ICT in Business:
Inception to Update

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Abstract

Ignorance value of technology is not affordable by any individual, society, business, government and country. Technology have been significantly transformed the lives and business environment, traditionally to modern especially computer and telecommunication technology. First generation of technology enabled the existing systems, while second generation driven the transformed system. This research paper bring insides by exploring the various applications of advanced technology to update the system through key factors of success, supporting applications, government role in implementation, security risk and technology achievement index in front of the academia. Opening the new vision on technology for academic, business and research purpose is main concern of the present research.

Keyword: *Information and Communication Technology, Society, Business and Governance.*

Introduction: After a long journey technology became everyone's need rather than the luxury or innovation because, innovation is so frequent in Information and Communication Technology (ICT) that every second it brings out a new scene which always enhanced the existing system and environment. Previously, it was a new system it attracted awareness of people due to its everlasting benefit and ease. After awareness, few applications in system were taken under the integration of business, governance, computer, computing, and telephone services, later on in telecommunications. Time is practicing the literacy of ICT. As the definition of knowledge says that, knowledge is the ability to make instant decision in the specific situation, new generation of people, business and governance is behaving accordingly. People are ICT literate; business is ICT aware as well as adoptive and governance is imbibing the development in the ICT knowledge and practice significantly. If people, business and governance are positive, then it can open the doors of training and absorption infrastructure by spending the capital upon. Education and educators are the resources to measure the benefit and optimum utilization of ICT especially in business.

The Inception

ICT Awareness and Literacy: ICT awareness and literacy means the use of digital technology, communication tools, and/or networks to access, manage, integrated, evaluate and create information in order to function in a knowledge society (Chandel, 2011).

ICT Knowledge and Practice: It is the ability based on practical exposure of applying the ICT application in all business specific decision making situations with the help of data generation, collection, analysis and distribution tools and techniques. Successful implementation of relevant ICT application in business context assures the positive impact and opens new dimensions in existing marketing environment to come closer to the customers of all types. Skill development through proper training can be achieved in internal environment while the enforced awareness is a way that must be developed in external environment to absorption of the ICT application in business environment.

Scope: The following elements of modern/advance ICT are: computing and mobility, connectivity providers, integrated collaboration policies, storage and communication security, monitoring and troubleshooting before and after implementation in any context of real time based virtual world. Capital management issues need to resolve by doing feasibility analysis of proposed information system of the business. Optimization of capital expenditure to implement ICT applications, skill development and awareness of customer to use and utilize the ICT resources of business are the root for getting maximum benefits towards the goals and objectives of any entrepreneurs carried out with ICT application.

Update

Manufacturing: ICTs applications are linking the process chains in manufacturing as opposed to improving or facilitating single steps in the production lines. The old 'Fordist' or mass production of goods and services is energy-intensive, standardised and departmentalised the new manufacturing system facilitated by ICTs is

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information intensive, customised, networked and integrated. Furthermore, the design stage of product manufacturing benefits enormously from the use of ICTs. For instance, the use of Computer-aided design (CAD) has improved the design stages of machine tools.

Sector-Based Business: The adoption and use of Internet and e-Business strategies depend on sector characteristics. The products of services, like, tourism, which is intangible in nature and has high information content, are well-suited for purchase over the Internet. In addition, in sectors such as tourism and parts of retail and finance, where firms perceive a higher level of market opportunities, they tend to commit more resources to e-Commerce. In sectors such as textiles and automobiles, where the relationship between firms along supply chains is very close, on-line transaction systems are seen as a strategic necessity for streamlining B2B transactions (Organisation for Economic Co-Operation and Development, 2004). Sector based technology especially in jute, textile, retail, automobile, commercial agriculture to some extent, supply chain management, aviation, leather, etc., is the need of hour and the decision is not as the simple as lots of options are available that decides the future course of action.

Business Decision Making: Process factors, specifically data support is associated with the use of ICT even through support from top management, incentive from the government, team working and friendly output formats are perceived to help promote the use of ICT in decision making among the organizations (Yusof and Ang, 2010). The theoretical framework is as follows:

Figure 1: Schematic diagram of the theoretical framework
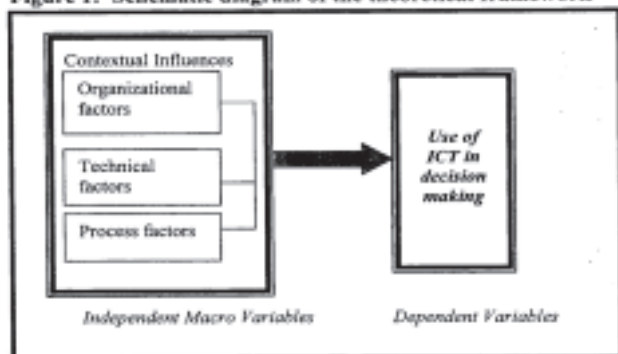
Source: Yusof and Ang, 2010.

Electronic Commerce: Electronic commerce or e-Commerce is the use of telecommunications or the Internet to carry out business of any type. Common examples of e-Commerce are business-to-business e-Commerce, online shopping, online banking, online stock trading, etc. One of the advantages of e-Commerce is the reduction of transaction costs. Electronic transaction of business activities has 'redefined' the concepts of 'market', 'seller' and 'buyers', as they all converge now on the electronic space. This development has warranted national government involvement in regulating e-Commerce activities.

Travel and Tourism: The travel and tourism industry has been heavily affected by ICT applications. It is used to provide multimedia information about destination to prospective travellers. It also affects auxiliary industries, such as the transport sector, which plays a major role in the tourism industry. With the aid of ICT applications, prospective travellers can view a destination, book accommodation, book the flight and other forms of transport and pay for all these without leaving their homes. ICTs in the industry consist of various components that include computerised reservation systems, teleconferencing, video, video brochures, management information systems, airline electronic information systems, electronic funds transfer, digital telephone networks, smart cards, mobile communication, e-Mail, and Internet (Mansell and When, 1998).

Other Issues: The security risk, enterprise resource planning and technology achievement index are the areas where latest updates favour the business. Security risk is minimized by adoption of ICT applications with respect to its cost consideration. ERP implementation on real time basis is not a luxury but essential for not only survival but for growth. Technology achievement index paves the path of company towards the success and establishes itself as role model it provides the guidelines to the companies where they are lacking and how they can be overcome. Business and consumer confidence in the security and trustworthiness of on-line transactions is essential to the development of e-Commerce and ultimately the business. It largely hinges on assuring both businesses and consumers that their use of on-line services is secure, reliable and verifiable. Businesses need a legal framework that is predictable and practical for domestic and cross-border transactions which is now available as a part of e-Governance. Creating the appropriate level of confidence in e-Commerce requires a mixture of trustworthy technologies and regulatory and self-regulatory arrangements (Organisation for Economic Co-Operation and Development, 2004). It should be consumer centric.

Challenges: For any business, to adopt e-Business and e-Commerce strategies and tools, benefits must outweigh investment and maintenance costs. Commercial considerations and potential returns drive the adoption of any ICT development. Beyond a certain level of connectivity like, PC, internet access, on-line information or marketing, not all small firms will necessarily catch up with large firms, simply because e-Commerce may not bring large benefits and small firms

will stay with traditional business processes (Organisation for Economic Co-Operation and Development, 2004a). The countries need to develop their own ICT strategies by creatively drawing available experience to configure their technical and human resources. The investment in ICT should be made to achieve the highest social and economic benefits at the lowest costs. Each developing country needs to prepare itself to make maximum use of the new opportunities (Ogrean, Herciu and Belascu, 2009). The Managed Services Model can maximise the efficiency and quality of their offerings, due to their narrow focus on an area that can be improved iteratively and continuously. Appreciation to the economies that can be derived from operating on a large scale, managed services should be available at a lower cost than the customer organisation could achieve itself, thereby, increasing the value for the customer (Leadership, 2012).

Literature Review: ICT is defined as the technology used to support information gathering, processing, and distribution and use (Beckinsale and Ram, 2006). The definition can be taken as classification of ICT into information technologies, telecommunications technologies and networking technologies (Nicol, 2003). In terms of age, the second generation i.e., youthful business owners are more likely to be receptive to ICT than their first generation i.e., elderly counterparts (Beckinsale and Ram, 2006). Social networks of business owners also play a crucial role in driving or inhibiting ICT adoption in business. In communities where culture is viewed as a key factor, particular cultural traits, beliefs and values attached to resources and investment may influence ICT adoption in several different ways (Yap, et. al., 1992; Straub, et. al., 2002; Beckinsale and Ram, 2006). The ICT adoption model identifies and integrates key factors that include government; environmental attributes; owner i.e., managerial attributes; organisational attributes; adoption attributes and social networks (Gibbs, et. al., 2007; Knowledge, Milne and Watkins-Mathys, 2009).

A research indicative finding are: greater efficiency is sought in high level and expert-based tasks where organisation wants to drive customer interaction; Enterprises want to improve productivity but not for the sake of reducing workforce size; Security risks endanger efficiency; Information security solutions are connected with enterprise innovation; Both customers and suppliers are similarly regarded as sources of innovation; Country difference does matter; Despite globalization and the general feeling that ICT transcends barriers, national context remains significant for almost all of the factors investigated. The size of firms affects perceptions of efficiency; Efficiency gains are sought as a means of

addressing legacy ICT problems. A very high proportion of spending is on legacy systems and few see overall spending increasing, cost-cutting is important in companies where they recognize that they can do more with the small proportion of overall IT spending not dedicated to maintaining older established ways of doing business (Kärrberg and Liebenau, 2009).

Applications of ICT in Modern Business: ICTs applications are linking the process chains in manufacturing as opposed to improving or facilitating single steps in the production lines. Electronic transaction of business activities has redefined the concepts of market, seller and buyers, as they all converge now on the electronic space. Billions of dollars worth of transactions is completed on the Internet. ICTs in the tourism industry consist of various components that include computerised reservation systems, teleconferencing, video, video brochures, management information systems, airline electronic information systems, electronic funds transfer, digital telephone networks, smart cards, mobile communication, and Internet (Mansell and When, 1998). e-Business is using the network and distributed information technology, knowledge management, and trust mechanisms to transform key business processes and relationships with customers, employees, suppliers, business partners, regulatory parties, and communities. e-Business is about changing business models to create new or increase value for the customer (James and Jutla, 2000).

The key areas of convergence include: policies and practices regarding environmental information systems; eco-efficiency and innovation; negative environmental consequences of the information society; modifying consumer demand and values; access to information and public participation; poverty reduction and e-Health. In making business decision ICT application helps manager to retrieve the relevant information. ICT application enhances the possibilities of data collection and information generation correctively to support the decision making process at all levels of hierarchy. ICT success depends on organizational, technical and process factors revealed by several researchers (Nord and Nord, 1995; Bruggen, Smidts and Wierenga, 2001; Yusof and Ang, 2010). Diverse, current and historical data sets on health, education, water supplies, sanitation, and population growth and movement can be captured, collated, manipulated, and presented nowadays. Economic development can be also fostered by tele-working and tele-services in some of the developing countries. ICT applications are noticeable in the air transport control, monitoring of freight and the day-to-day transport system. ICT applications are becoming valuable resources in the medical field. They support

efficient exchange of information between health professionals, they enable transfer of patient records between sites and they can improve clinical effectiveness, continuity, and quality of care by health professionals (Mansell and When, 1998). This brings business new opportunities.

Success Factors: The success of ICT application in business, trade, commerce and industry largely depends upon so many factors:

Cost: The cost should be comparatively lower as against to the benefits that are suppose to be higher. In fact any ICT application is first to go through cost benefit analysis deriving excess value or benefit to the business.

Support: ICT application always seeks support especially in terms of services. The supports are in terms of availability of hardware and software, availability of outsource options, intranet and network on real time basis, software and website development and maintenance facility and system, internet and telecommunication systems, etc.

Adoptable: There is always an opportunity that is made available by the software developers that they always keep developing and advancing the existing software further incorporating the new features and facilities in their new versions. So the consideration is the adaptability and acceptance of new version which sometimes develop resistance to change among the employees, who actually work on it. Another consideration regarding it is the economic acceptance of the new versions, which fetches newer capitalized cost making old capitalized cost worthless and absolute.

Business Absorption: Success factor also includes its environmental acceptance as a part of business absorption. The unit alone cannot reap the benefits of the latest technology as a leader to adopt the changes in technology but it should have been adopted by the entire business community and external environment then only the real benefits comes out.

Social Agreement: Social agreement on the ICT is very important. Any technology which is not socially acceptable cannot do better until and unless acceptance from all the citizens is ensured. Social agreement itself also comes out with as an input to enrich and support the newer set of technology. Thus, the success factor largely depends upon social agreement at macro level.

Conclusion:

General business framework and ICT policies have an important role in enhancing the conditions for 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 *e.g.,* awareness, e-

Readiness, managerial and ICT skills. The business is keep an eye upon the latest changes in the ICT affecting directly or indirectly to the independent unit, industry, economic environment, locally, nationally and globally. After reviewing the urgency, need, cost benefit analysis with a positive approach ICT adoption and development on life cycle consideration is essential an integral part of business.

Implications:

The Technology Achievement Index is based on four components: the capacity to create new products and processes through research and development; the capacity to diffuse new and old technologies in production and consumption viewed as two separate as separate capabilities; and having the skills for technological learning and innovation. At a more sophisticated level, a core of professionals with the technical capabilities to maintain ICT infrastructure and related ICT services and to adapt new technologies for local requirements is also needed. Development of this core of professional expertise requires that tertiary institutions have relevant educational curricula. It may also require creating new educational facilities with specific emphasis on ICT skill development. ICT applications in government organizations mainly have three categories. These categories focus on: Applications common to all government organizations common applications such as personnel systems, financial systems, document management systems, etc. Applications those are jointly used by multiple government organizations such as recruitment applications. Applications those are specifically used by one government organization.

Suggestions and Cautions:

Any business can survive only on a positive approach towards ICT application and implementation, updating, modification, alteration, further adoption of new ICT application. Only the caution that is to be taken is the opportunity cost of non-adoption of any advance technology favouring to the business as if you do not adopt still competitor may adopt and go ahead. It is needed to 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. It is also suggested to reduce discriminatory access to finance, and improve information regarding financing opportunities.

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