2 The Changing World – Global Trends Redefining Our Landscape

2.1 Ageing Population

This issue of ageing population not only impacts developed countries but also the developing ones. Two main factors, namely increased life expectancy and reduced fertility, are driving this trend. In the past five decades, global life expectancy at birth has risen by almost 20 years, from 46.5 years in 1950-1955 to 66.0 years in 2000-2005[1]. During the same period, the total fertility rate was reduced by almost 50%, from 5.0 to 2.7 children per woman[1]. In the course of the next 50 years, global fertility rate is predicted to drop to the replacement level of 2.1 children per woman[1]. Furthermore, the ageing population is growing at a rate of 1.9%, higher than that of the 1.2% growth rate of the total population. In the near future, the difference between these two rates is likely to become wider.

Managing the challenges of an ageing population presents new opportunities for ICT. Examples include the use of ICT by the elderly for health monitoring and general wellness, and to support integrated healthcare services in elderly homecare. Assistive ICT technologies to help the elderly meet their visual, hearing, dexterity, cognitive and speech needs will be in demand. They can be built into products, specialty hardware and software to aid the elderly's interactions with the computer.

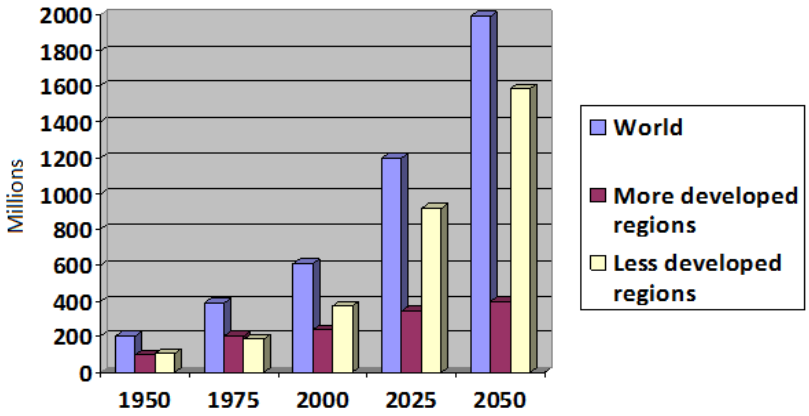

Figure 1: Population aged 60 or over: world and development regions, 1950-2050[2]

2.2 Rapid Urbanisation

With the desire for a better quality of life, rural citizens are moving into cities, thus driving mass urban migration. This puts pressure on the city's limited resources. Cities have to be smarter with integrated infrastructure to optimise resource utility. These networks have to work together seamlessly to automate services and provide greater convenience to citizens. However, the rise of smart cities raises new security and privacy challenges as users implicitly expect systems to be safe. Before smart cities can become a reality, it is important to first put in place transnational authentication systems for citizens and businesses, agreed frameworks for data privacy and the sharing and collection of individual and business data.

[1] Population Division, DESA, United Nations. Demographic Determinants of Population Ageing. [Online] Available from: http://www.un.org/esa/population/publications/worldageing19502050/pdf/8chapteri.pdf [Accessed 30th July 2012].

[2] Population Division, DESA, United Nations. Magnitude and Speed of Population Ageing. [Online] Available from: http://www.un.org/esa/population/publications/worldageing19502050/pdf/80chapterii.pdf [Accessed 30th July 2012].

2.3 "Green" and Sustainability

The rapid urbanisation, increased demand for energy and rapid depletion of resources have resulted in greater awareness of green and sustainable practices. These include alternative energy sources, clean technology, carbon sequestration, carbon credits and recycling programmes. Global companies have also embarked on corporate social responsibility initiatives to improve sustainability. Currently, the ICT sector makes up a significant proportion of total energy consumption worldwide, approximately 5% to 10%.[3] However, most programs and solutions in sustainability are also supported by ICT infrastructure, which play enabling and integrative roles in reducing power consumption levels. The shift towards electronic delivery of goods and services, for example e-books and video/music streaming, will require less movement of people and objects and thus will result in the consumption of fewer resources and road space.

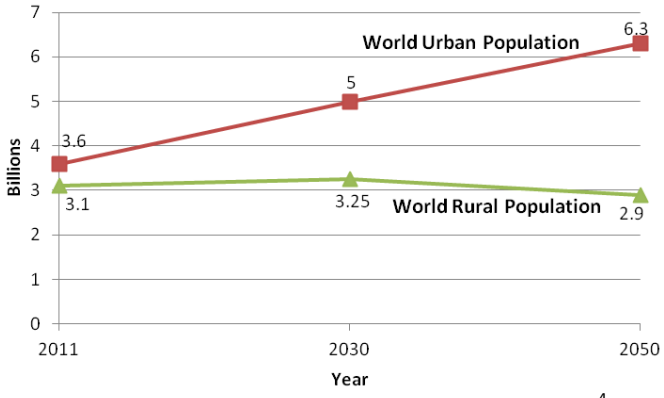

Figure 2: Urban and rural populations, 2011-2050[4]

2.4 Social Age

In the Social Age of today, technology users are more connected than before. There exists a class of users, known as Generation C (Gen-C), who have lived their adolescent years after 2000. This is the first generation that has never known a reality detached from the connectivity of the Internet, mobile devices and social networking. By 2020, the Gen-C population is estimated to make up approximately two-fifths of the population in the United States, Europe and the BRIC (Brazil, Russia, India and China) countries, and one-tenth of the rest of the world[5]. In other words, they will constitute a significant proportion of global consumers.

The new generation's familiarity with technology, their heavy reliance on mobile communications and desire to be constantly connected will re-define inter-personal interactions and the way we work. The increasing connectivity will drive more idea exchanges and accelerate the pace of innovation in the digital world, especially as this generation of users enters the workforce.

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3 United Nations (UN) and International Telecommunications Union (ITU). Why and How the Environment has to be taken into Account at the World Summit on the Information Society. [Online] Available from: http://www.itu.int/dms_pub/itu-s/md/03/wsispc2/c/S03-WSISPC2-C-0043!!PDF-E.pdf [Accessed 30th July 2012].

4 Population Division, DESA, United Nations. World Urbanization Prospects. [Online] Available from: http://esa.un.org/unpd/wup/pdf/WUP2011_Highlights.pdf [Accessed 30th July 2012].

5 Booz & Company. The Rise of Generation C: Implications for the World of 2020. [Online] Available from: http://www.booz.com/media/uploads/Rise_Of_Generation_C.pdf [Accessed 30th July 2012].

2.5 Machine-to-machine (M2M) Communications

Internet of Things, the vision of a world where everything and everyone is inter-connected regardless of proximity and location, has garnered much attention in recent years. The main enabler of this vision is aptly known as machine-to-machine (M2M) communications, which is the ability of electronic devices to exchange data with one another. Growth in this sector has been driven by the reduced cost of network and sensors. This lowers the barrier to the installation of sensor networks for real-time monitoring of environmental conditions such as temperature, light intensity and humidity.

Stakes in this new era of hyper-connectivity are enormous. It is estimated that nearly 50 billion devices in the world will benefit from M2M communications by 2020.[6] This is close to ten times the number of people on Earth. Given the scale and scope of M2M opportunities, organisations are beginning to position themselves for its widespread adoption. In addition, the emergence of faster and more accurate analytics tools adds to the benefits of M2M adoption. By tracking a device through its lifespan, a company can gain a great deal of data and insight not only into the product's performance in different stages, but also into the consumer's needs and behaviours. This intelligence may yield optimised services and solutions for customers and higher profit margins for the companies involved.

2.6 Consumerisation of IT

The consumer market has become the main driver of IT innovation, giving rise to the trend of Consumerisation of IT. Unlike the yesteryears where innovations were driven by enterprises, Consumerisation of IT represents a paradigm shift in the ICT landscape. According to Gartner, it is "the single most influential technology trend of this decade"[7]. Today, employee-owned technologies are making their way into the workspace. Organisations are beginning to embrace the use of a heterogeneous array of personally owned devices while recognising and managing the challenges it will bring.

[6] Qualcomm. M2M White Paper: The Growth of Device Connectivity. [Online] Available from: http://www.qualcomm.com/media/documents/files/m2m-white-paper-growth-device-connectivity.pdf&sa=U&ei=O3ofUJ1Rh-WsB8TIgdgL&ved=0CBEQFjAA&usg=AFQjCNEqA7LRR058xyyEb8fL2P-YLp4e7A [Accessed 30th July 2012].

[7] BringYourOwnIT.com. Consumerization Talks with Ken Dulaney, VP Gartner Research. [Online] Available from: http://bringyourownit.com/2011/06/28/consumerization-talks-with-ken-dulaney-vp-gartner-research/ [Accessed 30th July 2012].