

Managing Sustainability in Use of ICTs

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Abstract. Today, Information and Communication Technologies (ICTs) play a significant role in both social and economic development. ICT solutions are seen as key enablers in business – to achieve growth and competitiveness. Investment on ICTs is the biggest component of expenditure in most organizations. There is considerable debate on the extent to which ICTs affect environmental sustainability in an economy. There is, however, increasing evidence that potentially there are both significant opportunities and threats involved. This paper looks at the impact of use of ICTs on sustainability issues and investigates opportunities for progressing towards a more sustainable use of ICT solutions within organizations.

Keywords: Sustainability, Sustainability Models, Information and Communication Technologies (ICTs)

1. Introduction

Information and Communication Technologies (ICTs) not only constitute an industry in their own right but they also impact on almost all sectors of the economy, where they act as integrating and enabling set of technologies. ICTs solutions have a significant impact on society. Production and use of ICT tools and solutions have important consequences for development in not only economic but also on both social and environmental arenas. The extent to which ICTs affect progress towards environmental sustainability in any economy has been an on-going debate. However, there is increasing evidence that ICTs can provide us with both opportunities and threats towards sustainability. There is an increasing acceptance that there needs to be more research on methods and techniques for better management of energy usage, climate change and technology deployment strategies.

Overall, Sustainability is a balancing act so as to fulfill ECONOMIC, ENVIRONMENTAL and SOCIAL demand on organizations (Asgarkhani, 2012) – figure 1.

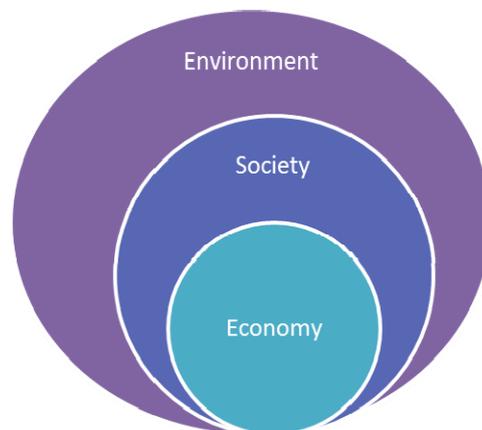


Figure 1 – Sustainable Organizational Development (Bansal, 2005)

Within the ICT sector, environmental sustainability and climate change can present us with opportunities. At the same time there are risks to sustainability as a result of use of ICTs.

Sustainability is driven mainly by ever increasing concerns on climate change. At the same time, there seems to be an opportunity for organisations to achieve substantial savings through application of sustainability practices such as energy efficiency initiatives. What's more, it is increasingly important (as public awareness of sustainability grows) for companies to be seen as acting responsible in the public eye, this can potentially have a positive effect on consumers investment in a particular company (Mingay, 2007).

Throughout this discussion sustainability is looked at as the long term maintenance of the environment and the responsibility of managing natural resources - so that they are not depleted, due to use of renewable resources and environmentally friendly processes.

Previous studies suggest that there are a number of sustainability value models (theories) that drive organizations priorities and attitudes – including:

- The economic frontier view or model - argues that making profits is the only responsibility of organizations and the only way to ensure a firm's sustainability.
- The ecological view - emphasizes the interdependence between organizations and the ecology, rather than making profits (Gladwin et al., 1995).
- The resource-based view - proposes that firms accumulate valuable, inimitable, rare, and non-substitutable resources that lead to competitive advantage (Barney, 1991).

2. Managing ICTs and Sustainability

ICT management is referred to as a term that reflects the discipline of managing all the technological resources of an organisation – including hardware, software, data networks, and data centre facilities and all the staff who are hired to maintain and supply the facilities and services we referred to.

We look at significant environmental implications of the use of ICT solutions. Traditional practices and processes need to be improved by creating new ones which will therefore improve environmental impacts (Plepy, 2002). We also outline what an ICT managers need to think of and do to tackle significant issues surrounding sustainability.

People are becoming more and more aware that we are accustomed to environmentally unsustainable ways of going about day to day life – which is causing environmental damage to our planet. Rising energy prices, together with government carbon production restrictions and other environmental costs are increasing the cost of doing business. This makes current ICT practices unsuitable for continued business development and profitability (IBM United Kingdom Limited, 2007). According to (Hilty, 2008) there are three levels of implications of use of ICTs on the environment that must be taken into consideration. They include:

- Primary effects - The physical effects ICTs on the environment caused by recycling and disposal of ICT hardware components.
- Secondary effects - Indirect environmental effects of ICTs due to its power to change processes such as dematerialisation and optimising supply chain resulting in a decrease in environmental impacts
- Tertiary effects - Long term environmental effects such as a heavy reliance on fossil fuelled power and unsustainable economic structures

It is becoming increasingly important for ICT executives within organizations to be directing the company in an environmentally responsible manner. It is equally important that organizations are being seen as acting in a responsible and environmentally aware in the public eye.

Today, all businesses and corporations are affected by sustainability issues. The biggest issue is the rising cost of energy which affects the ICT industry – as the industry is a large consumer of electricity.

Finally, some of the key areas of sustainability in the ICT sector are (GeSI Global e-sustainability initiative, 2009):

- **Climate change:** To increase awareness of climate change within the ICT sector and put in place practices to reduce emissions through the use of innovative technology and ICT management guidance

- **Supply Chain:** Through the direction of ICT management develop and improve existing or new supply chains that are environmentally sustainable
- **E – Waste:** Promote the environmentally responsible disposal of ICT equipment or the reuse/recycle of the equipment and other sectors of ICT
- **Standardisation:** To work with others to develop suitable management standards of sustainability within ICT

3. Summary and Conclusions

Information and Communication Technology (ICT) solutions have had a profound impact on developments within both communities and corporations. ICT solutions are used in most organizations for significant productivity and efficiency gains. They play a major role in integrating organizations' functions to allow for improved performance and increased competitiveness. Managing ICTs has been primarily focused on maximizing the benefits (return) on investment on ICTs. However, with increasing awareness of sustainability and environmental issues, ICT management has had to increasingly incorporate sustainability policies in management practices.

ICTs can provide opportunities for managing sustainability. At the same, time use of ICT solutions without consideration given to implications, can result in significant risks to sustainability and environment.

There are opportunities to address sustainability in managing ICTs. Theses can include:

- Increasing awareness of climate change within the ICT sector and put in place practices to reduce emissions through the use of innovative technology and ICT management guidance
- Developing and improving existing or new supply chains that are environmentally sustainable
- Promoting environmentally responsible disposal of ICT equipment, and
- Developing suitable management standards of sustainability within ICT

4. References

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