ROLE AND CHALLENGES OF ICT ADOPTION BY SMEs IN INDIA

In many developing countries, small and medium enterprises (SMEs) account for a significant share of production and employment and are therefore directly connected to poverty alleviation. Especially in developing countries, SMEs are challenged by the globalisation of production and shift in the importance of the various determinants of competitiveness. Through the rapid spread of information and communication technologies (ICT) and ever decreasing prices for communication, markets in different parts of the world have become more integrated. Whether the use of ICT can help them to cope with the new challenges is unclear. This paper deals with the impact of ICT in SMEs and also focusses on generic barriers in adoption of the same.

Small and medium enterprises’ (SMEs’) usage of ICT ranges from basic technology such as radio and fixed lines to more advanced technology such as e-mail, e-commerce and information processing systems. Use of advanced information and communication technologies (ICTs) to improve business processes falls into the category of e-business. However, not all SMEs need to use ICT to the same degree of complexity.

The first ICT tool that most SMEs adopt is having basic communications with a fixed line or mobile phone, whichever is more economical or most convenient for their business. This allows the SME to communicate with its suppliers and customers without having to visit them personally.

After acquiring basic communication capabilities, the next ICT upgrade is usually a PC with basic software. Even without Internet connectivity, SMEs can use PCs for basic word processing, accounting and other business practices.

With the Internet, SMEs are able to use more advanced communications capabilities such as e-mail, file sharing, creating websites and e-commerce. This may be sufficient for most SMEs, especially those in service industries. SMEs in manufacturing may adopt more complex IT tools such as ERP software or inventory management software. They may adopt the tools progressively or jump immediately to advanced ICT capabilities. Therefore it is essential to deal with the impact of ICT in SMEs and focus generic barriers in adoption of ICT.
Role of ICT in SMEs

**Innovation and productivity.** ICT promotes and effects innovation and productivity of firms. It implements the new product to the ultimate users and integrates the capabilities to the internal research and development functions.

**Open and closed innovation.** SMEs survive the competitive environment based on the innovation. Product initiation or development can no longer be solely determined by internal R&D functions, but rather depends on the contributions of a broad range of external players. External players might include suppliers, customers and research institutes. Therefore the open and closed innovations are vital factors in business. Open innovation encourages the companies to explore internal and external sources of innovation opportunities, integrate those with the capabilities and resources of a company and broadly exploit the new opportunities. The closed innovation means distribution of knowledge to others. Ideas and technologies are used in order to advance innovation without corporate secret.

In contrast, in open innovation, ideas do not need to solely originate within the firm and the release of those ideas into the market does not need to be accomplished by the firm alone. Rather external ideas and technologies are used in order to advance innovation projects without compromising corporate secret.

**Economic role.** ICT in economics plays two important tasks, which are strategic management and cost reduction. The organisation using ICT changes the investment policy, business processes and work practices and creates flexible or new environment.

According to these, ICT use may allow a firm access to complementary or new competencies developed elsewhere while concentrating in developing their specific internal ones, to roll out new products and to manage knowledge flows within and between firms. Implementing these investments could, in turn, result in substantial improvements in productivity by reducing costs and improvements in organisational flexibility and intangible aspects of existing products such as convenience, timeliness, quality and variety.

**Entrepreneur’s role.** SMEs vary internationally based on many factors including the ease of access to sources of funding, the skills base in the locale and characteristics of regional markets.

ICT enables closer links between businesses, suppliers, customers and collaborative partners. By enabling closer communication and collaboration, ICT assists businesses to be more responsive to innovation opportunities and provides significant efficiency gains.

General business framework and ICT policies have an important role in enhancing the conditions for small businesses to adopt and exploit e-business and Internet strategies. In addition, specific policies have been common in areas seen to be crucial for initial uptake such as awareness of ICT adoption, managerial and ICT skills. The overall policy approaches should be considered before adoption of ICT in SMEs.

**Internal and external policies regarding adoption of ICT in SMEs**

Shift to a wider view of e-business integration of internal and external processes. Policies have shifted over time as firms and economies have moved from concentrating on e-readiness, connectivity and awareness to diffusion and use. And are now moving towards mature e-business strategies which blend broad policies for the business environment with policies for particular areas such as intellectual property rights (IPRs) search and competition.

**B2B participation.** Focus on facilitating SME participation in B2B product and sector value chains, including technology neutrality and interoperability amongst different systems.

**Accessing the E-innovations.**

The term ‘ICT’ refers to a wide range of computerised information and communication technologies. These technologies include products and services such as desktop computers, laptops, handheld devices, wired or wireless Intranet, business productivity software such as text editor and spreadsheets, enterprise software, data storage and security, network security and others.

SMEs are businesses with less than ten employees as a micro enterprise, between 10 and 50 as a small enterprise and between 50 and 250 employees as medium-sized enterprises.
Encourage business and sector associations to provide tools to assess e-commerce/e-business opportunities, benefits and costs and the development of niche products and services. Reduce discriminatory access to finance and improve information regarding financing opportunities.

**Staff training.** Training programmes for SME managers and employees focussing on both technical and managerial skills need to be provided in cooperation with business and sector organisations, training institution and commercial training services.

**Privacy issues.** Address security, trust and confidence through broad policy frameworks, regulatory and self-regulatory tools, trustworthy technologies and affordable redress mechanisms.

Affordable redress mechanisms are being addressed in Organisation for Economic Co-operation and Development (OECD) work on alternative on-line dispute resolution.

**Potential market power.** Monitor anti-competitive behaviour as e-business becomes more widespread, electronic marketplaces evolve and potential market power increases.

**E-governance.** Use e-government initiatives to provide incentives for SMEs to go on-line by simplifying administrative procedures, reducing costs and allowing them to enter new markets.

**Growth analysis.** Expand collection and analysis of increasingly available statistics on e-business and e-commerce to monitor progress and improve cross-country analysis. The organisation should consider those factors while adoption of ICT in SMEs.

**Challenges of ICT adoption**

**Supporting challenges.** SMEs do not take advantage of ICT vary widely across sectors and nations. In developing countries, particularly in India, SMEs often lack the human technological resources needed for ICT implementation.

Lack of awareness, uncertainty of ICT benefits, set-up costs and pricing issues and security concerns are the most visible barriers to ICT adoption. SMEs facing economic and political uncertainty and cultural factors are also barriers for ICT adoption in India.

**Technical challenges.** From technological perspective, a firm should have at least someone within it who has a reasonable amount of knowledge for technology in general. Therefore, without internal technological capabilities, utilisation of ICT applications might be difficult and sometimes dangerous in terms of system maintenance and failures. The opposite is to seek advice and support from IT professionals, but most SMEs do not simply afford to do that because of the relatively high cost.

**Managerial challenges.** From managerial perspective, SMEs may also lack the managerial understanding and skills. A small and medium-sized enterprise needs to entirely reshape its current systems because ICT adoption projects are complex in nature.

For example, the successful implementation of e-business requires restructuring business process and redefining core competence of the firm. Undertaking such changes cannot be successfully implemented without relevant skills and a visionary mindset. Further, lack of long-term corporate strategy is another factor. SMEs’ strategies are often confined on survival and on short-term activities.

**Administrative challenges.** More precisely, very often, managers of SMEs set their decisions on current needs and situation. The decision-making process of the managers is rather intuitive, based on instinctive decisions and is less dependent on formal models of decision-making. They tend not to pass on information and do not delegate decision-making powers to their inferiors. They are often the only people in the company who have the authority, responsibility and ac-
cess to the information necessary for identifying business opportunities including utilisation of information technologies for strategic and competitive purposes.

Principle reason for non-adoption of ICT

SMEs are largely dependent on the environmental surroundings of the companies. SMEs are negatively affected by the following factors:
1. Low economic power compared to large companies.
2. Difficulty gaining access to capital with a consequently limited ability to finance development activities.
3. Worse access to specialised training and education compared to larger companies.
4. Lower access to necessary information and consultancy services.
5. Unfair competition from large companies and dumping prices of imported products.
6. Limited sale of finished products in the domestic market and increased cost of export.
7. Competition of retail organisations managed by financially strong companies.
8. Weak position in public tenders.
9. Failure to and delay in receiving payments resulting in secondary financial insolvency.
10. High administrative demands from government bodies and agencies.

Conclusion

SMEs in the ICT industry play a crucial role in the new economy of India. Most SMEs operate in a fiercely competitive environment, as such, it is important to optimise business practices. This effort has to be significantly supported by ICT. But the implementation of ICT can cause a number of issues for SMEs, such as insufficient financial sources, lack of experience with ICT and insufficient knowledge and skills in the area of computer literacy of employees.

That is why the most frequent purpose of implementation of ICT in SMEs is on survival of the organisation in its competitive environment. Apart from that, overall policy approaches and adoption of ICT in the organisations are strongly influenced by the management.