

Review the Sri Lankan Information and Communication Technology Industry

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Abstract

Sri Lanka was well known as agricultural based economy, which was more focused on paddy, tea, rubber and coconut. However recently it has changed its direction towards knowledge based economy, passing by the industrial based economy. Information and communication technology industry has a critical role in improving productivity and economic growth in knowledge based economy. At the same time this industry has created many new employment opportunities, contributed to increase the earnings from export market and attracting foreign investors for investments. This paper discussed the nature of the information and communication technology industry in Sri Lanka, challenges and opportunities available, role players in the industry, information and communication technology infrastructure development in the country and finally it discussed the prospects and strategies for future development of the industry. Study considered secondary data sources which includes information related to the Sri Lankan information and communication technology industry. These include journal articles, proceedings of conferences, and survey publications of different bodies relating to the Sri Lankan ICT industry.

Keywords: Information and communication technology, ICT industry, knowledge economy.

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Introduction

Society is changing from industry based to the knowledge based society. Information and Communication Technology (ICT) plays a major role in improving productivity and economic growth in knowledge intensive world. Today ICT is not a support function of a business, but a critical factor of the success of a business by adding value through ICT and then enhance the competitive strength of the company. It is opening up new sources of growth and shows the solutions for the burning problems of hindering the development of the country. This can be considered as a key source of competitive advantage, if it develops over the other competitive countries. At the same time there is strong relationship between ICT investment, productivity improvement, and competitiveness (OECD, 2004). ICT investment should include the investment on ICT infrastructure development, ICT skills development in human resources as well as development of conducive policy framework. An innovation system in this industry and understanding of ICT industry itself is also very much essential before making decisions on investments.

ICT is often used for information technology. However it is more specific term that stresses the role of communications and the integration of telecommunications, computers as well as necessary software, storages as well as human interaction. ICT sector is a fast growing industry which enables more job opportunities to people and significant revenue generator of a country. More recently, the ICT industry has become another engine of job creation in developing countries, especially for youth and women (Hardy, 1980; Nortan, 1992; Roller and Waverman 1996; Canning, 1997; Waverman, Meschal and Fuss, 2005; Qiang, 2009 cited in World bank, 2011). ICT also has strong spillover effects on long-run productive activities in other sectors. ICT is driving changes in institutions' learning processes and innovation systems (Hanna, 2004). In this case (ICT development strategy) it is essential to identify the roles of each stakeholder, government, private sector, society and academics on developing ICT industry and ICT innovation system.

The objective of this study is to identify the present status of Sri Lankan ICT industry. This paper seeks the status of Sri Lankan ICT industry in terms of opportunities it has, challenges it faces, existing and potential markets, employment opportunities it creates, ICT infrastructure development in the country and roles of different stakeholders. Further the paper discusses the future strategies for ICT industry to harness its power and contributed to economic prosperity.

Methodology

The study considers secondary data sources including journal articles, proceedings of conferences, consultancy reports and survey publications of different bodies relating to the ICT industry.

Nature of ICT Industry in Sri Lanka

The OECD identifies ICT industry as those whose production of goods and services are primarily intended to fulfill or enable the function of information processing and

communication by electronic means, including transmission and display (OECD, 2007). The OECD ICT industry classification identifies three main sectors; ICT manufacturing, ICT trade and ICT services. These entire three categories again sub divided into various groups as appeared in Table1.

Table1: OECD 2006-2007 ICT Sector Definition based on ISIC rev.4

Class	Title
ICT Manufacturing Industries	
ICT Trade Industries	
4651	Wholesale of computers, peripheral equipment and software
4652	Wholesale of electronic and telecommunications equipment and parts
ICT Service Industries	
5820	Software Publishing
61	Telecommunications
62	Computer Programming, Consultancy and related activities
6201	Computer programming activities
6202	Computer consultancy and computer facilities management activities
6209	Other information technology and computer service activities
631	Data Processing, hosting and related activities; Web portals
951	Repair of computers and communication equipment
9511	Repair of computers and peripheral equipment
9512	Repair of communication equipment

Source: (OECD, 2007)

ICT equipment and hardware manufacturing is more capital intensive and dominating few large multinational corporations (MNCs) (BMZ, 2011). It is hardly seen manufacturing hardware components in Sri Lanka and country is engaged in trading activities of such products. Therefore the contribution to value addition in hardware components is very low in Sri Lanka. Hence this study is mainly focused on the ICT services industry and computer programming, consultancy and related activities which deals with software publishing, computer programming, consultancy and data processing, hosting and related activities and web portals. These areas are provided more opportunities for Sri Lankan ICT related organization. IT service industry is more knowledge and skills intensive industry and it requires less capital compared to the ICT manufacturing sector.

Opportunities for Sri Lanka in the ICT Industry

Sri Lanka ranks among the top 50 global outsourcing destinations and its rank was 16th in 2009 compared to the 29th in 2007 (AT Kearney, 2014). This is a significant advancement of 13 positions. However according to the 2014 global service location index, Sri Lanka remains the same 16th position while India is in the first place for nearly a decade time. Considering financial attractiveness, both India and Sri Lanka is in the same position while people and skills availability both India and China far better than the

Sri Lanka. Hence Sri Lanka needs to assess its present strength and weaknesses in ICT sector.

At present ICT literacy rate of the country is about 25% (Department of Census and Statistics Sri Lanka (DCS), 2014). Since the country's literacy rate is high, there are lots of opportunities of improving ICT education in Sri Lanka. Some other opportunities are; positive driving force from the government in implementing ICT in education system. Almost all universities contain ICT related courses, rising demand of the career opportunities in ICT sector are some positive signals for improving ICT education in Sri Lanka.

At the same time country's investment laws are more conducive for the foreign investment. Hence there is very less obstacles from the government side to enter into the Sri Lankan market. Country's investment law permits total foreign ownership without any restrictions on repatriation of profit. This will attract foreign investors opening up their business in Sri Lanka.

There are many emerging potential ICT categories, including open source software, mobile applications, mobile technologies, and cloud applications. At the same time most of the young people have distinct capabilities not only in theoretical basis, but also in technical and professional basis. Therefore those potentials in ICT sector can be uncovered by this young generation.

The existence of well-established wide available telecommunication providers is another advantage to the ICT sector. It opens up new opportunities for software developers to enter the new areas. Mobile phone software application developments, web-based application developments are some of them. In addition to that, the following are some other opportunities derived from the rising demand for offshore and outsourcing services, increasing adoption of component-based software engineering, which provides opportunities to participate in global value chains by specializing in the production of specific components (UNCTAD, 2013).

High information security in Sri Lanka is another advantage to Sri Lankan ICT industry. According to the ATKearney (2014), Sri Lanka has amongst the most rigorous intellectual property protection regime in the region. Therefore the country has added advantage of building the reputation on information security over the other countries. Hence for investors searching for destinations to locate their companies' low risk in terms of operational wise and continuation of business, Sri Lanka will be a prospective destination.

Challenges

Despite the opportunities, there are many challenges in this industry. One of the major challenges is lack of sufficient qualified human resources. Need more funds for facilitating and maintaining ICT laboratories, cost of equipment and accessories are much significant. Less knowledge on ICT among the adults and senior level officials, inadequate knowledge in English and some other necessary languages, internet cost and

electricity cost as well as the electricity facility not available and internet coverage not existed throughout the country are some other challenges.

Market for Sri Lankan ICT industry

The natural entry point to the market for any industry is serving local requirements. There is no exception for ICT industry too. To enter the global market, organization may require additional capabilities especially if they are purely domestic based companies. These additional capabilities may be quality certifications, being a member of some associated body, resources capabilities etc. Most of the developing countries including Sri Lanka, the government is the largest buyer of IT services. This is because of the initiation of e-services in many areas such as e-government, e-health, e-bill payments, etc. In addition to that promotions in service sectors; e-banking, M-banking, e-insurance, are create some other local market to the ICT industry.

With increase of the players in this industry, Sri Lanka engaged in export activities as well. Exports of computer software and information services generally accounts for a higher percentage of GDP in developed country than in developing countries (UNCTAD, 2013). However considering Sri Lanka, the contribution from exports of computer software and information services to the GDP is nearly 0.6% as of year 2012 (UNCTAD, 2012).

Most IT services firms in Sri Lanka producing services for the domestic market. These services include reselling, installation, customization and training relating to the imported software packages. However there are exceptions. Such companies develop their own software packages for both local and foreign market. These firms are adding more values to their products through the skilled human resources and their technological capabilities.

Sri Lankan ICT industry caters to the global market as well. The top three markets for the industry are Europe (United Kingdom and Ireland), United State, and South Asia. In addition to that the industry maintains a significant market presence in Australia, New Zealand, Asia mature markets and Middle East (Pricewaterhouse Coopers, 2014).

Governing Bodies

There are various types of governing bodies established relating to the ICT industry. In 1991, ICT Agency (ICTA) of Sri Lanka was created as the ICT policy implementing body in Sri Lanka. ICT policy making body is the Ministry of post and telecommunications. The next important body is Sri Lanka Association of Software and Service Companies (SLASSCOM), the IT and Knowledge industry body which plays a catalyst role with aggressive plans to capitalize the opportunities for Sri Lanka. The objective of the SLASSCOM is to act as a catalyst of growth of the Sri Lankan IT and BPM industry by facilitating trade and business, propagation of education and employment, encouragement of research and innovation, and by supporting the creation of a progressive national policy framework (SLASSCOM, 2014).

Federation of Information Technology Industry Sri Lanka (FITIS) is a representative body of all types of ICT companies irrespective of their scale of operations. FITIS members include software, hardware, education and training, communication services and professional service segments of Sri Lankan ICT industry. FITIS act as a trusted and authoritative voice of the ICT industry. Its mission is to promote and enhanced the significant contribution of the digital technology that drives Sri Lankans economic prosperity. Sri Lanka Association for the Software Industry (SLASI), Sri Lanka Computer Vendor Association (SLCVA), Association for Computer Training Organization (ACTOS), Information Systems Audit and Control Association (ISACA), BCS, and LISPA are the major industrial chapters and a professional chapter comprises in FITIS (FITIS, 2015).

Major Companies in the Industry

There are about 150 ICT companies in the country, and nearly 60% are small scale, 25% are medium scale and 15% are large scale companies (Export Development Board, 2011). Out of these 150 ICT companies, 60% are fully owned Sri Lankan companies. Rest of the 40% is set up either through foreign direct investment or joint ventures.

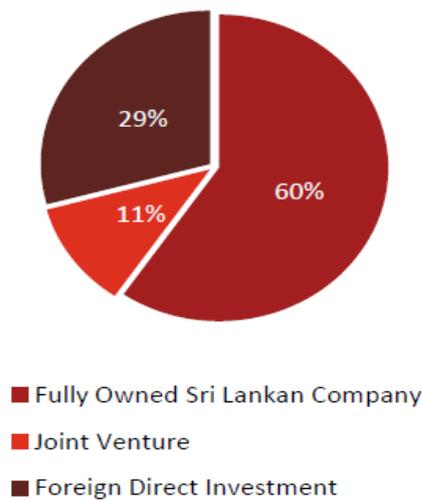


Figure1: Ownership of the ICT companies (Source: EDB, 2011)

Among the ICT companies operating in Sri Lanka, Virtusa, IFS Research and Development private limited, Millenium IT, 99X Technology limited was nominated as a most secured place to work. That was a greater achievement for the individual company, and as a whole ICT industry. At the same time Virtusa, Millenium IT, and WSO2 were listed among the top 10 strongest export brands (SLASSCOM, 2015).

ICT Employment Sector

ICT is implemented and applied in many of the organizations. Therefore the employment opportunities are not limited to the companies in ICT industry.

Organizations in every industry, recruit people for their ICT workforce, with aiming to develop, upgrade, implement, administering and maintaining their own ICT systems. These employees deploy ICT in main business and improve the productivity and hence ICT sector of the company becomes the competitive advantage. At present situation, at least a little ICT knowledge and skills is essential for almost all the workers, even they are not belongs to the ICT section of the organization.

Even in the ICT industry, there are standard business functions such as human resources, finance, administration, operations. The uniqueness of the employment opportunities in the ICT sector is, those are devoted to designing, developing and distributing ICT goods and services. The major employment opportunities are; computer hardware engineers, electrical engineers, computer scientists, software engineers, computer programmers, ICT technical assistance, software consultants and employments in marketing and sales of ICT related products and services.

ICT pyramid shows the depth and the breadth of the ICT skills and knowledge. It is a simple, yet a powerful tool to communicate all stakeholders about ICT, and various roles of people who engage with them (Mid Pacific ICT center, 2015).

ICT creators are the top in the pyramid. This segment includes the people who conceptualize the advancements of ICT outcomes. ICT enablers are applied technologists, those who understand existing ICT technologies and their implementations well enough to deploy, maintain, manage and support them in the real world (Mid Pacific ICT center, 2015). The last layer is ICT users. Any person who use and benefitted by ICT considered as the users. In between ICT creators and enablers, ICT spreaders represent the people who help spread ICT innovations by getting people to adopt what ICT creators create. They will have roles on, public relations, marketing, sales, sales engineering, and product and service management. They serve both business markets, where their customers are IT operations of all kinds of businesses in every industry, and consumer markets, where their customers are ICT users, all kinds of people everywhere. ICT helpers, who is in between ICT enablers and ICT users represents workplace roles for people who help ICT users be ICT users. They understand the systems ICT users use very well, and they help users learn to use those systems, answer questions about them and help resolve users' problems (Mid Pacific ICT center, 2015).

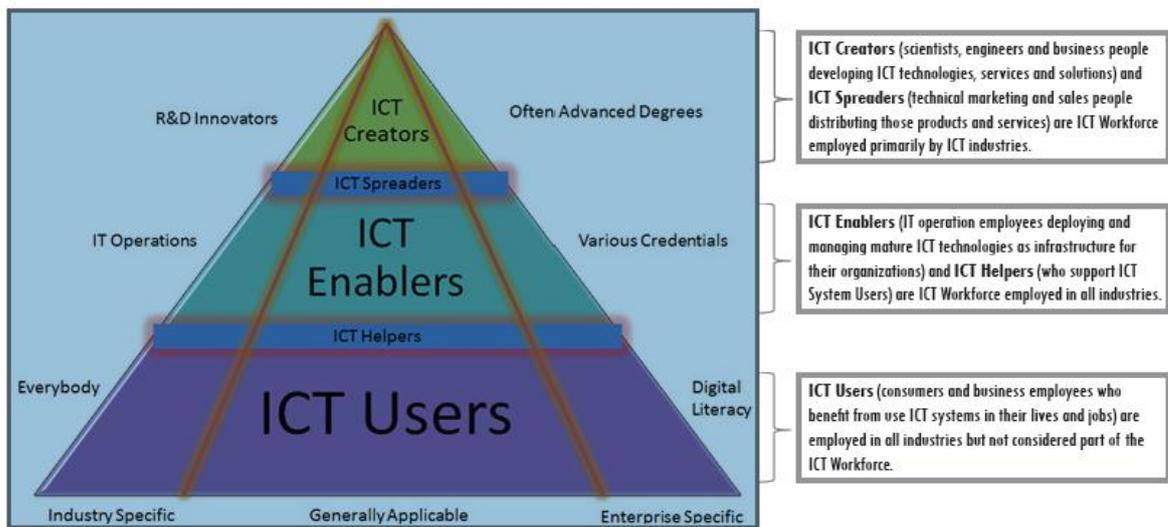


Figure 2: ICT Pyramid (Source: Mid Pacific ICT center, 2015)

Major policies and Operational Challenges

To develop ICT literacy of the country, government has established some educational policies relating to ICT. As an example, introducing ICT education to the GCE(A/L) curricular, facilitating schools to disseminate ICT literacy to all students, strengthening the capacities of ICT teaching in the school system, proper monitoring system for ensure the compliance with the national ICT policy are some of them. In addition to that the establishment of “Telecenters” (NanaSala) by ICTA, offer the public access to knowledge and information at affordable rates.

However, there are some operational challenges on implementing government policies. Frequent leadership changes in government organization undermine the ICT enabled process changes. Short time budgetary allocation also limits the sustainability of the projects. Different laws and regulations imposed in great old days, hinders the reengineering the business processes of the organizations. Hence it is need to have a proper coordination between ICT investments, and national development strategy to bridge organizational silos towards socio economic development activities.

National ICT infrastructure development

Infrastructures are the basic facilities needed for the smoothly functioning the operations of any business. High-quality ICT infrastructures are crucial for any country for the development of the industry, and hence achieve the economic growth. With the globalization business integration is in a high level and that can be achievable only with sophisticated infrastructure facilities. “Since the early 1990s, international institutions have been pushing developing nations to deregulate and heavily invest in ICT infrastructure as a strategy for accelerating socioeconomic development” (Ngwenyama and Morawczynski, 2009).

Facilities such as telecommunication, electricity, transportation, computer hardware, are considered basic physical facilities needed to run the businesses in ICT industry. In addition to that residential facilities, catering services, security systems, and availability of recreation facility are some other infrastructures which investors are looking for.

If a desktop or laptop is available at a household then that household is considered as a computer owned household. In 2014, at least one computer is available in 22% of households of the Sri Lanka (DCS, 2014). That is one out of every five households is having a computer. According to the DCS about 8 percent of the household population aged 5 – 69 years has used E-mail facility at least once during the last 12 months period (DCS, 2014). That indicates the internet usage of the population. Electrification of the country is about 98% (Ceylon Electricity Board, 2014). Availability of highways, flyovers and good conditioned road structure of the country is added advantage for the transportation infrastructure. However public transportation service of the country is not in a satisfactory level.

Country has plenty of recreational facilities such as beaches, nature parks, heritage sites, hill country views, and many more leisure and outing activities. Considering catering, there are many places that offer various types of foods and beverages, with affordable prices. Since the country is a peaceful place to live with the end of long last civil war, security of the country is imposed. Considering all these, it can conclude as Sri Lanka has fairly good infrastructure facilities.

Prospects and Strategies for Future Development

In most of the countries, ICT industry is the emerging sector of the economy. The future development of the ICT industry in any country is heavily depends on its workforce. Since the innovativeness is born by them. However in the global market, strategic technological capabilities need to be capitalized to survive in the market. Essentially, ICT sector is an integral part of every industry. Therefore ICT industry will have a booming market and various opportunities. Since the country has well reputed name for ICT outsourcing destination, Sri Lanka need to consider the ways and means of capture both domestic market and global market.

In the post-war situation, Sri Lanka would be able to give priority to science and technology and R&D investments. Through that innovation culture can be established within the country. From the innovation, industry would be able to go for export market, add values to lives of people and finally to the country's economy.

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