State of IT Adoption in SMEs in India

** Jitendra Singh Tomar*

Abstract

The current business milieu incorporates information technology as its crucial part. The critical business processes in today's organizations, irrespective of their size and presence, are supported by information technology and systems. Due to the technological headway, IT is a significant driving force behind many socioeconomic changes as it offers copious benefits and could help in generating new business opportunities. Nowadays, organizations are striving for new methods to fortify their competitive position and improve their productivity and SMEs too are trying to adopt IT to support their operations, but inadequately. This study aimed to explore the adeptness of IT deployment in SMEs in India. The study was done with the SME executives in India, especially located in the Central region of Madhya Pradesh. The purpose of this paper was to analyze IT adoption in SMEs by reviewing IT adoption literature. Also, a survey questionnaire was used to collect data from 165 executives from 10 SMEs in Madhya Pradesh, India. The study was done with the aim of identifying the opinion of the SME employees on implications of IT on modern day businesses, and the impact of IT on SMEs' efficiency. The outcome of the study disclosed the minimal or limited use of IT by SMEs. In India, where the economy is majorly controlled by small businesses, the outcome of this study may possibly give useful insights to the managements of SMEs in India.

Key words : **small & medium sized enterprises, competitive advantage, technology adoption, difficulties with SMEs, barriers in ICT adoption**

JEL Classification : L25, L86, O14, O32, O33

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During the last few decades, the economy has rapidly transformed from its traditional bases to the new, information-based economy. IT has changed the business phenomena and is the core behind the development of the knowledge economy. Organizations require efficient and effective functioning to respond to a changing environment. Communication and value creation for the customers by using information technology is becoming obligatory for the enterprises. Globalization, technological progression, dynamic competition, knowledgeable customers, changes in demographic factors, are among the prime reasons behind organizations adopting information technology (Chakraborthy & Ray, 2004) and has transfigured the business operations (Pavic, Koh, Simpson, & Padmore, 2007). Electronic communications facilitate information exchange, reduce costs, save time and resources, improve customer service, and generally improve business relations (Lancioni, Smith, & Oliva, 2000).

With the exponential technological progressions, the current socioeconomic changes are induced by IT practices adopted by the organizations (Dierckx & Stroeken, 1999). IT is generating new business opportunities and benefits to the enterprises, irrespective of their size and spread. IT adoption is changing the competitive position of SMEs too. SMEs are cognizant of investing in IT and reaping benefits out of it by integrating various business functions, but the rate of IT adoption in the SMEs has remained relatively diminutive (MacGregor & Vrazalic, 2005).

* *Assistant Professor - III,* Amity University Uttar Pradesh, Sector - 125, Noida - 201 313, Uttar Pradesh.
E-mail : jtomar@amity.edu, jitendratomar@hotmail.com

The SMEs lack in SoPs, their planning is short-term, they have informal strategies, employments are generic, and their decision making is unstructured (Dibrell, Davis, & Craig, 2008). This confines effective management practices such as project management, financial analysis, forecasting, and similar other activities (Blili & Raymond, 1993). Due to restricted practices, SMEs have curbed access to information and withstand globalization constriction (Madrid-Guijarro, Garcia, & Van-Auken, 2009). The major differentiator between large organizations and SMEs is limited use of resources, commonly known as resource poverty (Thong, Yap, & Raman, 1997). The biggest disadvantage to SMEs is the inadequate use of IT for their business propagation (Al-Qirim, 2007; MacGregor &Vrazalic, 2006). SMEs are not strategically positioned to compete with large enterprises due to lack of ICT adoption (Ongori, 2008).

Role of SMEs in the Indian Economy

Small and medium enterprises (SMEs), particularly in developing countries, are the backbone of the nation's economy. They play a significant role in the exports of these countries and constitute a major portion of the GDP & GNP. Indian small and medium enterprises (SME) sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. This sector consists of 36 million units producing 6,000 commodities, contributes 45% of the total manufacturing output, 40% of the total exports, and employs over 80 million personnel (SMECI, 2016).

SMEs also play a significant role in nation development through high contribution to domestic production, significant export earnings, low investment requirements, operational flexibility, location wise mobility, low intensive imports, capacities to develop appropriate indigenous technology, import substitution, contribution towards defence production, technology – oriented industries, competitiveness in domestic and export markets, thereby upbringing new entrepreneurs (SMECI, 2016).

Despite its commendable contribution to the nation's economy, the SME sector faces a number of problems; absence of adequate and timely banking finance, limited capital and knowledge, non-availability of suitable technology, low production capacity, ineffective marketing strategy, identification of new markets, constraints on modernization & expansions, non-availability of highly skilled labour at affordable cost, follow-up with various government agencies to resolve problems, etc. (SMECI, 2016).

Industrialization and employment in rural areas could only be achieved through establishment of SMEs with lower investments. These small units complement the big industries by acting as ancillaries to them. The SMEs heavily contribute towards the socioeconomic development of the country. Inclusive growth can be achieved through SMEs' contribution in industrial growth throughout India.

IT Adoption

Information technology is variedly defined in different literatures and by distinct researchers. It is defined as the technology involved in the development, maintenance, and use of computer systems, software, and networks for the processing and distribution of data (Merriam-Webster Dictionary, n.d.). Information Technology is a technological attribute of Information System (Hollander, Denna, & Cherrington, 1999) necessary for building up electronic information using computers (Sarosa & Zowghi, 2003). Information Technology is that technology which is used to manage triggers of information in any mode (Boar, 1997). It is used for handling and transmitting information to increase efficiency and decision making of an organization.

It is believed as any computer application and required hardware packages, Computer Aided Design (CAD), Computer Aided Manufacturing (CAM), EDI, and Enterprise Resource Planning (ERP) which intensify the throughput of an organization. It may encompass any technology that is applied for e-commerce or e-business

management such as EFT, intranet, extranet for collaborative planning, forecasting, replenishment (CPFR) applications, supply chain communications systems, and electronic supply-chain management systems.

IT adoption is an amalgamation of computer hardware, software, and networks for connecting to the Internet (Tan, Chong, Lin, & Eze, 2009). It is comprehended as implementation of technology innovations for effectiveness and achieving success through effective decision making. IT adoption in SMEs is using the IT infrastructure to provide support to the operations, management, and decision-making in organizations (Thong & Yap, 1995) for increasing business productivity.

What Impacts the IT Adoption in SMEs?

There are numerous influencing factors that influence IT adoption in SMEs. These factors are reviewed below :

(i) Organizational Structure : SMEs are small in size. They mostly are family-run businesses with centralized controls applied by the owners. The business activities are directly impacted by the decision making of the owners (Smith, 2007). Their experiential knowledge, judgment, and skills influence their decision making (Carson & Gilmore, 2000) and this also holds true for IT adoption and implementation (Nguyen, 2009) as investments for IT procurement and installation is borne by them.

The positive attitude of the CEOs influences the fruitful adoption of IT in SMEs (Thong, 1999). The success of IT adoption depends upon the stanchness of top level management (Ghobakhloo, Zulkifli, & Aziz, 2010), which is also crucial in evolution of IS in a firm. Several other factors, including management's perception of IT, attitude towards IT, support and commitment, desire for growth, IT knowledge and experiences, innovativeness, perceived behavioural control over IT, and familiarity with administration directly impact the process of IT adoption is SMEs (Qureshi& York, 2008). How familiar, comfortable, and desirous the management is about IT adoption will define its successful implementation. The zeal of the management for adopting IT helps in IT implementation and subsequently bringing success in SMEs (Ghobakhloo et al., 2010).

(ii) Resources : Unlike big organizations, SMEs experience scarcity of resources (Nieto & Fernández, 2005) be it funds, technology, skilled manpower, information repositories, expertise, knowledge, IT competency, market accessibility, and similar other resources. These limitations clout the IT adoption process, either positively or negatively (Nguyen, 2009). SMEs in India have limited proficiency in these resources. Furthermore, innovation is often impeded through an insufficiency of the resources for R&D (Dutta & Evrard, 1999). Resource based theory (Rangone, 1999) professes funds as a critical factor for success, and SMEs have a dearth of it. A long-term investment is necessary for IT implementation (Nguyen, 2009) which involves high cost and IT is adopted by the SMEs having passable funds (Thong & Yap, 1995).

The SMEs not adopting IT is ascribed to piercing cost of IT infrastructure to them (Chau, 1995). An erroneous decision to invest on IT can coerce inexorable financial corollaries for SMEs, which may result into an insolvency and economic failure (Sarosa & Zowghi, 2003). Even if somehow SMEs are able to meet the IT procurement and installation cost, to meet the allied expenses such as paying the IT experts is gruelling (Ghobakhloo, Arias-Aranda, & Benitez-Amado, 2011).

The IT adoption process in SMEs is negatively influenced by the lack of IT expertise within SMEs (Fink, 1998). Hiring an external expert is not feasible for SMEs due to the high consultation fee involved in the process of hiring. This would increase the cost of IT adoption. SMEs are always on the verge of high risk due to the inadequate technical knowledge available with them (Tan & Igbaria, 1997). The successful IT adoption is not limited only to the expertise of the core technical team of SMEs, but the knowledge of IT by the workforce at various levels in the corporation is an essential requisite for exceptional implementation of IT in SMEs (Caldeira & Ward, 2003).

(iii) Employees : The employees contribute to the accomplishments of an organization and are its principal asset. An organization succeeds once its workforce is adept and thus when change occurs, the employees need to be developed (Zhou, Li, & Lam, 2009). Positivity towards change, belief in IT, participation in IT adoption, ready to get trained, and positive attitude are few attributes an employee should possess to positively impact the IT adoption process (Fisher & Howell, 2004). The successful IT adoption depends upon the employee's satisfaction level with IT functions (Yan, Yingwu, & Changfeng, 2006).

Organizations should see the involvement of employees in the IT adoption process. Other than getting the continuous feedback from the employees and developing best fit IT services for the organization, the involvement will create strong feelings of ownership among the employees, better learning of employees due to involvement in the design phase, ease of using IT applications due to acquired IT knowledge during designing and developing the IT platform, and decreased resistance to change could be achieved by the organization (Fink, 1998 ; Thong, 1999).

(iv) Tools & Applications : For affective IT adoption, it is essential to consider the suitable application to support business operations (Nguyen, 2009). There are diverse tools and applications on offer ; hence, an organization should be particular about its requirements. Organizations must foresee process compatibility of the application, its user friendliness, its popularity, quality of the application, the total cost of ownership, and the ostensible benefits it offers to the organization (Salmeron & Bueno, 2006). The applications which are commonly accepted, satisfy organizational requirement, and are user friendly should be preferred more (Shin, 2006), as these can enhance performance, and are more reliable and useful.

(v) Organizational Physiognomies : The IT connexion in an organization is influenced by several rudiments that build the culture of the organization. These factors affect the business strategy and hence SMEs' investments in IT are strongly affected by their strategic context (Levy, Powell, & Yetton, 2001). What impacts IT adoption the most is the SMEs' strategy, business size, business domain, functional area, type of industry, information intensity, organization culture, and technological maturity (De Burca, Fynes, & Marshall, 2005). The espousal of technology is also low in many SMEs, as they are in their infancy stage (Chahal & Kohli, 2008). In IT adoption, the risk of project failure is higher if the purpose of IT adoption is not identified (Nguyen, 2009). The chances of the failure are higher in SMEs since the adoption of IT is done to match the rivals who have implemented IT and in the course of IT adoption, the culture of the SME gets overlooked.

(vi) Business Trends : The business world is dynamic and ever - changing. The most influential reason behind SMEs' adopting technology is to be at par with the competition, to change as per the industry trends, maintaining current market, finding new market, and opportunities for growth (Drew, 2003). The SMEs are always under pressure to be innovative, competitive, managing change, enhancing growth, and surviving, which is driving SMEs to adopt IT (Mole, Ghobadian, O'Regan, & Liu, 2004 ; Nguyen, 2009). The adoption of IT is also due to the pressure felt by the SMEs as a retort to a business event. The SMEs are under constant pressure from the internal and external environment, and as a resultant of the pressure, they adopt IT to improve efficiency (Nguyen, 2009).

Objectives of the Study

Though the contribution of SMEs towards developing India is enormous, but there seems an enigma with their operations. The organizations are well contributing in the total industry output, providing employment, but the efficiency is lagging behind as compared to large business houses. The planning and decision making of SMEs is ad-hoc. Among various limitations that SMEs have, limited or no use of technology by SMEs is among the prominent limitations. The study is done to explore the extent to which IT is adopted by the SMEs and how IT usage impacts the SMEs.

The work is intended to reconnoitre :

(i) How the SMEs' employees foresee the use, significance, and advantage of IT in business,
(ii) How efficiently the SMEs are using IT in their operations.

The research concludes upon the afore-said points.

Research Framework

To meet the objectives of the current study, the research focused on recording the opinion of the employees on efficient usage of IT in SMEs, and ascertaining if IT is used efficiently by SMEs. The target survey participants were 200 working individuals from 10 different SMEs located in the Central state of Madhya Pradesh, India. Only 160 completely filled questionnaires were received. The survey was scheduled during January - March 2016. The survey instrument had two sections : (a) To record the opinion of the SMEs' employees on implications of IT on modern day businesses, (b) To explore the impact of IT on SMEs' efficiency.

The questionnaire's validity and the analysis of the obtained results were done using statistical techniques. The responses were recorded to create the criteria groups. The similarities and differences in opinions of the employees about effective IT adoption in SMEs were analyzed. The given analyses were done after the data scaling :

✧ Cluster analysis was used to determine criteria groups based on employee responses.

✧ MANOVA (multivariate analysis of variance) analysis was used to examine differences of responses in a group as a whole.

✧ ANOVA (univariate analysis of variance) analysis was used to examine differences in responses for each individual question.

✧ Discriminant analysis was used to quantitatively express the differences in preceding analysis through coefficient of discrimination and identify the most frequent answer for a question.

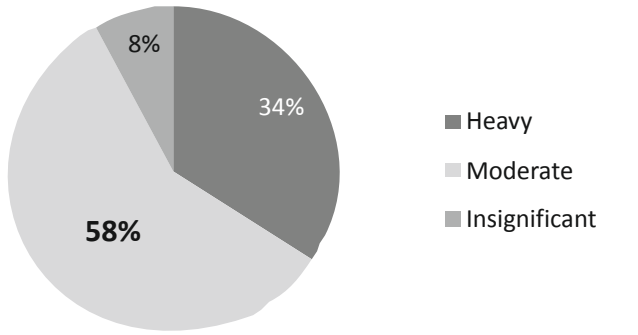
Results and Discussion

The responses obtained were analyzed from the given perspective to fulfil the objectives of the research.

(1) Opinion of the Employees on Implications of IT on Modern Day Businesses : The respondents were probed about the IT usage in SMEs. A set of eight questions was used :

✧ IT initiates innovation in business practices.
✧ IT ascribes efficiency in business processes.
✧ IT helps in more effective CRM activities.
✧ IT helps in more efficient business strategy formulation.
✧ IT assists in more efficient business propagation.
✧ IT assists in information sharing and knowledge development.
✧ IT tools and applications are used to enrich training and development of the employees.
✧ IT platform augments internal as well as external communication.

Figure 1. Implication of IT on Modern Day Businesses



The responses were recorded on a Likert scale, the dimensions used were *"Strongly Agree," "Agree," "Neutral," "Disagree," and "Strongly Disagree"*. Fifty eight percent (58%) respondents affirmed that IT heavily impacts modern day businesses ; 34% opined that the impact is moderate, and 8% believed that there is insignificant impact of IT on modern day businesses (see Figure 1).

Based on the responses, three cluster groups were classified for further analysis. Cluster group 1 incorporated 58% respondents who believed that IT heavily impacts modern day businesses, Cluster group 2 comprised of 34% respondents justifying moderate impact, and Cluster group 3 had 8% respondents who believed insignificant impact of IT on modern day businesses.

(2) Impact of IT on SMEs' Efficiency : This segment examined the impact of IT on SMEs' functioning. A set of 12 questions was used to document the responses of the workforce, and the responses are depicted in the Table 1. The analysis of data from Table 1 unveils that IT implementation progressively impacted the operation of SMEs was affirmed by highest number of respondents. Only 4% expressed otherwise. The recorded data shows that 38% of the respondents opined that IT adoption largely improved the company's operations ; whereas, 58% said that the operations improved partially.

Table 1. Impact of IT on SMEs' Efficiency

S. No	Questions	Responses in %		
		Yes	Partially	No
1	Information Technology implementation impacts the SMEs' operations progressively.	38%	58%	04%
2	IT improves the communication and relationship with the stakeholders.	47%	38%	15%
3	IT enables effective sharing of information about business processes and stakeholders.	28%	53%	19%
4	IT has changed the business methodologies and practices in the organization.	26%	56%	18%
5	IT applications and tools have enabled effective CRM practices.	24%	54%	22%
6	Management allows employee participation in developing innovative business practices using IT.	3%	23%	74%
7	IT is innovatively used for business propagation.	33%	49%	18%
8	The IT resources enable effective ERP system within the organization.	7%	47%	46%
9	IT enables knowledge creation and exchange for better working efficiency.	4%	18%	78%
10	IT platform is used for training and development of the employees.	6%	21%	73%
11	The management supports the IT implementation for enhancing business functions.	26%	42%	32%
12	IT platform is used by professional community to exchange information across the forums.	14%	53%	33%

The improvement in relationship with the stakeholders was reported by a large number of employees - 28% of the respondents contended that IT enabled better sharing of information about business functions and stakeholders ; whereas, 53% opined that this was partially enabled, and 19% said that it did not support in sharing the business information.

Effective CRM practices are possible with the use of IT was professed by 24% of the employees ; whereas, 54% said that IT partially impacted the CRM practices of an organization, and 22% opposed this fact. However, ERP practices are limited in SMEs. Examining the use of IT for ERP systems, only 7% said that effective ERP systems are used in SMEs ; whereas, 33% upheld that IT is effectively used for business propagation activities. Also, IT services are not effectively used for training and development of the employees in SMEs. There is a low use of IT platform for training and development of the employees, and 73% of the employees affirmed the same. IT is not able to provide a platform for knowledge creation and exchange too ; 78% of the respondents did not believe that IT plays any role in knowledge creation and exchange for better efficiency. Participation of employees in developing innovative business practices using IT platform is not observed in the SMEs - 74% of the employees were of this opinion, and only 3% emphasized such participation. Twenty six percent (26%) of the respondents believed that IT implementation was supported by the management for enhancing business functions ; whereas, 32% claimed that such support did not exist. The use of IT platform for professional community services to exchange information among various forums was proclaimed by only 14% of the respondents ; whereas, 53% averred only limited such use, and 33% of the respondents experienced them as rare phenomena.

✧ **Facets of Responses of the Three Criteria Groups :** The same parameters were analyzed through three criteria groups classified as:

- **Criteria Group 1 :** Respondents who acclaimed IT to have noteworthy impact on SMEs' efficiency,
- **Criteria Group 2 :** Respondents who deemed IT having partial impact on SMEs' efficiency,
- **Criteria Group 3 :** Respondents who believed that IT has insignificant impact on SMEs' efficiency.

MANOVA, ANOVA, and discriminant analysis were used on the collected responses to determine the similarities and differences in respondents' opinions of three criteria groups. MANOVA was applied to examine if

Table 2. Significance of the Difference in Opinion Between Criteria Groups as per the Asked Questions

S. No	QUESTIONS	χ	*R*	*F*	*p*
1	Information Technology implementation impacts the SMEs' operations progressively.	0.264	0.257	2.447	0.048
2	IT improves the communication and relationship with the stakeholders.	0.282	0.291	3.217	0.026
3	IT enables effective sharing of information about business processes and stakeholders.	0.497	0.432	6.320	0.000
4	IT has changed the business methodologies and practices in the organization.	0.397	0.432	12.639	0.000
5	IT application and tools have enabled effective CRM practices.	0.490	0.510	12.186	0.000
6	Management allows employee participation in developing innovative business practices using IT.	0.248	0.249	1.821	0.130
7	IT is innovatively used for business propagation.	0.295	0.269	4.292	0.016
8	The IT resources enable effective ERP system within the organization.	0.281	0.245	3.498	0.034
9	IT enables knowledge creation and exchange for better working efficiency.	0.169	0.171	1.050	0.374
10	IT platform is used for training and development of the employees.	0.190	0.193	1.343	0.265
11	The management supports the IT implementation for enhancing business functions.	0.327	0.328	4.171	0.008
12	IT platform is used by professional community to exchange information across the forums.	0.408	0.406	5.416	0.001

Table 3. Coefficient of Discrimination in Respondents' Opinions Between Criteria Groups

S. No	QUESTIONS	Coefficient of Discrimination
1	Information Technology implementation impacts the SMEs' operations progressively.	0.058
2	IT improves the communication and relationship with the stakeholders.	0.054
3	IT enables effective sharing of information about business processes and stakeholders.	0.337
4	IT has changed the business methodologies and practices in the organization.	0.244
5	IT application and tools have enabled effective CRM practices.	0.347
6	Management allows employee participation in developing innovative business practices using IT.	0.022
7	IT is innovatively used for business propagation.	0.030
8	The IT resources enable effective ERP system within the organization.	0.028
9	IT enables knowledge creation and exchange for better working efficiency.	0.010
10	IT platform is used for training and development of the employees.	0.015
11	The management supports the IT implementation for enhancing business functions.	0.101
12	IT platform is used by professional community to exchange information across the forums.	0.172

Table 4. Difference in Physiognomies of Respondents' Answers from Distinct Criteria Groups

S. No	QUESTIONS	Coefficient of Discrimination	Most Frequent Answers of Criteria Groups on Impact of IT on SMEs' Efficiency		
			High	Partial	No
1	Information Technology implementation impacts the SMEs' operations progressively.	0.058	Yes	Partially	Partially
2	IT improves the communication and relationship with the stakeholders.	0.054	Yes	Partially	Partially
3	IT enables effective sharing of information about business processes and stakeholders.	0.337	Yes	Partially	No
4	IT has changed the business methodologies and practices in the organization.	0.244	Partially	No	No
5	IT application and tools have enabled effective CRM practices.	0.347	Yes	No	Partially
6	Management allows employee participation in developing innovative business practices using IT.	0.022	No	No	No
7	IT is innovatively used for business propagation.	0.030	Partially	Partially	Partially
8	The IT resources enable effective ERP system within the organization.	0.028	Partially	Partially	Partially
9	IT enables knowledge creation and exchange for better working efficiency.	0.010	No	No	No
10	IT platform is used for training and development of the employees.	0.015	No	No	No
11	The management supports the IT implementation for enhancing business functions.	0.101	Partially	Partially	No
12	IT platform is used by professional community to exchange information across the forums.	0.172	Partially	Partially	No

there were any differences in respondents' answers to the questions. The values are $n = 12$, $F = 4.837$, and $p = 0.009$. Since $p < 0.05$, it is implied that there is a significant difference in the responses of the three criteria groups.

ANOVA was applied to ascertain the questions which showed the difference. Applying the same parameters as in MANOVA, each question was discretely analyzed. The differences in responses are depicted in the Table 2. The

discriminant analysis was applied to determine size differences in the responses. These are shown in the Table 3. The respondents' opinion that 'IT applications and tools have enabled effective CRM practices,' shows the highest difference with coefficient of discrimination = 0.347 ; whereas, the minimal difference is observed in the credence that 'IT enables knowledge creation and exchange for better working efficiency' having coefficient of discrimination = 0.010.

The data and parameters obtained through the coefficient of discrimination served as a basis for determining the most frequent answers for the belonging questions by the criteria groups (Table 4). Among all three criteria groups, the observed commonality is that the employees thought that IT platform does not allow knowledge creation and its exchange for better working efficiency. Also, the platform was not rigorously used for imparting training and development to the employees. The participation of the employees in developing innovative business practices using IT was minimal and their expertise was not used for the same.

The first and second criteria group respondents acclaimed that there was limited management support for IT implementation for enhancing business functions. Also, they claimed that there was an inadequate use of IT for exchange of information across forums. On the contrary, the third criteria group alleged that the management lacked in support for developing IT infrastructure for enhancing business efficiency and there was no exchange of information across forums.

Similarities were observed in the beliefs of the second and third criteria groups. They considered that IT deployment had partially impacted the SMEs' progressive operations, and was able to improve the relationship to an extent with the stakeholders. They also deemed that IT implementation had not impacted the business practices much. Also, IT was partially used for innovative business propagation.

The first criteria group respondents believed that IT enabled effective sharing of information about business processes and stakeholders. Also, IT application and tools had enhanced effective CRM practices in SMEs. The second criteria group responded that there was partial sharing of information and no reinforcement of CRM activities. The third criteria group believed that IT provided no support in sharing business information, but partially supported CRM activities.

Discussion and Conclusion

In the last five decades, the SME sector has emerged as a dynamic sector and is the back bone of India's economy, but the efficacy is not as desired. Information Technology plays a substantial role in operations of an organization and is critical in organizational success, be it a bigger organization or SME. SMEs should look for effective adoption of IT to improve their business execution. The intent of the work was to assess deployment of Information Technology in SMEs in India. The data analysis reveals that the effective adoption of IT in SMEs is derisory. The IT practices in SMEs in India are not substantial even though SMEs have IT infrastructure. The use of IT to improve business practices like ERP and CRM, knowledge development, sharing and exchanging information, improving relationship with the stakeholders, training and development of the employees is very limited. The management practice of not involving the employees in developing innovative business solutions using an IT platform is playing a spoilsport.

The study recorded the opinion of employees of SMEs and analysed the data on two points: (a) to know the significance of IT on modern day businesses, and (b) to explore the impact of IT on SMEs' efficiency.

The employees were quite aware about the significance of IT adoption in organizations for enhancement of business operations, but the positive responses on effective use of IT in SMEs were scarce. This ascertains that current IT usage in SMEs in India could not be graded as effectual. There is a requirement to identify and overcome the gaps and deploy IT for efficient functioning and enhancing business functions.

IT is indispensable in today's business, and is a protuberant assistance for executing business functions effectively. IT is a platform for running the operations progressively, improving relationships with the

stakeholders, having innovative business practices, and effective CRM and ERP execution. It has been suggested in the past that to enhance organization capabilities, cross business unit synergies be created using Information Systems (Tanriverdi, 2005) which can augment critical organizational capabilities, resulting in improved firm performance (Bharadwaj, Bharadwaj, & Bendoly, 2007). SMEs' growth is possible with knowledge development, effective training, and with more participation of all stakeholders in developing the IT services. These businesses are generally suffering from lack of IT knowledge, skills, and training resources (Chau, 1995; Cragg & Zinatelli, 1995; Fink, 1998 ; Tan &Igbaria, 1997).

An unfeigned involvement of more and more employees will ease the IT adoption in SMEs. The flow of ideas, proposal, and criticism of the employees will result in creation of effective IT structure to support functional business areas of SMEs. Prior literature suggests that characteristics of IT users including knowledge of IT, attitudes and intention toward IT, and participation and involvement in adoption process could impact IS/IT acceptance or its adoption process as well (Caldeira & Ward, 2003 ; Fink, 1998 ; Fisher & Howell, 2004 ; Lybaert, 1998; Thong, 2001).The employees are the first line business executives and can give important clues about market sentiments, requirements of the end users and clients, and ease of information exchange. The employees who work on the internal processes can give definite observations on building an efficient ERP system. The opinion of employees will enable development of IT tools for effective information exchange.

Also, the managements must try to develop the IT applications for training and development of the employees and create IT services where the exchange of information can take place for building a knowledge organization. The new channels for external and internal communication are a must. The managements must show keenness in deploying IT in the organizations and lead by example so that the employees tread the path for effectively using IT services. In a similar context, a recent study by Tan et al. (2009) on Internet-based ICT adoption within Malaysian SMEs demonstrated that identification of new business opportunities, better access to information and knowledge about market, and finally, reliable and quick business communications were the three highest ranked benefits of IT adoption by SMEs.

Managerial Implications

IT is an indispensable tool for business operations and with time, SMEs are significantly adopting IT for operations efficacy and strengthening competitive positions. Due to fast pace of IT adoption, the SMEs are risked with inappropriate IT implementation. The reviewed literature (Caldeira & Ward, 2003 ; Cragg & Zinatelli, 1995 ; Levy et al., 2001 ; Lybaert, 1998; Nguyen, 2009 ; Qureshi & York, 2008 ; Thong & Yap, 1995) indicated inappropriate measures that lead to failure of IT implementation and must be avoided by SMEs. These flawed factors are as given:

- ✧ IT adoption not synched with enterprise strategies,
- ✧ Overlooking the organization's culture and its characteristics,
- ✧ Deficient realization of organizational and stakeholder's needs,
- ✧ Lack of required resources, including knowledge, skills, and fiscal,
- ✧ Inadequate training of end users,
- ✧ Deployment of IT consultants due to lack of resources, especially finance,
- ✧ Family-run business with centralized control,
- ✧ Lack of State's assistance or lack of its knowledge,
- ✧ Non-competency in dealing with competition exerted by IT adoption.

The managements of SMEs should know that IT could act as a strategic tool to assist their business operations, but they should conduct a cost benefit analysis before adopting IT. A need analysis of organized deployment and proportionate advantages of using IT shall be done. SMEs need to predict how IT will impact their business situations, customers, suppliers, competitive position, as well as their competitors.

It is crucial for SMEs to specifically assess their competency for realizing benefits from IT adoption and be aware that erroneous IT implementation may jeopardize the business itself. They must evaluate the internal and external barriers and issues that might influence the adoption of IT solutions.

The success of SMEs depends upon knowledge build-up, which starts with knowledge sharing, effective training, and with more participation of the stakeholders in development and implementation of IT services. The SMEs generally suffer from lack of IT knowledge, skills and training resources, which the management needs to address.

The government has comprehensive policies to support SMEs in IT adoption, including financial, technical, and training support. The SMEs' managements should consult the government agencies for supporting them in effective adoption of IT and improve significantly. SMEs in India, for IT planning and adoption, may consider the opinion expressed in this study as a benchmark. The expressed opinions may help the SMEs in effective IT adoption and development of business functions.

Limitations of the Study and the Way Forward

The research comprehends the works of various authors, but the potential limitation is the scope of the review conducted. The databases explored to investigate relevant sources denied access to multifarious articles due to monetary and membership access policies. This limited the research to access some valuable findings on IT adoption in SMEs. The study emphasised on the need of IT adoption among SMEs for efficiency enhancement. The current study does not reconnoitre how dissimilar are the IT requirements in SMEs operating in heterogeneous business domains. This needs to be explored to categorically know the IT requirements and adoption techniques in diverse SMEs.

Time and demographic limitations affected the study. The study was limited to the Central demographic region of India and expanding the study for SMEs in other demographics and geographic regions would require more time. Furthermore, the level of IT adoption and practices by SMEs in distinct demographics may vary, which should be explored to conclude with a more precise view on the subject matter.

IT has critically become an indispensable tool for daily operations of organizations, and the same applies to SMEs. SMEs are adopting the IT platform apparently, but this is making SMEs vulnerable due to several associated risks. These risks are not explored in the current work and leave an opportunity to examine them to give imperative insinuation on IT adoption in SMEs.

In addition, a qualitative research shall be done on major factors that could impact IT adoption in SMEs including :

- ✧ Government policies, its assistive role, and support regulations on IT adoption by SMEs.
- ✧ How improper handling of IT is disadvantageous for creating competitive improvements in SMEs.
- ✧ Impact of centralized management structures on IT adoption in family-run businesses.
- ✧ Impact of lack of resources like funds, managerial, knowledge, experience, and technical skills on IT adoption in SMEs.

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