning and development should be:

- ✓ Quantify the business value of the IT by measuring its overall economic value to the business.
- ✓ Recentralize control of IT spending while maintaining flexibility.
- ✓ Communicate the results one expects in clear
- ✓ Financial terms.
- ✓ Keep the IT architecture/infrastructure simple.
- ✓ Be firm on rigorous pilot testing.
- ✓ Make sure that the new system has the capacity to handle the required number of transactions that need to be processed.
- ✓ Closely monitor what IT suppliers are using to run their own businesses.
- ✓ Avoid succumbing to hasty decisions based on the urgency of the situation.

New requirements are influencing the business processes as the business needs are changing very fast. Therefore to keep pace with the global market and to achieve the competitive advantage, the company has to react immediately and improve the quality of the adopted IS...

Turban et al. [4] reviews yearly Datamation (a leading practitioner journal of information systems) and then suggests why IS are important for a business organization.

The information systems are required for the following reasons:

- **For the business process reengineering.**
- **To meet the company's goals and objectives.**
- **Better decision making.**
- **For the development of the productivity.**
- **Enhancing the quality of the product.**
- **Building the competitive edge.**
- **Retention of change management environment.**
- **Creation of Research and Innovation environment.**

According to Turban et al. [4], the IS projects can be classified into four categories:

1) **Commercial e.g. customer relationship management (CRM), e-commerce, knowledge management**
2) **Strategic e.g. re-engineering, information architecture**
3) **Organizational e.g. centralization vs. decentralization, outsourcing, resource management;**
4) **Technological e.g. database, internet and intranet.**

Diniz [5], proposed a three dimensional model for the evaluation of virtual business environments from the user's perspective by doing the case study of three banks in a Brazil. The studies include the services offered, functionality, reliability, security of transactions on the sites and also the user's transaction quality. This evaluation approach is useful to known the quality of the sites used for Internet banking.

All the studies predict that during the past two decades, investment in Information technology and Information system have increased significantly in the organization. But the rate of failure remains quite high. Therefore an attempt is made to prepare the continuous updation model for the prediction of the success or failure of the organization taking into consideration the telecom sector. The current empirical study is particularly important as it may contribute in forming a model for the Indian telecom industry.

OBJECTIVES AND SCOPE OF THE STUDY

- **To study the causes of failures of ISs due continuous non-up gradation of IS.**
- **To study the critical success factors of continuous up gradation of IS especially for the Indian telecom industry.**

The objective of study is to analyze the failure and success factors of Information System due to non-up gradation and also pinpoint the most important factors. Also, the study focuses on testing the relevance of the factors existing in literature in the Indian Telecom Industry.

In view of the certain constraints like time and money, the study is confined to the two organizations, namely, Reliance Communication Chandigarh, Punjab Communication Limited, Puncom, and Mohali.

These enterprises are selected because they have extremely good business performance and high

Table 1.Sampling Plan

Organization	Management Level	Population	Sample	Actual Response	%age of response size
Puncom	Top Level	14	11	10	90.90
	Middle Level	20	14	13	92.85
	Lower Level	210	146	136	93.15
	Total	244	171	159	92.30
Reliance	Top Level	12	10	9	90
	Middle Level	42	32	29	90.62
	Lower Level	77	57	42	73.68.
	Total	131	89	80	84.76
	Grand Total	**375**	**270**	**239**	**88.53**

Employment generators and early adopters of IT with functional ISs. This industry is strategically and economically important for the growth of the country as India is the second largest country in using the mobile services in the world. Among these organizations, Reliance Communication is an upstream company concerned with telecommunication products and services. The other companies is also a telecommunication unit having manufacturing unit as well as service unit and are responsible for supplying finished products to consumers, i.e. the downstream company.

RESEARCH METHODOLOGY

A) For the Organization

a) Universe of study: Telecommunication industry comprises of Reliance Communication, Vodafone, Essar, Idea, and Bharti-Airtel.

b) Sample Selection: Reliance Communication Chandigarh, and Punjab Communication Ltd (Puncom) Mohali.

B) For the Respondents

a) Universe of study: All managers working at the three levels of the selected organizations.

b) Sample Selection: A number of respondents based on proportional stratified sampling from all of these organizations are selected. The respondents are identified from various levels / business functions in each organization such as top management, ARE management, functional heads, and ARE staff and users. The primary data is collected via questionnaires cum interviews with the selected respondents. Statistical Package for the Social Sciences (SPSS) statistical tool is used for the statistical analysis. The norms are formalized for the choice of respondents from the participating organizations on the basis of detailed discussions with a number of academicians, researchers and industrial experts. It is observed that increase in sample size will affect the results only marginally, whereas effort for it is considerable. The sample size from a stratum is determined on the basis of the following criterion:

70% of the population where sample size > 100
50% of the population where sample size < 100.

4.1 Data collection tools

Primary data has been collected through a questionnaire-cum-interview method from the selected respondents. The questionnaire is designed based on the literature survey, and detailed discussion with many academicians, professionals and industry experts.

INTRODUCTORY CONTINUOUS UPDATION COMPONENT

27 variables related to continuous updation of IS are selected for the study relating to failure and success factors of Information System. Quantitative analysis is performed by using various testing models, Anova F, T-tests are applied to check importance and to identify CFF & CSF between Puncom & Reliance.

Continuous Updation System

The analysis had been made on the basis of the mean scores. The responses of the managers of the two companies differ significantly in terms of their mean scores. Among these companies, Reliance Communication Ltd. has been pioneer in continuous updating full-fledged Information System (IS) with fully automated procedures, processes and practices. The Puncom has a function-wise domestic IS, that is not well-integrated. IS is only being used as a support tool by the Puncom managers. The Figure.1 explains the mean scores of both the companies.

From the mean scores, it can be depicted in Puncom there is very less up gradation in the ttechnology innovative factors that leads to its IS failure. Their market research at the global level is very low which its critical failure factor becomes. The project planning, monitoring factors are also very slow which leads to the failure of IS. However employee's awareness, knowledge, understands of advanced technology and methodology is found to be

sufficient in Puncom. This high managerial expectations are prevalent in Puncom because the company has been the player among the public sector telecommunication and managers of the company strongly feel that tremendous improvement in IS functioning should be done by updating the in-house IS to global IS.

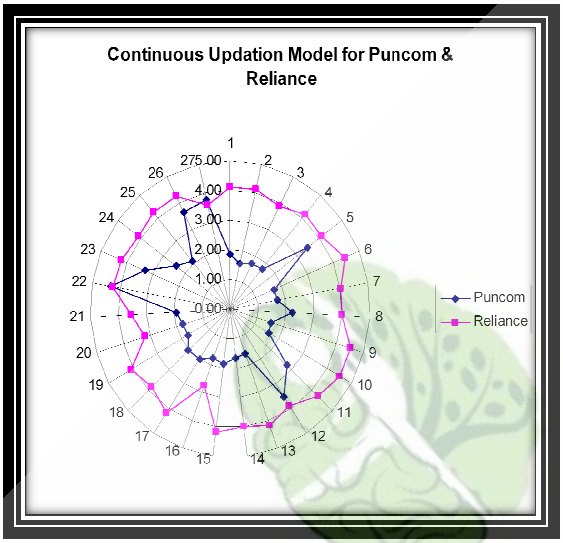

Figure: 1: Continuous Updation Model

The mean scores, also depicts that the managers of Reliance give maximum importance to the 'Marketing related' factors which leads to its IS success. However on other hand, the managers of Reliance do not have such high aspirations as the company has already has fully fledged Information System implemented. The global IS continuous updation in Reliance is found to be efficient as it has a potential for the decision making process.

5.1 Validity of the model

This has been tested by performing the following tests:

5.1.1 Measures of goodness

5.1.1.1Content validity

The various views/sub-views and the factors / variables has been identified on the basis of extensive survey and study of literature.

The users of the Information systems has attained at the three levels of the management in the two participant organizations with rigorous consultation and discussions. This revealed that the questionnaire has been comprehensive and useful for the organizations.

5.1.1.2 Scale reliability

Reliability of the scale has been studied for Continuous Updation using Alpha method of scale reliability. The Cronbach's Alpha was calculated for both Puncom & Reliance which is discussed in detail in Table 2

As depicted from the table 2, the value of the Cronbach's Alpha was found to be greater than the standardized value of 0.6.This means the data is reliable. Hence both Puncom & Reliance had attained value of 0.811 & 0.822 respectively and overall 0.985. This establishes the reliability of the scale.

Table 2. Reliability of scale

	Puncom Reliance		Cronbach's Alpha Reliability		
Continuous Updation Process	No. of item	No. of item	PunCom	Reliance	Overall
	27	27	.811	.822	0.985

5.2 Continuous Updation Process for Information System

The respondent has been divided into three levels i.e. top level, middle level and operational level. Responses to factors and variable has given in the tabular form and also explained graphically. A conclusion has been drawn from these tables and graphs. Firstly the data have been tested by using mean Scores at top management, middle management and lower management level has been tabulated in table 3 and Figure 3 and Figure 4 for Puncom and Reliance. The responses of the managers of two companies differ significantly in terms of From Table 5.2 it was analyzed that the mean score of Puncom are near to 2 whereas in Reliance the overall mean is greater than or equal to 4. Further on the basis of mean score overall average of extremely important factors were identified in both the companies mean score. From the above results it had been concluded that Reliance has been sincere in continuously updating fully fledged Information System with fully automated procedures processes and practices .This shows that the variable identified as in table 3 are first planned then executed in the right direction whereas in Puncom there is a need for flexible model and still a huge scope of improvement & integration is possible.

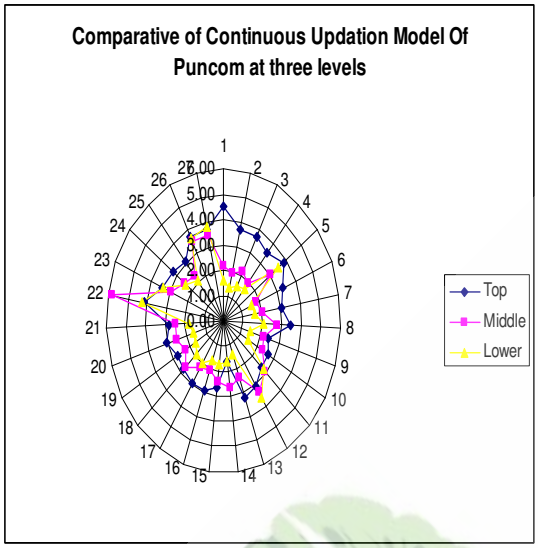

Figure 2 Comparative of Continuous Updation Model of Puncom at three levels

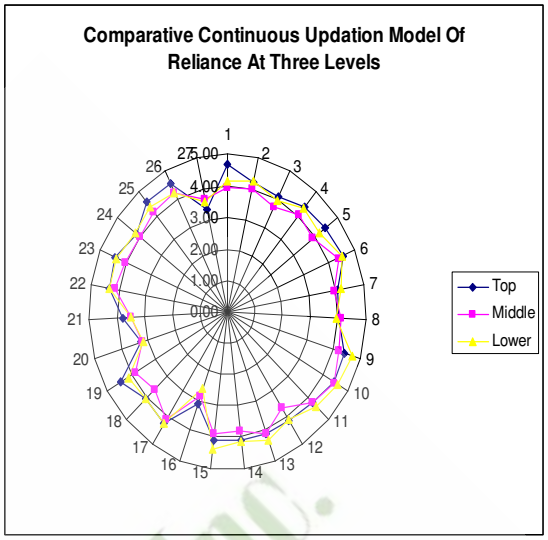

Figure 3 Comparative of Continuous Updation Model of Reliance at three levels

Table 4 Mean Scores (Puncom, Reliance,)

S. No.	Factor	Puncom				Reliance			
		Top	Middle	Lower	Tota	Top	Middle	Lower	Total
1	Price	4.50	2.15	1.63	1.85	4.67	3.93	4.12	4.11
2	Brand Image	3.70	1.92	1.38	1.57	4.22	4.00	4.26	4.16
3	Selection of	3.70	2.15	1.54	1.72	4.11	3.72	3.95	3.89
4	Market Position	3.50	1.92	1.64	1.78	4.33	4.03	4.26	4.19
5	Online and	3.80	3.00	3.47	3.45	4.44	3.86	4.19	4.10
6	Sales force	3.30	1.85	1.55	1.69	4.56	4.34	4.50	4.45
7	Delivery of	3.00	2.08	1.63	1.75	4.00	3.90	4.17	4.05
8	Flexibility to	3.40	2.77	2.07	2.21	4.00	4.10	3.95	4.01
9	Support	2.40	2.15	1.43	1.55	4.44	4.24	4.71	4.51
10	Quality to	2.60	2.31	1.44	1.58	4.44	4.45	4.60	4.53
11	Quality to	2.70	2.92	2.78	2.79	4.22	4.21	4.40	4.31
12	Quality of	3.10	3.31	3.60	3.54	4.11	3.59	4.05	3.89
13	RD centre	3.20	2.38	1.38	1.58	4.11	4.10	4.29	4.20
14	Market research	1.60	2.62	1.57	1.66	4.11	3.79	4.14	4.01
15	Market	2.60	2.38	1.73	1.84	4.11	3.90	4.38	4.18
16	Authority of	2.90	2.08	1.67	1.78	3.11	2.83	2.60	2.74
17	Clarity of	2.90	2.15	1.93	2.01	4.22	4.07	4.24	4.18
18	Formal and	2.80	2.69	1.90	2.03	4.00	3.59	4.00	3.85
19	Quality &	2.70	2.23	1.63	1.75	4.44	3.86	4.14	4.08
20	Information	3.00	2.54	1.60	1.76	3.22	3.21	3.14	3.18
21	Firm assests	2.80	2.46	1.79	1.91	3.78	3.48	3.50	3.53
22	Organizational	4.10	5.85	4.21	4.34	4.33	4.14	4.33	4.26
23	Marketing	3.40	2.92	3.35	3.31	4.44	4.03	4.33	4.24
24	Technological	3.20	2.54	2.38	2.44	4.11	3.93	4.14	4.06
25	Innovational	3.00	2.31	2.03	2.11	4.56	4.14	4.33	4.29
26	Marketing	3.70	3.54	3.67	3.66	4.56	4.21	4.24	4.26
27	Low cost	3.70	3.46	3.85	3.81	3.33	3.66	3.57	3.58

Factors	Top-Top		Middle-Middle		Lower-Lower	
	t	Sig. (2-tailed)	t	Sig.(2-tailed)	t	Sig. (2-tailed)
Price of IS	.383	.708	6.773	.000**	19.232	.000**
Brand actual	1.237	.241	7.372	.000**	22.930	.000**
Selection of services /products	.927	.371	5.059	.000**	16.023	.000**
Market Position	2.041	.063	7.941	.000**	27.152	.000**
Online and offline promotion/advertising and offline	2.421	.027*	3.595	.001**	6.613	.000**
Sales force	2.576	.022*	9.302	.000**	22.304	.000**
Delivery of products/services	2.301	.036*	5.395	.000**	23.431	.000**
Flexibility to support optimization of business procedure	1.309	.210	4.831	.000**	11.050	.000**
Support dynamically changing process	4.372	.001**	6.834	.000**	33.494	.000**
Quality to support products or services	3.945	.001**	8.092	.000**	29.347	.000**
Quality to support business efficiency and staff productivity	3.787	.002**	5.154	.000**	15.176	.000**
Quality of Communication in different	1.796	.090	.890	.386	2.889	.005**
RD centre	1.899	.075	4.870	.000**	21.763	.000**
Market research at global level for up to date IS.	6.049	.000**	4.276	.000**	17.938	.000**
Market research at global level for up to date IS (or worldwide) electronic presence of brands	3.640	.003**	3.744	.002**	18.968	.000**
Authority of the project manager actual	.459	.652	2.497	.025	9.459	.000**
Clarity of organizational goals	2.816	.012*	6.167	.000**	16.733	.000**
Formal and strict rules for employees	2.979	.009**	4.162	.000**	13.818	.000**
Quality & commitment of	3.712	.002**	5.871	.000**	16.739	.000**
Information exchange between the IS team and	.598	.558	2.493	.020	13.064	.000**
Firm assests actual	2.392	.030*	3.730	.001**	14.451	.000**
Organizational assets	.814	.428	-.746	.470	.929	.357
Marketing assets	3.576	.003**	5.098	.000**	9.458	.000**
Technological assets	2.705	.021*	5.910	.000**	13.323	.000**
Innovational differentiation	4.050	.001**	6.587	.000**	13.870	.000**
Marketing differentiation	2.988	.010*	2.093	.045*	3.300	.002**
Low cost strategy actual					-1.995	.052

Table 5

Table 5 t test for 3 levels of puncom and reliance

For the significant finding the difference in the three levels are calculated by using T-test as depicted in a table.4.

Hypothesis1 (H1): There is a significant difference in the levels individually(Top of Puncom to Top of Reliance, Middle of Puncom to Middle of Reliance, Lower of Puncom to Lower of Reliance) of the selected companies on the basis of mean scores (T-test).

Table 4 examined the differences existing in the two companies in context to ISs continuous updation activities... If the value of the significance is more than 0.05 those variables are not significantly contributing towards the model, it was found that the variables selected by application of T test at three different level of both the companies showed that the variables contributing are significantly different therefore alternate hypothesis is accepted. At various level variables identified are

Top Level: Online and offline promotion/advertising through IS, Sales force, Delivery of products/services, Support dynamically changing process, Quality to support products or services, Quality to support business efficiency and staff productivity, Research and development in the organization, national wide, actual, Clarity of organizational goals to employees, Formal and strict rules for employees to follow, Quality & commitment of Business & Product consultant of IS, firm assets, Marketing assets, Technological assets, Innovational differentiation, Marketing assets factors contributes significantly in the study .

Middle Level: Price, Brand Image, Selection of services/products, Market Position, Online and offline promotion/advertising and offline promotion/advertising, Sales force, Delivery of products/services, Flexibility to support optimization of business proc, Support dynamically changing process, Quality to support products or services, Quality to support business efficiency and staff productivity, Quality of Communication in different organizational units comm. actual, Research and development in the organization, Market research at global level for up to date IS at global level for up to date IS, Market research at global level for up to date IS (or worldwide) electronic presence of brands, Authority of the

project manager, Clarity of organizational goals to employees, Formal and strict rules for employees to follow, Quality & commitment of Business & Product consultant of IS, Information exchange between the

IS team and other employee, firm assets actual, Marketing assets, Technological assets, Innovational differentiation, Marketing differentiation factors contributes significantly in the study**.**

Operational Level: Price , Brand Image, Selection of services/products, Market Position, Online and offline promotion/advertising and offline promotion/advertising, Sales force, Delivery of products/services, Flexibility to support optimization of business proc, Support dynamically changing process, Quality to support products or services, Quality to support business efficiency and staff productivity, Quality of Communication in different organizational units, Research and development in the organizational , Market research at global level for up to date IS at global level for up to date IS, Market research at global level for up to date ISs(or worldwide) electronic presence of brands, Authority of the project manager, Clarity of organizational goals to employees, Formal and strict rules for employees to follow factors contributes significantly in the study.

Following are the observation for the three levels of Puncom and Reliance

(a) In Reliance, Chandigarh a full-fledged ERP based IS is in place and is fully operational and their business largely depends on it. The manual procedures, practices and processes have been largely replaced by the IS and the day-to-day working of managers is through the IS only.

(b) In Puncom, Mohali, some functional managers are the users of IS but not all the managers are well acquainted to using an IS. IT is more a support tool rather than a driver in the company. The in-house IS exists but more as function-wise and level-wise information systems that are not very well integrated.

Table 6 F scores of reliance and puncom

Factors	Reliance		Factors	Puncom	
	F	Sig.		F	Sig.
Price of IS	3.557	.033*	Price of IS	66.345	.000
Brand Image	1.069	.348	Brand Image	71.503	.000
Selection of services/pro	.835	.438	Selection of	45.282	.000
Market Position	1.839	.166	Market Position	29.930	.000
Online and offline promotion/a	3.443	.037*	Online and offline promotion/	5.930	.003
Sales force	.428	.653	Sales force	26.967	.000
Delivery of products/ser	1.611	.206	Delivery of products/s	12.781	.000
Flexibility to support optimization of business	.242	.786	Flexibility to support optimizatio n of	8.801	.000
Support dynamically changing	3.728	.028*	Support dynamicall y	12.301	.000
Quality of Communicat	.569	.568	Quality of Communic	18.331	.000
Quality to support	.718	.491	Quality to support	.262	.770
Quality of Communicat	3.348	.040*	Quality of Communic	1.072	.345
Research and	.462	.632	Research and	28.141	.000
Market research at	1.391	.255	Market research	10.205	.000
Market research at	3.041	.054	Market research	5.129	.007
Authority of the project manager	4.263	.018*	Authority of the project	12.756	.000
Clarity of organization	.335	.717	Clarity of organizati	7.137	.001
Formal and strict rules	1.997	.143	Formal and strict	14.894	.000
Quality & commitment	1.791	.174	Quality & commitme	13.560	.000
Information exchange	.086	.917	Informatio n	23.343	.000
Firm assets actual	.510	.602	Firm assets	14.762	.000
Organizational assets	.607	.548	Organizati onal	2.941	.056
Marketing assets	2.328	.104	Marketing assets	3.886	.023
Technologic al assets	.589	.557	Technolog ical assets	12.410	.000
Innovational differentiatio	.730	.485	Innovation al	9.005	.000
Marketing differentiatio	.395	.675	Marketing differentiat	.346	.708
Low cost strategy	.483	.619	Low cost strategy	4.152	.018

H2: Puncom & Reliance (Level-wise comparisons based on one way Anova F-Test) are significantly different in IS system Continuous Updation (ANOVA)

Table 6 examined the differences existing in the two companies in context to ISs continuous updation activities... If the value of the significance is more than 0.05 those variables are not significantly contributing towards the model ,it was found that the variables like Quality to support business efficiency and staff productivity, Marketing assets, Organizational assets, Clarity of organizational goals to employees are neither contributing in Reliance nor in Puncom. So these are excluded from the present study. Further variables whose significance

value is less than 0.05 were considered relevant for developing IS model as shown in table 6.

This proved that the model is significantly different in Reliance and Puncom as the alternate hypothesis was rejected.

Reliance Communication

Following factors play a great role in the Critical Success factors of IS in Reliance.

The various marketing related factors like information of the competitive services, prices and promotion of the products for the encouragement of the customers to purchase and negotiate through the IS in the global market is existing in IS.

In general, IS playing a great role in the online services for the delivery of products and services. IS supports various dynamically changing processes of the organization.

Quality of communication existing in the different organizational units through IS is very high. Every employee is answerable for their own domain of work through IS.

Authority of the project manager for updating the employees regarding the organizational goals from time to time is the normal activity of the Reliance.

This company provides a large services and product selection as the customers are more likely to find what they are looking for from the IS of Reliance.

Online and offline promotion/advertising have been encouraged through global IS because the majority of online vendors needed their trade immediately. An online ordering service allowed them to place an order at any time without waiting for a sales person.

Reliance has integrated their Information system with the web sites having their back-end operation, thus allowing customers to keep track of product availability and provide accurate information about it on their web sites.

Business clients also needed assurance that goods are available and would be delivered on time. It offers a services and products delivery anywhere in the world within 48-72 hours.

Employees follow the formal and strict rules for IS implementation.

The consultants of IS find to be highly committed to quality and the business product. Regular information exchange between the IS team and other employee leads to the success for IS failures.

Research and development centre is existing in the organization.

Market research at global level for up to date IS is in vogue. Nationwide (or worldwide) electronic presence of brands is available which is the continuously updated.

Puncom

Following factors play a great role in the Critical Failure Factors in IS of Puncom

- The various marketing related factors like information of the competitive services, prices and promotion of the products for the encouragement of the customers to purchase and negotiate through the IS in the global market is found to be missing.
- In general, a brand starts lagging in the global market and hence customer awareness declines. Due to non availability of the online services through IS for the delivery of products /services is missing as the organization is a public undertaking in which a lot of formal paper work is required to be processed in parallel.
- Sales force (marketing, promoting online services).Puncom rely on sales force rather than on the IS. Puncom should use its sales force, which had strong relationships with vendors, to encourage them to place orders through an online system.
- Puncom needs to form long-term relationship with vendors for facilitating the transition from the old to the new system, with strong customer support provided through the company's sales force and online training. Puncom required its vendors to change their purchasing system and practices.
- While vendors had to put more effort into learning how to use a new system to place online orders themselves, the sales force put more time and effort into developing marketing programs for them.
- Flexibility to support optimization of business processes using global IS is the requirement of current market. IS must support dynamically changing process to give the competitive advantage. But Puncom's IS lags in it.
- Quality of Communication in different organizational units is lacking in the in-house IS of Puncom.
- Research and development in the organization's R & D centre actual is just on cards and is not properly functional.
- Market research at global level for up to date IS is lagging.
- Worldwide electronic presence of brands is

missing.

- Authority of the project manager for implementing the new IS is lacking.
- No clarity of organizational goals to employees.
- Firm assets regarding the global ARE need to be employed in the organization.

RECOMMENDATIONS

Due to the high rate of failures of IS, it has been found that the organization which is lagging in IS online services, online customers, there is a real challenge in conducting business in the global market. They are not able to compete with other online competitors, therefore to convince customers to shop online or use online services some international standardized based IS for handing their business is required only then the company can have good business performance.
The researchers also observed that, Reliance is having a service-oriented culture than Puncom. Reliance encourages personal communication with customer services or sale personnel and develops relationships with them, and in return, their interests will be looked after in forms of extra care, extra service, and even discount.
This explains that the organization focusing its effort on customer service and customer relationships or human-touch activities. By providing a call center, sales support, and online chat, customers could have or maintain.

Direct communication with a company and feel that online shopping/business purchasing from Reliance is more personal and less individualistic processes. Besides this there is tremendous potential of further growth due to the introduction of 3G and Internet based Technology by the Reliance.

The study of this sector is of great importance for the employability, economic and business.

CONCLUSION

The study has identified and examined CSFs and CFFs related to continuous updation in the information system. The organizations must be highly concerned about that online security and privacy, their brand name recognition and reputation, customer support, relationship and delivery. Organizations need to understand the behavior of online customers.

The researchers found that all successful companies put effort into collecting customer profiles and conducting market research in order to understand their target customers. Organizations must support fully integrated IS development. As the survey is based on private(Reliance) versus public(Puncom)sector organizations, this studies concludes that the private sector organization are illustrious in their strength for gaining competitive advantage by having effective IS and hence the public sector organization must try to replicate the same.

This CSFs and CFFs guideline could also be applied to other developing countries with similar business and Information System related infrastructures and national culture mostly in developing countries.

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Global innovation index and its impact on GDP of BRICS nations- innovation linkages with economic growth: An Empirical Study

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ABSTRACT

Innovation is an important but challenging factor in creating and sustaining competitive advantage. In 2001, Goldman Sachs coined the term BRICs to describe the four large developing countries of Brazil, Russia, India, and China. The GII (Global Innovation Index) helps to build an environment in which innovation factors are evaluated incessantly, and it provides a key tool for refining innovation policies. The research work Undertaken is phenomenological in nature which attempts to explore the nostalgic and current trends in technological innovations in BRICS through our inductive approach and arrives at conclusion. Most of the information in the research work is from the secondary sources including books, journals, and accessible report data from foreign governmental or agential official websites. The paper embraces sensibly interconnected parts. In the first section of the paper, different Theoretical bases are analyzed to construct our own supposition. The second part discuss how BRICS is handling technological innovations to build innovation determined economy, while the third part explores the interrelationships between GDP and GII on its path to further ensue towards the proposed target. The final part deals with summary and conclusions.

KEYWORDS

BRICS	GDP
innovation	Technological
GII	R&D

INTRODUCTION

Throughout history, societies have leaded an extended path to attain economic development for the victorious ones and still extremely exigent for the laggards. If we take a moment of reflection upon the history of economic development of current modern human societies, we can establish that the process of industrialization and innovation has always been the key push in the creation of today's giant and powerful economies of Europe, the USA, Japan and many others. There has been an increased awareness and gratitude of innovation in the last two decades as a means to create and preserve sustainable competitive gain and as a key element of business triumph. The conventional resource based view asserts that competitive advantage rested on fundamental core values like innovations, quality, cost and timeliness Conversely, due to increasing global competitiveness and technological advances, innovation has become an imperative supplementary factor in creating and nourishing competitive advantage in a hastily changing business environment (Johannessen et al., 2001; Lee, 2009). Regrettably, managing the dicey and intricate process of innovation has been challenging (Hollins, 2000; Bueno et al., 2008) and not always managed well. Zaltman et al (1973). A variety of factors and approaches are used by different authors to measure innovation at different levels, such as the firm or the country level. Garcia and Calantone (2002) reveal that the terms "drastic, incremental, really-new, clichéd, sporadic, architectural, modular, recuperating, and evolutionary" have been used to define innovation. Johannessen et al. (2001) has suggests that the picture that emerges from these varied approaches underscores the point that a huge number of factors are interacting to tempt innovation in economic life". Lee (2009) concludes that while each factor remains vital, it is dubious by itself or as part of a group to endow with a sustainable competitive advantage".

It is based on the definition provided by Mashelkar and Prahalad (2010) that "An innovation is the implementation of a novel or considerably improved product, innovative process, innovative marketing method, or a new-fangled organizational system in business practices, workplace organization, or peripheral relations". The given definition forms the root of the Global Innovation Index (GII) developed by INSEAD in 2007.

THE GLOBAL INNOVATION INDEX (GII)

The Global Innovation Index by INSEAD is an international business school is a yearly publication of INSEAD which features the (GII), a combination of indicators that ranks countries/economies in terms of their enabling atmosphere to innovation and their innovation outputs. In 2012, its 5th edition was published by INSEAD and the World Intellectual Property Organization (WIPO) which is a specialized agency of the United Nations. This Index recognizes the role of innovation in augmenting the economic growth and opulence and acknowledges the calls for a parallel path of innovation which is pertinent to both developed and underdeveloped economies enclosing the indicators that go beyond the conventional measures of innovation like the research and development in a country. This Index has evolved into a precious benchmarking tool to smooth the process of public-private dialogue and policymakers, business leaders and other stakeholders can appraise growth on a recurrent basis. Alcatel-Lucent, Booz and Company and the Confederation of Indian Industry (CII) are the Knowledge Partners. These Knowledge Partners trust in the role of innovation in escalating the competitiveness of nations, enabling economic growth, driving societal changes and structuring the foundation of a country's future. They are dedicated towards producing a precious and non-partisan resource and also provide input to the research underlying the GII, contribute critical chapters to the GII Report and also support the propagation of results.INSEAD began its expedition to find enhanced ways to assess innovation in 2007.In 2011, WIPO united with INSEAD as a Knowledge Partners and at present it a co-publisher of Global Innovation Index. The 2012 edition places greater prominence on measuring economies' ecological sustainability and online creativeness.

In 2012 edition, 141 countries are ranked on the basis of their innovation capabilities and their output.This Index relies on two sub-indices - the Innovation Input Sub-Index and the Innovation Output Sub-Index, both the sub-index are built around pillars which further is categorised into three sub-pillars and each sub-pillar comprise of individual indicators, in total of 84 indicators. The GII 2012 explores the circumstances in which innovation embellishes and documents which countries are most triumphant in nurturing those conditions. Every year, the GII model is revised in a translucent effect. In GII report, 2012, Brazil, Russia and China were

ranked 58th, 51st and 34th correspondingly and India is positioned at the 64th position which is two notches below where the country landed last year. In India, the innovation front continues to be deficits in human capital, research, infrastructure, business superiority etc, it comes last among BRICS nations and in knowledge and know-how outputs, it comes ahead of Brazil only. The GII 2012 report remarks that the BRIC countries should invest additional in their innovation capabilities to attain expected potential.

IDENTIFYING BRICS NATIONS

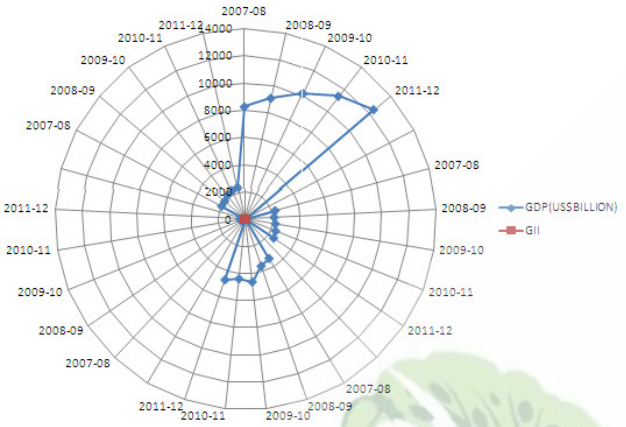
In 2001, the ellipsis BRIC was coined by Goldman Sachs, in a paper titled "Building Better Global Economic BRICs" which stated at the growth projection of the four leading rising economies that are ethnically and geographically incongruent. In 2010, a new acronym BRICS was introduced arising by adding South Africa into the original BRIC grouping and it symbolizes the combined economic power of Brazil, Russia, India, China, and South Africa. The BRICS account for more than 40 % of the global population and almost 30 % of the land mass. As of 2012, the BRICS nations represent approximately 3 billion people, pooled nominal GDP of US$13.7 trillion and an approximate US$4 trillion in combined foreign reserves. At present, the BRICS group is chaired by India. According to Hu Jintao, the President of the People's Republic of China, the BRICS countries are the defenders and promoters of developing countries and strength for world peace. Some analysts have highlighted probable divisions and weaknesses of this group like discrepancy of India and China over territorial issues, the failure to set up a World Bank-analogue development agency, and disputes over UN Security Council reforms between the members. Four economies are among the G-20 top ten, with China, India, Russia, Brazil, and South Africa in 2nd, 4th, 6th, 8th, and 26th place in terms of GDP at PPP respectively. China holds the 2nd position while Brazil, India, Russia, and South Africa hold the 7th, 9th, 11th, and 19th positions, respectively among the G20 members as per the criterion of GDP at market prices see

TABLE 1: GDP AND GII OF BRICS NATIONS FROM 2007-2012

YEAR	GDP(US$BILLION)	GII
	CHINA	
2007-08	8218.96	3.97
2008-09	9057.38	3.59
2009-10	10128.39	4.83
2010-11	11299.78	5.88
2011-12	12382.55	4.54
	RUSSIA	
2007-08	2276.47	2.6
2008-09	2118.14	2.93
2009-10	2237.4	3.03
2010-11	2383.31	3.58
2011-12	2511.7	3.79
	INDIA	
2007-08	3382.91	3.57
2008-09	3644.53	3.44
2009-10	4651.35	3.1
2010-11	4420.56	3.45
2011-12	4710.8	3.57
	SOUTH AFRICA	
2007-08	286.16	2.87
2008-09	275.27	3.41
2009-10	282.75	3.24
2010-11	363.7	3.52
2011-12	408.23	3.74
	BRAZIL	
2007-08	1996.28	2.84
2008-09	2001.6	3.25
2009-10	2186.53	2.97
2010-11	2294.17	3.77
2011-12	2365.87	3.66

Source: INSEAD Report

FIGURE1: GII AND GDP OF BRICS NATIONS



ECONOMIC GROWTH AND INTERNATIONAL INNOVATION INITIATIVES LINKAGES AND SPILL OVER

Several studies state innovation to be of pivotal importance in the feasibility and opulence of economies given the ever-increasing challenges of globalization and worldwide competition. Centre for Process Excellence and Innovation (CPEI, 2012) defines competitiveness as two capabilities: to innovate and develop cutting-edge technologies and products, and to install and to enhance the operational processes to manufacture and distribute these goods and services to the purchaser. Improvements in economic growth and the quality of life are supposed to be facilitated by invigorating and escalating technological innovation.CII (Confederation of Indian Industry) state innovation to be the only way for Indian industry to have sustainable and inclusive growth. Innovations are seen as the critical factor for job creation, growth and sustainable wealth generation in business firms and in the country as a whole (Goran, 2009).Technological capabilities, technology assimilation and dissemination are regarded to be the backbones of industrialization and international competitiveness without which it can be strenuous to build innovative economy (Dani, 2006).National Innovation System was first introduced by Freeman (1987) which implies energetic collaboration among industries, government institutions and universities whose interface results in overall augment in learning competence and innovative performance of the nation accordingly. Linsu (2000) remarks high rates of investments in physical and human capital to hoist modern planners, managers and engineers out of inexpert imitators of the 1960s. According to Technology Alliance Group (TA, 2012) to sustain a vivacious innovation economy, economies should aid an exceptional education system, sturdy research capacity and a vigorous entrepreneurial environment. (Richard, 2005) states that innovation remains knotty without a significant mass of financiers, entrepreneurs, and scientists, frequently nourished by world-class universities and elastic corporations. Establishment of Ministry of Science and Technology (MOST), Chinese Academy of Science (CAS) and National Natural Science Foundation of China and launch of different national programs like The Key Technologies R&D Program, 863 Program, 973 Program, The Spark Program and Torch Program and many other S&T oriented programs specify how China is desiring its Science and Technology capacity to raise. China's science and technology power is underpinned by the system of 5400 national governmental institutions, 3400 university-affiliated research institutions, 13000 research institutions under large state enterprises, and 41000 nongovernmental research-oriented enterprises. Over the last 30 years we can see manifest augment in scientific power of the nation: 293066 pieces of Chinese resident patent applications submitted to the World Intellectual Property offices around the world positioned China in the top position in the world in 2010.China's 15-year Plan of being innovation-oriented country until 2020 outlines numerous correlated policies including increasing GDP share up to 2.5 % into R&D sphere by 2020, raising the input of technological progress in economic growth to more than 60 %, restraining dependence on imported technology to no more than 30 percent of value added, becoming a top country in terms of invention patents and scientific papers citation gained by Chinese citizens (Denis,2007).India Innovation Initiative – i3, 2012 was communally promoted by Agilent Technologies, Department of Science and Technology (DST), Government of India(GOI) and Confederation of Indian Industry (CII) which aims to protract Innovation Ecosystem in the country by sensitizing, cheering and gratifying innovators and by facilitating commercialization.

India has emerged as an effervescent and resurgent economy in the recent years with ample capital formation, young and large human resource base, hastily escalating and vigorous infrastructure, fortunate information technology base, high GDP growth rates, rising and mounting domestic demand and a cosmic system of public funded R&D institutions. In spite of such a productive and favourable environment, the country has not been able to control its latent and potency towards technology and innovation driven sustainable growth path like other economies in the world. Israel spends more than 4% of GDP in Research & Development (R&D), Japan, South Korea; Scandinavian countries spend more than 3%. US, France, Germany spend more than 2%; China spends more than 1.50%. In India sum spending in R&D is around 1%, Government's spending is 2 to 3 times more than that of Industry's. In the 12th Five Year Plan, Government has rest a goal to twofold India's Gross Expenditure in R&D from its current level of 1% of GDP. Thus at the end of 2016-17, Government will elevate its own investment to 1% of GDP and will take adequate thought-provoking measures to raise private sector's investment to 1% of GDP. In order to rouse private sector's investment in R&D in 2007-8, an innovative pilot project named Global Innovation & Technology Alliance (GITA) was initiated by CII and the Department of Science & Technology (DST), Government of India.DST under its bilateral & multilateral Science & Technology Cooperation agreements with several countries launched industrial R&D programmes with Canada and Israel. In 2011, GITA has been institutionalized as a lawful entity and was incorporated as a private limited company under Section 25 of the Companies Act 1956 promoted together by CII and Technology development Board (TDB) of Department of Science & Technology, Government of India. CII and TDB hold 51% and 49% equity correspondingly in GITA. Its main objectives are to reinforce India's innovation ecosystem through supporting and enabling technology and innovation driven enterprises and to be an efficient institutional mechanism for providing end to end services and support for the materialization of an innovation ecosystem with demand pull for industrial innovation and technology start-ups. In November,2012,The National innovation council, chaired by Dr Sam Pitroda along with the World Bank organized a *Global Innovation Roundtable in which* the global innovation experts from 15 governments gave brainstorming session on the role of innovation in accelerating growth, development and welfare.China is the world's most outstanding emerging R&D hub, lifting its share of global R&D expenditures from 2007 to 2012 to reach about 14% of total worldwide R&D spending. China and India significantly boosted their share of global R&D spending, they doubled their spending from USD 100 to 200 billion (China) and USD 21 to 40 billion (India) from 2007 to 2012.Both the countries now account for almost 20% of global R&D spending. Movimento Brasil Competitivo (MBC) and the Brazilian Agency for Industrial Development (ABDI) punctuated the first-ever US-Brazil Innovation Summit in 2007, chaired by Robert W. Lane, Deere & Company – the Council on Competitiveness organized in 2008 and 2009 a series of 10 US-Brazil Innovation Learning Laboratories across both countries. The US-Brazil Innovation Laboratories have mapped the innovation ecosystems of the United States and Brazil, recognized key barriers and opportunities for change and collaboration and intended a policy strategy that will construct the competitiveness potential of both economies, as well as the Western Hemisphere. South Africa's untapped brains and knowledge network of expatriate assets will soon be activated resulting in increased competitiveness of the country for better realization of return on innovation and entrepreneurship. The SABLE (South African business link to experts) Accelerator was developed by three Global South Africans from Silicon Valley and London which features a core consulting team of influential South African expatriates holding senior positions at international technology(IT), life science and Agri-business companies, consulting firms as well as research and academic institutions, which is dedicated to help South African corporates, academic institutions and companies to commercialize technology innovations, to promote and protect intellectual property, funding of new business concepts and expansion into global markets. It will enable the "Innovators" from South Africa to register and post information about their intellectual property or new business models at the SableNetwork.com web site. This will result in links to Experts and sources of funding and business development support globally.India Innovation Initiatives helps India in becoming a leader in global innovation ranging from India's broader economic and institutional system with a precedence on promoting stronger competition among enterprises to give a free leash to innovation and tap innovative business ideas in India, to more specific areas like research and development (R&D) and intellectual property rights (IPR), foreign investment and technology transfer, grassroots innovation, testing,

quality services, education and skills, telecommunications infrastructure, high-speed research networks, and early-stage technology development. This initiative is principally driven by the development of science and technology and R&D. Innovation and competitiveness have a vibrant, reciprocated relationship, innovation thrives in a competitive environment and plays a key role in the accomplishment of such an environment. It generates fiscal value, new jobs in the economy and cultures of entrepreneurship and also promotes economic growth leading to inclusive growth. Considering BRICS nation's potential to innovate, the finest performance has not yet been achieved.

To achieve the objective of the paper, it is divided into following sections; Section I gives the insight of importance of innovations and economic growth with deep explanation of GDP and GII along with international innovation initiatives by the BRICS nations. Section II gives detailed Review of Literature, Data and Methodology is explained in Section III followed by Analysis and interpretations of results in section IV. Summary, conclusions and recommendations forms the part of section V and references are contained in the last section.

SECTION II: REVIEW OF LITERATURE

The following section gives deep insights of studies undertaken in India and abroad. Economists have been paying attention in the role of innovation in economic development or growth for a long time. The impact of innovation is treated as part of the Solow residual and therefore a key contributing factor to economic progress and long-term convergence (Solow 1957, Fagerberg 1994). Due to the recognition of endogenous growth theories, economists are increasingly of the view that differences in innovation competence and potential are principally responsible for continual variations in economic performance (Grossman and Helpman 1991). The effects of innovation on economic growth cannot be fully understood without taking into account the social and institutional conditions in an economy. Rodriguez-pose and Crescenzi (2008) state how the interface between research and social-economic and institutional conditions shapes regional innovation capacity. China has become the latest story of economic success and has enjoyed double-digit growth for three decades. China's policy makers are navigating the economy towards an alternative growth model in which knowledge and technology would play the key role due to resource constraints and raising costs. Consequently, innovation is becoming increasingly imperative and robustly promoted in the Chinese economy. It is reflected in numerous indicators. China's Research & Development expenditure as a percentage of GDP has unadulterated from 0.71% in 1990 to 1.52% in 2008 which is expected to reach 2.5% in 2020 (Schaaper 2009). The gap between China and the world's advanced economies in terms of R&D spending would be abridged considerably by then, as the latter usually spend about 2- 3% of their GDP on R&D. In China, the figure of domestic patents applied and granted grew from 69,535 and 41,881 items in 1995 to 586,498 and 301,632 items in 2007.The number of Chinese applications for patent registration also amplified from 13,510 to 107,419 with the number of granted patents rising from 3,183 to 50,150 during the same period. Between 1995 and 2006, the number of publications by Chinese scientists and engineers also increased from 7,980 to 71,184 according to the science citation index. The mounting role of innovation in China has fascinated the concentration of scholars both inside and outside the country. Wei and Liu (2006) reveal the optimistic impacts of R&D activities on productivity performance at the firm level and their finding is consistent with observations at the sector level by Wu (2006, 2009) who state that R&D contribution to productivity growth is statistically significant in manufacturing. Few authors also provide substantiation using cross-regional data (Kuo and Yang, 2008). Others mainly focused on firms within particular region (Hu and Jefferson 2004). Education has been a predominantly vital driver in the expansion of the capacity for technological innovation, as the experience of Finland, Korea, Taiwan, and Israel clearly shows. (Lopez-Claros, 2006).The above studies clearly identifies the importance of GDP and GII .The following paper gives the empirical relationship of GDP and GII in BRICS. China and Russia both try to prop up innovation growth through the support of state-owned enterprises. They seem to suppose that with the underdeveloped private sector, public companies are the only ones that have sufficient innovation capabilities and finance to take jeopardy in promoting S&T growth today. It is generally acknowledged that state-owned enterprises are quite incompetent in delivering concrete results with low levels of productivity and mounting corruption (Breznitz and Murphree, 2011; Klochikhin, 2012b).Both the countries have been developing a market-oriented patent system since mid-1980s when the foremost evolution took off. Today, China

has surpassed the United States in the number of patent applications even though the quality is still measured suspicious. Chinese assignees applied for 229,096 patents in 2009 as contrasting to the US 224,912 patent applications (Shapira and Wang, 2010; World Bank, 2012).

SECTION III: DATA AND METHODOLOGY

The data used in this study is secondary mainly taken from INSEAD Reports, publications, special reports and surveys, Government of India and many sources of RBI from the handbook of Indian economy. The period of study is from 2007-2012. Given the nature of the problem and the quantum of data, we first study the data properties from an econometric perspective starting with the stationarity of data. We employ cointegration technique to understand the causality in GDP and GII (Global Innovation Index). The time series stationarity of sample price series has been tested using Augmented Dickey Fuller (ADF) 1981. The ADF test uses the existence of a unit root as the null hypothesis. To double check the robustness of the results, Phillips and Perron (1988) test of stationarity has also been performed for the sample series. Descriptive of the data will be analysed to understand the nature of the data. Then VAR model will be employed which is a statistical model used to confine the linear interdependencies among the time series. VAR models generalize the univariate AUTO-REGRESSION models. All the variables in a VAR are treated symmetrically; every variable has an equation illuminating its fruition based on its own lags and the lags of all the other variables in the model. VAR modelling does not necessitate professional knowledge formerly used in structural models with concurrently equations. When specifying a VAR, one first has to decide which variables to include into the model. Since one cannot include all variables of potential interest, one has to refer to economic theory for any priori ideas when choosing variables. This involves some process of marginalization, in that the joint probability density of the VAR model must be interpreted as having been marginalized with respect to some variables that are potentially relevant (see e.g. Clements and Mizon 1991, or the discussion in Canova, 1995).Having specified the model, the appropriate lag length of the VAR model has to be decided. In deciding the number of lags, it has been common to use a statistical method, like the Akaike information criteria. Alternatively, one can choose a rather large lag length a priori, and thereafter check that the results are independent of this assumption (this is the approach taken in Blanchard and Quah 1989). However, a large lag length relatively to the number of observations, will typically lead to poor and inefficient estimates of the parameters. On the other hand, a too short lag length will induce spurious significance of the parameters, as unexplained information is left in the disturbance term. Forecasts from VAR models are quite flexible because they can be made conditional on the potential future paths of specified variables in the model. In addition to data description and forecasting, the VAR model is also used for structural inference and policy analysis. In structural analysis, certain assumptions about the causal structure of the data under investigation are imposed, and the resulting causal impacts of unexpected shocks or innovations to specified variables on the variables in the model are summarized. These causal impacts are usually summarized with impulse response functions and forecast error variance decompositions.

The stationary Auto regression Model

Let Yt = (y1t, y2t,. . . , ynt) denote an (n×1) vector of time series variables. The basic p-lag vector autoregressive (VAR (p)) model has the form

$$Yt = c + \Pi 1 Yt-1 + \Pi 2 Yt-2 + \cdots + \Pi p\, Yt-p + \varepsilon t,\ t = 1, \ldots, T \quad (11.1)$$

Where Πi are (n× n) coefficient matrices and εt is an (n × 1) unobservable zero mean white noise vector process (serially uncorrelated or independent) with time invariant covariance matrix Σ. For example, a bivariate VAR (2)

Once we have established the long run relationship between the variables of the VAR model, the next logical step for our purpose is to examine the Granger-causal relationship among the variables. X is said to "Granger-cause" Y only if the forecast of Y is improved by using the past values of X together with the past values of Y, than by not doing so (Granger 1969). Granger causality distinguishes between unidirectional and bi-directional causality. Unidirectional causality is said to exist from X to Y if X causes Y but Y does not cause X. If neither of them causes the other, then the two time series are statistically independent. If each of the variables causes the other, then a mutual feedback is said to exist between the variables. In order to test for Granger causality, we will estimate variable VAR model as follows, where all variables are initially considered symmetrically and endogenously. Then we have adopted the VAR Granger Causality/Block

Exogeneity Wald Tests to examine the causal relationship among the variables. An endogenous variable can be treated as exogenous under this system. The chi-square (Wald) statistics is used to test the combined significance of each of the other lagged endogenous variables in every equation of the model and as well as for joint significance of all other lagged endogenous variables in every equation of the model.

SECTION IV: ANALYSIS AND INTERPRETATION OF RESULTS

The following section gives the results and its interpretations relating to testing the relationship between GDP and GII in BRICS.

I) To begin the study the first step is to test the stationarity of data using ADF test first on actual data then on return series see Table 2.

TABLE 2: RESULTS OF STATIONARITY OF DATA

NAME	Panel-A		Panel-B	
	(ADF) Test	Phillips-Perron Test	(ADF) Test	Phillips-Perron Test
	T-Statistics	T-Statistics	T-Statistics**	T-Satistics**
GDP	-1.09	-0.51	-41.98 **	-41.98 **
GII	1.12	-1.38	-41.35 **	-41.32 **

Stationarity test of the variables used in the study, i.e. GDP and GII

II) After testing the stationarity of data the next step is to find the co-integration between the variables as variables were found to be non stationary which is a precondition to apply this test see table III.

TABLE III: RESULTS OF CO INTEGRATION BETWEEN GDP AND GII

Trend assumption: Linear deterministic trend
Series: GDP GII
Lags interval (in first differences): 1 to 1

Unrestricted Co integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.526485	21.12447	15.49471	0.0064
At most 1 *	0.157081	3.930338	3.841466	0.0474

Trace test indicates 1 co integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Hypothesized No. of CE(s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.526485	17.19413	14.26460	0.0167
At most 1 *	0.157081	3.930338	3.841466	0.0474

Max-Eigen value test indicates 2 co integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The above results as shown in table III confirm the co-integration between GDP and GII as P value is significant at 5 % level of significance.

To find the causality in the two variables we use Granger Causality Test the results of which are exhibited in Table IV.

TABLE IV PAIRWISE GRANGER CAUSALITY TESTS

Null Hypothesis:	F-Statistic	Prob.
GII does not Granger Cause GDP	4.06697	0.0349
GDP does not Granger Cause GII	2.92676	0.0793

The results shown in Table IV confirm bidirectional causality between the two variables i.e. innovations lead to rise in economic growth and with economic growth innovation level rises as P- Value is significant at 5% level of significance.

SECTION V: SUMMARY AND CONCLUSION

The GII project was developed by INSEAD with the aim of determining how to discover metrics and approaches to incarcerate the affluence of innovation in society and go at the forefront of such customary measures of innovation. Innovation is imperative for driving economic progress of BRICS economies. BRICS need to refurbish their innovation drivers to achieve their expected prospective. Since 2008, the BRIC countries (Brazil, the Russian Federation, India, China and South Africa) have been seen as drivers of the global economic engine. But these countries too are slowing down regardless of their unrealized potential; they need to persist to invest in constructing their innovation infrastructures. China and India comes at 1st and 2nd place in the Innovation Efficiency Index rankings, correspondingly, indicating a great capability to decipher pockets of superiority in their innovation infrastructures into precious innovation outputs.

Conversely, both of these countries have weaknesses in their innovation infrastructures like ICT is poor in China and Human capital and research needs enhancement in India that must be addressed if these countries desire to recommence higher levels of growth and innovation. Brazil has suffered the prevalent drop among the BRICs which demonstrates the significance of addressing structural weaknesses in innovation ecosystems in the face of a global slowdown. Many governments are inculcating innovation in their growth strategies. Innovation is no longer constrained to Research & Development laboratories and publishing of scientific papers. Innovation could be further universal and horizontal in nature which includes both social innovations and business model innovations. Recognizing innovation in emerging markets is seen as crucial for inspiring people—particularly the next generation of entrepreneurs and innovators. GII helps in creating an environment in which innovation factors are evaluated persistently and provides a key device and rich database of comprehensive metrics for refining innovation policies. GII is more apprehensive in recuperating the journey for better measurement and understanding of innovation and in identifying embattled policies, superior practices and other levers to encourage innovation.

Results confirm the interrelationship between GDP and GII, as after testing the stationarity of data, co-integration between variables are tested, the results confirm the co-integration and after to test the causality Granger Causality is used which confirm bidirectional causality between the variables. There is a close relationship between per capita income rise, productivity, technology and has magical spill over. Countries should encourage innovative initiatives as this will give boost to rise to GDP. Following are the recommendations to strengthen the cross linkages between GDP and GII:

- To encourage the process of research more and more research institutions should be opened so that innovations can be initiated at the faster level.
- To initiate the faster development of innovations the pro active role should be played by state owned enterprises rather than private players as their main role is social welfare and not having commercial objectives.
- Ample opportunities should be provided to the people in their own territory as a result of which there is a brain gain rather than brain drain.
- More and more SEZs should be developed as because of these the spillover inter-linkages will be further strengthened.
- Domestic research has to be deepened to give us the solution of innovations and sustainability as FDI and knowledge spill over from the developed countries are not enough for innovative aided growth.

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A Study on Mobile phones - Brand Switching Pattern among the College Students of Delhi-NCR

ABSTRACT

The performed work is a modest attempt to study the Brand Switching Pattern among the College Students, for Mobile phones. The Studies performed in past [1][4-6], indicates that the potential and frequent consumers of latest mobile handsets are college going students. Thus, the performed work concentrates on the college going students, as the target audience for the study of the Brand switching pattern, related to Mobile Phones. The performed study uses the Questionnaire as a research tool, where Simple random sampling technique is used. Further, Information and Communication Technology (ICT) is excessively used, in all the phases of the Questionnaire analysis i.e. right from data collection to the data analysis and its presentation. The study concludes that mobile phone users i.e. college students, are frequently switching the brands, and it is found that Micromax is the upcoming brand, where as the Samsung is holding the second position; it is also identified that users are not preferring Nokia. the studied factors might be used by the companies to layout their future strategy, which could help them to have a sustainable growth in mobile sector.

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KEYWORDS

Brand Switching	Mobile Phones
Questionnaire analysis	Information and Communication Technology (ICT)

Empirical Article

INTRODUCTION

Indian mobile market is one of the fastest growing markets and is forecasted to reach 868.47 million users by 2013 [2]. The rapid growth and development in information technology and mobile devices has made the Indian mobile phone service markets more and more competitive. Mobile phones have become an integral part of human daily life and a major source of personal communication across the world [3].

Currently, the Indian Mobile phone market is severely flooded of the Chinese handsets; some local vendors are also landing in to the competition, either through in-house Research and Development(R & D) or through the labeling of their trademarks over the handsets, imported from China. Thus, the established brands are facing a tough competition, which can be analyzed by monitoring the Brand switching pattern of the consumer. The performed work is a modest attempt to study the Mobile phones Brand Switching Pattern among the consumers, specifically the college students. An empirical attempt is made; to analyze the variables that influence the brand loyalty behavior of the mobile phone users, to judge their satisfaction & dissatisfaction level and the impact of family members in the buying decision of mobiles by the consumers.

The Studies performed in past [1][4-6] , indicates that the potential and frequent consumers of latest mobile handsets are college going students. Thus, findings are entirely based on the research conducted on the college going students. The research analysis could be refined by considering the larger sample size, spread across other metropolitan cities in India. Further, for strategic formulation, the mobile companies are required to conduct such studies periodically; this will help them to gauge the exact consumer perceptions, which keep changing with time.

RESEARCH METHODOLOGY

The performed study uses the Questionnaire as a research tool, where Simple random sampling technique is used. A number of 300 College going students were randomly selected, among the selected, 276 students responded back, comprising 92% response rate for this study. The performed study utilized various tools of Information and Communication Technology (ICT) like GoogleDocs, Spreadsheet software (MS-Excel) for all the phases of the Questionnaire analysis i.e. right from data collection to the data analysis and its presentation. To assure the reliability of the conducted study, we targeted the educated sector of the community. The conducted study involved, data collection related to the qualification of not only the students but also of their parents, further the factors like family income level, parents occupation etc. are also considered. The purpose behind, is to assure that, the respondent understands the value of the given responses.

FINDINGS OF THE STUDY

Table-1 shows the demographical factors of this study. It is analyzed that the responses are contributed by the respondents who are reasonably qualified, 68% of the responses are from the students who are pursuing Post Graduation and 32% of the responses are from the students who are pursuing Graduation; and belongs to reasonably educated families. The statistics of the collected data discloses some interesting facts, like the responses are almost equally contributed by both genders, to be specific 54% of the responses are from masculine gender where as 46 % are from the feminine. Further, most of the respondents i.e. 55% belongs to the age group of 22-24 years. The Statistical analysis of the collected data reveals that most of the respondents i.e. 57% , belongs to the service class families.

Table-1 Demographical Factors of Respondents

DEMOGRAPHIC FACTOR	RESPONSE OPTIONs	PERCENTAGE
AGE	less than 18	3
	18-20	28
	20-22	55
	22-24	14
	more than 24	0
GENDER	MALE	54
	FEMALE	46
QUALIFICATION	GRADUATE	32
	POST GRADUATE	68
FAMILY OCCUPATION	SERVICE	57
	PROFESSIONAL	9
	BUSINESS	26
	OTHERS	9

Table 2 : Shows the respondent segment, who prefers for mobile brand change; the findings are based on the economic & Occupational status of the respondents family. The analysis of the collected data reveals that most of the respondents i.e. 57% , prefers for the change of their existing mobile brand, and they belongs to the service class families. Among the service class families most of the respondents belong to the families with monthly earning of 25000-50000 and 50000 to 100000 Rs Per month.

Thus the companies should target the needs of the service class, as they constitute the major component of their market. Further, the price band of the launched model should match their earning profile.

Table 2 : segment preferring for mobile brand change

Respondents class preferring for change of mobile brand	Percentage
Service class	**57**
Less than 25000	2
25000-50000	19
50000-100000	19
Above 100000	17
Professional class	**9**
25000-50000	3
50000-100000	6
Business class	**26**
Less than 25000	3
25000-50000	9
50000-100000	7
Above 100000	7
Others	**8**
Less than 25000	4
25000-50000	1
50000-100000	2
Above 100000	1
Grand total	**100**

Table 3 : Mobile Brand switching preference shift - Comparing the data related to the existing mobile brand under use and their next preferred mobile brand, the results reveals that the local mobile brand leaders and their Chinese counterparts has flooded the market. A drastic change in consumers brand preference is observed, the respondents are converging towards the local brands like MICROMAX and KARBONN, or other LOCAL/CHINESE brands, this leads to sudden fall in the brand choice for NOKIA and other established brands like SAMSUNG, BLACKBERRY etc. The worst effect is observed on NOKIA mobile handsets. MICROMAX is identified to be most preferred mobile handset Brand with 24% of the response share, and SAMSUNG is the next in line, with 20% of the response share.

Table 3 : Mobile Brand switching preference shift

MOBILE PHONE BRAND	% POSESSED BRAND	% NEXT PREFERRED BRAND
NOKIA	29	7
SAMSUNG	43	20
HTC	0	10
I PHONE	0	3
MICROMAX	9	24
KARBONN	3	5
BLACKBERRY	8	6
OTHER - LOCAL/CHINESE	8	25

Table 4 : Factors responsible for brand switching : The conducted study identifies that 46% of the respondents i.e. 127 out of 276, prefers for brand switching as outcome of the availability of "Better Quality at reasonable Price"; 35% of the respondents i.e. 96 out of 276, are switching for the sake of "Brand image", this statistics reflects that Local brands are also getting the popularity and they are identified as established brands, which is quite challenging for other established brands like NOKIA, SAMSUNG etc. Further, outcome of the collected data reveals that 16% of the respondents are identifying "Same or Better features at lower price" as the subsequent preference criteria.

Thus it can be realized that MICROMAX is giving tough competition to the well established brands like SAMSUNG

Table 4 : Factors responsible for brand switching

FACTORS CONSIDERED FOR BRAND SWITCHING	PERCENT
better quality at reasonable price	46
same or better features at lower price	16
service network	3
brand image	35
others	1

CONCLUSION

Based on the performed analysis of the collected responses, it is identified that the performed study reveals the details about the perception and the buying behavior of the respondents i.e. the students of the colleges from Delhi NCR region. It is analyzed that the responses are contributed by the respondents who are reasonably qualified, 68% of the responses are from the students who are pursuing Post Graduation and 32% of the responses are from the students who are pursuing Graduation; and belongs to reasonably educated families. The statistics of the collected data discloses some interesting facts, like the responses are almost equally contributed by both genders, to be specific 54% of the responses are from masculine gender where as 46 % are from the feminine. Further, most of the respondents i.e. 55% belong to the age group of 22-24 years.

The Statistical analysis of the collected data reveals that most of the respondents i.e. 57% , prefers for the change of their existing mobile brand, and they belongs to the service class families. Among the service class families most of the respondents belongs to the families with monthly earning of 25000-50000, and 50000 to 100000. This outcome enlightens an interesting pattern, that most of the students who belong to the service class families, whose income band is from 25000 to 100000 are quite prone to mobile change. This findings enabled us to find the pattern in further depth, where we analyzed for finding the facts related to the relation between the family income / family profession and present mobile brand/ Planned budget for next mobile/ next preferred mobile brand etc.

The mobile brand of Samsung is most preferred in the category of the existing mobile brand under use, 43% of the respondents i.e. 118 out of 276 are using the mobiles from Samsung. Mobiles from NOKIA falls next in the category of brands under existing use, it contributes to 29% of the respondents i.e. 80 out of 276. Comparing the data related to the existing mobile brand under use and their next preferred mobile brand, the results reveals that the local mobile brand leaders and their Chinese counterparts has flooded the market. A drastic change in consumers brand preference is observed, the respondents are converging towards the local brands like MICROMAX and KARBONN, or other LOCAL/CHINESE brands, this leads to sudden fall in the brand choice for NOKIA and other established brands like SAMSUNG, BLACKBERRY etc. The worst effect is observed on NOKIA mobile handsets. MICROMAX is identified to be most preferred mobile handset Brand with 24% of the response share, and SAMSUNG is the next in line, with 20% of the response share.

The conducted study identifies that 46% of the respondents i.e. 127 out of 276, prefers for brand switching as outcome of the availability of "Better Quality at reasonable Price"; 35 % of the respondents i.e. 96 out of 276, are switching for the sake of "Brand image", this statistics reflects that Local brands are also getting the popularity and they are identified as established brands, which is quite challenging for other established brands like NOKIA, SAMSUNG etc. Further, outcome of the collected data reveals that 16 % of the respondents are identifying "Same or Better features at lower price" as the subsequent preference criteria.

Analyzing the data for "factors considered for brand switching" in light of the data for "next preferred brand of mobile phone"; it is identified that MICROMAX is giving tough competition to the well established brands like SAMSUNG

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Understanding DIGITAL MARKETING

Marketing strategies for engaging the digital generation

By

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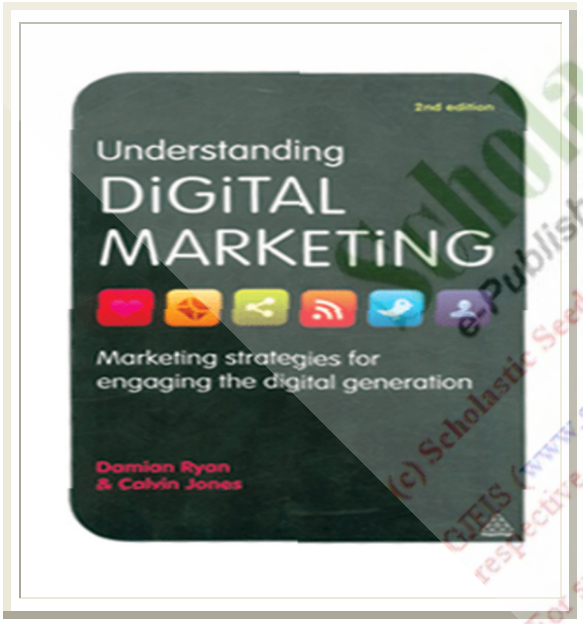
ABSTRACT

Understanding Digital marketing is an informative, practical and an easy to read book that takes you on a journey into the world of Digital Advertising. It helps the reader to understand how one can harness the burgeoning power of digital media to drive one's business to the crest of the digital marketing wave and sustain the same.

KEYWORD

Internet	Digital Marketing
Search Engine	Social Media
Mobile Marketing	Black Hat
Online PR	Affiliate Marketing



Today, the world is characterized by Digital Revolution that is taking place at a phenomenal pace. People are embracing digital technology to communicate in ways that would have been inconceivable a few years ago. Not only the techno-savvy but the ordinary people are embracing digital technology in their day to day lives.

In today's world, internet access has become practically omnipresent, and the widespread availability of always on broadband connections means that people are now going online to do everything from shopping to checking their mobile bills, bank statements, playing games etc.

This book will help the practitioner as well as students in unraveling the mysteries of digital marketing.

The book comprises a total of 11 chapters. Each chapter begins with a summary of its content. The book facilitates easy understanding of how to successfully use the internet to sell products and services.

The book begins with the origins of the medium and takes through the various disciplines of digital marketing campaigns.

The book helps the reader go through various facts, figures, comments and opinion from acknowledged experts, brands and organizations in different fields getting them to spill the beans on how net delivered goods for them.

Areas like search marketing, affiliate marketing, e-mail marketing, creative online executions have been delved by author in a very lucid way.

Various case studies at the end of each chapter lets the reader understand the concept through practical examples and real life situations and strategies adopted by organizations.

The authors takes us to understand the sinister side of digital marketing by throwing some light on its darker side and helping the reader to examine the world of 'black-hat marketing'.

Towards the end the authors discuss the key trends that are shaping the digital marketing landscape of the future; the evolving relationship between consumers and marketers; challenges the digital marketers will face in the next three years and what all one need to do to future-proof one's business.

Throughout the book the authors have avoided technical jargons wherever possible and have tried to present the information in plain, clear English. Wherever specific digital marketing terminology was unavoidable, a brief definition has been provided in the text itself. To supplement the definitions, a glossary is at the end of all the chapters which further enhances the knowledge even for a complete digital novice.

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The First-time Manager's Guide to Performance Appraisals

By

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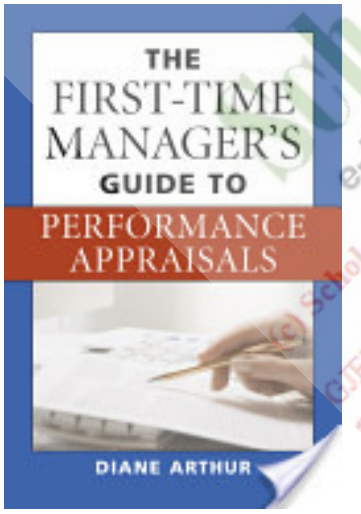
ABSTRACT

The First-time manager's guide to performance appraisals is a novice's guide to mastering appraisals. Conducting performance appraisals can be a daunting prospect especially for new managers. The book is a chock full of helpful ideas, insightful observations and handy tips which serve as an excellent guide for a newbie manager.



KEYWORD

Performance appraisals	Coaching
Counseling	Body language
Goals	Documentation

"The First-Time Manager", this helpful guide provides straightforward, useful information that will enable anyone to take on this important task of conducting performance appraisals with confidence and skill. It's ready-to-use tools including sample dialogues, phrases, and documents, as well as plenty of useful tips, "The First-Time Manager's Guide to Performance Appraisals" shows readers how to: review an employee's past performance; prepare for the face-to-face meeting; assess how successful the employee has been at meeting goals; set new objectives; help develop career plans; evaluate performers at every level; understand the importance of coaching and counseling throughout the year; write up the appraisal and use ratings; and, follow up effectively. This book is an essential resource for managers who want to get the most from the performance appraisal process and from their people.

Using the methods as discussed by Arthur in this book, one will be able to turn an experience that both managers and employees often dread into a positive and constructive one. The author's writing style is clear, concise and focused; she gets her points across with bulleted lists, sample forms and a list of 70 tips scattered throughout the book and then summarized in an appendix. Arthur proposes healthy focus on coaching, counseling and future development to new human resource managers and supervisors who must conduct regular performance appraisals.

First time managers usually have a lot of new things to try and learn very quickly. One of the most dreaded for most new managers is the performance appraisal. This is especially true if some of those you are evaluating were your peers before your promotion. Diane Arthur through her long experience in HR provides solid advice to the newbie manager. The book is divided into six parts comprising 16 short chapters.

You get advice that the real value in a performance review is not to pass judgment on last year's work, but to use that to manage the employee to grow and become more valuable in the coming year. She provides the 3 golden rules for performance reviews, and how you prepare for the next appraisal by coaching and counseling your employees throughout the year.

Author takes you through the preparatory process and how to get started on writing the review proactively, a month ahead of time so you have time to draft it, think about it, and rewrite it. That you have to gather documentary information from multiple sources to see things clearly and how to do it and why you should focus on objective measures rather than reacting subjectively to personal issues.

You are then guided through how to write the review, the tone you should use, and the dos and don'ts of performance review language. She gives you a seven step format for writing them up including letting the employee have enough room to respond to your evaluation.

The face-to-face meeting takes up four chapters because it is where the rubber meets the road. The key is to start right and create a supportive and comfortable atmosphere. The author takes you through what you should discuss to create a positive and constructive experience. You are also advised to speak no more than 25% of the time and to use active-listening, the other 75% of the time.

Arthur covers how to handle difficult employees. Her chapter on the typical performance appraisal pitfalls is also very insightful. The last section covers performance appraisals for employees of differing performance levels and how to manage those with different work arrangements such as telecommuters.