The Evolution of ICT as A to Z General: Purpose Technologies for Business Innovation

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Abstract:
Information and communications technology applications are present practically in every aspect of life; they shape our private lives as well as our work. ICT is becoming increasingly important on a macroeconomic level continuously. Not only is the ICT industry a steadily growing sector with a high economic significance, ICT-based solutions and technologies are also making a valuable and very important contribution to value-creation in other sectors, e.g. trade or manufacturing industries, in all aspects of business.

Key words: Information and Communication Technology (ICT), E-Commerce, Cloud Computing, QIK, Xcode, Off the shelf, VOIP

1. Introduction

The ICT sector has been a priority and a powerful catalyst in catering the needs and interest of low income communities in developing countries. Only in past twenty years has a self – conscious appreciation for the ICT sector's role in expanding economic opportunity developed.

The advancement in ICT has changed phenomenally and today's sector is much larger than it was before. Including hardware, software, telephones, support services provided by entities, ranging from corporate players to entrepreneurs to individual developers and networks.

As a result, collaboration has become a key business strategy. Some of the most successful firms have established themselves as "main pillars" within vast "business ecosystems" in which partners, other firms, and even users provide content, applications and services.

ICT increases coefficient of performance, productivity and access to goods, services and markets. The demand for these benefits is high. If the major factors such as power, connectivity, content, support systems and functional market can be put in place, demand for ICT will be correspondingly high. [1]

ICT environment develops local producers, software developers, servicemen and users who can also be the mode of innovation, giving value to the technologies large companies are offering.

Business models in the ICT field are basically of two types : First, they target localities, household and markets for sales of technology and services and can also support the development of local networks in countries that are developing.

ICT fundamentally creates institutional proficiencies. Within companies and government agencies, they help reorganize and speed up administrative procedures, increase the volume and speed of information and permit greater collaboration and sharing of experience.

A number of factors differentiate the ICT sector and its capability to increase. Its products and services enable individuals, firms, government and other players to expand their economic opportunities. Second, ICT companies know well that this dynamic isn't automatic; rather it depends on a wide range of other factors and players. [1]

2. Application of ICT in Business

In the immediate environment many of the devices do not operate in isolation but need to be a part of an information and communication system – linked to other devices with the capability to transfer data between them. We have listed A to Z applications of ICT in our paper which are associated with networks of one kind or another and are closely connected to the global business's point of aspect.

- **Accurate Records: Staff Records, Customer Records**
  In Businesses we have to keep accurate records of all of the money coming in and all of the money being paid out. This incorrect information regarding cash flow can have a major effect on things like the company share price - if the profit isn't as good as expected then share prices often drop. It could affect decisions about things such as whether to expand or build new premises i.e. whether to expand our business or not.

- **Biometrics**
  Many businesses now use biometrics as a method of allowing access to buildings and information held on computer systems. [7] Governments are beginning to use biometric identifiers in passports, driver's licenses and in the future, a national ID card.

- **Cloud Computing: Internet**
  Cloud computing has revolutionized the way businesses manage and pay for technology.[9] Provided in a secure online environment, scalable cloud services give businesses the power to streamline ICT management and costs.

- **Database Management System**
  Obviously, this kind of system will cost thousands along with a need to have professional database administrators looking after it and database specialists to create complex queries for management and staff thus keeping ones business ahead of others.[6]

- **E-Commerce: Stock Control**
  E-commerce is to purchase and sell goods and services over electronic systems such as the Internet. [7] This can mean businesses selling to customers or businesses selling to other businesses or people selling to other people directly through auction sites such as EBay.

- **Financial Services**
  Accounting software records income and expenditure and helps take care of all the cash flow in VAT, tax and PAYE and the requirements of the Charity Commission.[7] Information technologies such as database management in spreadsheets are used to manage project budgets and reports are produced for trustees, managers and funders.

- **Government Online**
  To keep pace with fast changing technology and increasing customer expectations, we need to build government's collective capability in online information and service delivery as it is true that business grow in the field where there is more ease for customers.[6]

- **Health Care: medicare, medicine and logistics**
  Technology is changing the world around us at a very quick pace. [3] The collaboration with technologies and extensive adoption of social media has ensured the world that healthcare organizations are keeping pace with changes in patient needs. This is a critical time in the global dialogue about "eHealth" and health information technologies. Investing in efficient, accessible and cost effective ICT tools can help to improve health outcomes and prevent diseases in low – resource settings.

- **Improving Communication: Mobile phones, SMS, Fax, Email**
  Many technologies in information and communication have made it easier for people to communicate with their organisation, using email, telephone, their website and text messaging. [2] The problem of missing the appointments has been reduced by using text messaging to confirm time and remind clients.

- **Jobs**
  Encourage the development of best practices for e-workers and e-employers, built at the national level, on principles of fairness and gender equality, respecting all relevant international norms. [5] Nowadays, people earn their living through ICT by working on blogs and creating website. In promoting teleworking, special attention should be given to strategies promoting job creation and the retention of the skilled work force. ICT has provided many opportunities for employment and promoted early intervention programs in science and technology that should target young girls to increase the number of women in Information and communication technology carriers.

- **Knowlwdge Management**
  Everyone should have the necessary skills to benefit fully from the Information Society. Therefore capacity building and ICT literacy are essential. Education is one of the major applications of ICT in which it has evolved drastically.[4] ICTs can contribute to achieving universal education, through delivery of education and training of teachers and offering improved conditions for lifelong learning, encompassing people that are outside the formal education process and improving professional skills.

- **Learning & Creativity**
  Technologies are already accepted by the young generation, who are appropriating ICT-tools and in particular web 2.0 applications in new creative ways. [7] New pedagogies have to take into account what it means to be educated in our times, as the overwhelming presence of technologies in our lives brings about a change in the way young people and children learn and understand. Education gives great business opportunities in the aspect of ICT.

- **Marketing: Selling of Ideas**
Internet is one of the ways in which media companies / businesses advertise. [5] The main form is advertisements or 'prompts' on media focused websites. One example is the i-Tunes website, through which millions of people purchase and download music. The site automatically recommends similar CDs / DVDs to the one being purchased by the customer. This is direct marketing, taylor-made for the individual customer. Precise and deliberate programming ensures that the customer is directed potential to further potential purchases. Furthermore, previous customer purchases are recorded, allowing the software to build an accurate customer profile on each I-Tune member.

- **Newsletters**
Newsletters offer advice, information and inspiration for owners, directors and entrepreneurs who are passionate about their business. [2] Each week, experts in the fields of Marketing, Sales, Finance, IT and HR, deliver news, ideas and information, that can help people to drive their business forward. It also covers the issues that are essential for business sustainability and growth. [8] In addition, newsletter also ensures that we are kept fully up to date with any current information that could affect the future of our business.

- **Off the Shelf**
Software is a boon to information and communication technologies. We can classify software according to where it came from. And one of those classes is "Off the shelf". [9] A company produces a piece of software and sells it as a complete product i.e. it is 'off-the-shelf'. Customer cannot ask for any special changes just for them. For example, Office software, CAD software, Accounting software packages are normally 'off-the-shelf'.

- **Production: Automobile manufacturing Industry using Robots**
Manufacturing is a key element of our society. It provides the goods we all like to buy and it employs a huge number of people. [7] Much of this production plant includes ICT elements such as industrial robots, programmable logic controllers, computer networks for coordinating the production process, Input / output devices and a whole array of sensors.

- **QIK: Record and Share video from phone**
ICTs appear ideally suited to the task of enhanced interaction because they can expand communication, cooperation, and ultimately innovation in not only IT sector but many other sectors like agriculture, health, etc.[9] ICTs, especially mobile phones, can and do drive participatory communication, including communication from those on the margins of traditional research-extension processes, and they are often the key instruments that organizations use to deliver services to larger numbers of rural people than they could reach before by recording and sharing videos.

- **Researches: Aerospace research using super computer**
Launch pilot projects to design new forms of ICT-based networking, linking education, training and research institutions between and among developed and developing countries and countries with economies in transition. [3] Not only the researches in Aerospace sector but also in sectors like weather forecasting, have made researches as one of the most important application of ICT from business point of view.

- **Security: Barcodes, CCTVs**
ICT Security recognizes the need for protecting data both while in rest and as an accurate and legal grade representation of evidence. [8] Whether it is document or data, digital time-stamping allows organizations to provide a legal grade signature and audit trail of the contents of documents, log files and critical information used within the organization or with its partners. ICT Security has a range of solutions that assist organizations with physical and electronic aspects of data and document with the use of barcodes and CCTVs.

- **Travel and Tourism**
The Internet has dramatically changed the way consumers plan and buy their holidays. [6] Information and communication technologies have brought a boom in the transport and travel area. It has also affected how tourism providers design, shape, promote and sell their products and services. The tourism market relies heavily on information. Since the emergence of the Internet, travel information search and booking has been one of the top 5 most popular on-line tasks.

- **USB: Universal Serial Bus**
Universal Serial Bus (USB) is a type of connector that links devices. It is mostly used on PCs using ICT but can also be used on other devices such as the PlayStation, and the Xbox. [5] USB can be used as a power device for charging things and making use of gadgets like lights and fans. In today's scenario most people use USB for mice, keyboards, scanners, printers, digital cameras, and flash drives, thus contributing maximum towards the business in hardware.

- **Video/Audio Calls: Conference calls, VOIP (Voice Over Internet Protocols) eg. SKYPE**
Teleconferencing allows people in different locations to talk to each other as a group. This is also known as an Audio-conference or simply a 'Conference Call'. [7] Video conferencing nowadays is of great utilization in conducting meetings worldwide. Video conferencing is similar to teleconferencing except that people in the meeting can now see one another because video cameras are used to send live images over telephone lines.

- **WWW: World Wide Web**
The WWW appears to be an ideal ICT medium for businesses attempting to promote themselves and their wares. [3] Setting up a site on the WWW, and thus gaining instant access to millions of people all over the globe, can be achieved at a small fraction of the cost using more conventional methods.

- **Xcode**

  Xcode is an integrated development environment (IDE) containing a suite of software development tools developed by Apple for developing software for OS X and iOS. [9] While, we all ogle the evolution of Apple's iOS 7, let's not forget to become familiar with the latest iteration of Xcode. Without Xcode 5, it will not be possible to develop apps for the latest iOS. Xcode 5 is currently available in a beta release to all registered Apple developers. Apple is one of the best companies using the information and communication technology with its great innovation and efficiency.

- **Youtube**

  YouTube being the largest video sharing website now has millions of clips available, classified into many specialist channels. [3][5] Many people use YouTube just for entertainment but the site also contains a huge amount of learning material, as companies and individuals upload tutorials on their products or specialist topic. Google, who own the site, has also made it easy for other web sites to embed YouTube videos into their pages and build up more business. With the massive success of the site, there are now many other video sharing sites those cover more specialist topics which is bringing boom in the electronic business.

- **Zip**

  To 'zip' a file. [9] This means to compress a data file by using the zip algorithm. Compression is often quite good on spreadsheet and document files - 70% is often achieved which has made a storage memory very cost effective at the time of keeping big database. A very popular zip utility is called 'WinZip' and modern operating system can also handle zipped files without an extra utility.

3. Conclusion

A number of factors differentiate the ICT sector and its capability to increase. Its products and services enable individuals, firms, governments, and other players to expand their economic opportunities. ICT companies know well that this dynamic isn't automatic, but rather depends on a wide range of other factors and players. ICT Applications are majorly emerging in areas of education, finance, entertainment, public services and research, building up great business opportunities.

4. Acknowledgment

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