



INFORMATION TECHNOLOGY AND ITS ROLE TO MANAGE SUSTAINABLE FINANCE

Himanshu Sekhar Acharya*

S.R. Dutta*

R.K. Bhoi*

Abstract: *Today's information society is being built on technology, knowledge and intelligence. Information technology (IT) empowers both people and systems with information, which is transformed into knowledge and intelligence. IT with communications technologies facilitate fast, cheap, equitable, and resource efficient access to information, accumulated knowledge, learning opportunities, and co-operation support tools for its citizens. The investment in human resources and IT are probably the important two factors in building nation's sustainable financial development. ITs investment can be more effective in growth if accompanied by better organization and management in government sector and private sector. The dramatic growth of the past half-century has led to higher living standards in much of the world, but has also resulted in urban sprawl, choking pollution and global warming. Information Technology offers tremendous opportunities for the developing countries to fully share in the benefits of the global information economy and contribute in sustainable financial development. Nations need to issue a national IT strategies and initiatives framework to enable the governmental organizations to be proactive and to guide the enterprise in its efforts to contribute in sustainable development. With about one billion computers currently in use, information technology rightfully owns some of the blame for the world's sustainability ills. The lifetime toll for a computer includes substantial resources for manufacture and delivery, then more energy consumed in home offices and companies. Yet for all this, IT will also take a starring role in sustainability solutions that meet the needs of the present without depriving future generations.*

This paper extends the existing evidence of important role of IT on nation's sustainable financial development with sustainable strategies using IT and related communication gadgets.

Keywords: *IT, sustainable finance, communication technology*

*Asst. Prof., Comp. Sc, KIIMS, Cuttack



1.0 INTRODUCTION

Information Technology (IT) defined as “the application of computer systems - both hardware and software, and often including networking and telecommunications”. Also it defined as “the technology required for information processing”. Danziger and Andersen [9], define Information Technology (IT) as those mechanical, conceptual, human and organizational components whose function is to transmit or store data and information using digital devices. Information and communication Technologies (ICTs) encompass all those technologies that enable the handling of information and facilitate different forms of communication among human actors, between human beings and electronic systems, and among electronic systems. Although there no general agreement regarding to the precise definition of sustainable development. The United Nation defines sustainable development as “development that meets the needs of the person without compromising the ability of future generations to meet their own needs”. Also, sustainable development can be understood as a continuous process of balancing the need for environmental capabilities to fulfill social needs and the availability in an ecosystem characterized by a stable dynamic equilibrium. Therefore, current technology development should be reoriented and future development directed with respect to sustainability. Information and communication technologies (ICTs) offer a high potential for making a positive contribution towards sustainability by reducing the impacts arising from manufacturing and transportation activities.

This paper highlights the state of art of IT and its role in sustainable growth [2]-[16] of developing countries. Also the paper extends some important strategies for sustainable growth.

2.0 EFFECTIVE NATIONAL SUSTAINABLE DEVELOPMENT STRATEGIES

The experiences of both developed and developing countries suggest that sound and effective national sustainable development strategies would have certain fundamental elements; these elements are as follows:

- *Country ownership and commitment*

Country-driven, multi-stakeholder ‘ownership’ and strong political commitment are crucial to the development and implementation of effective and continuous national sustainable development strategies.



- *Integrated economic, social and environmental objectives across sectors, territories and generations*

A national strategy for sustainable development should be comprehensive, balanced and integrated vertically as well as horizontally. Vertical integration refers to incorporating community (local) level concerns and actions into national decision making processes. Horizontal integration on the other hand refers to the coordinated involvement of various sectors in strategy development.

3.0 IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGIES ON NATIONAL DEVELOPMENT

Today's information society is being built on technology, knowledge and intelligence. Information and communication technologies (ICTs) empower both people and systems with information, which is transformed into knowledge and intelligence. It facilitates fast, cheap, equitable, and resource efficient access to information, accumulated knowledge, learning opportunities, and co-operation support tools for its citizens. Information and communication technology has been used in both developed and developing countries to support social and economic development. Many researches had delineated the relationships between information and communication technologies and sustainable development. Hanna et al [4], view information and communication sectors as providing the infrastructure for the whole information economy, facilitating market entry, reducing costs, improving customer services, and increasing productivity [4].

4.0 FACTORS AFFECTING IT DEPLOYMENT AND DEVELOPMENT

The crucial role of information and communication technologies in stimulating development is a two-edged sword. On one hand, it allows countries to leapfrog stages of economic growth by being able to modernize their production systems and increase their competitiveness faster than in the past. On the other hand, for those economies that are unable to adapt to the new technological system, their retardation becomes cumulative. The deployment of information technology is a complex process; it incorporates with a number of interrelated issues. Chieochan et al, list some factors affecting IT deployment and development as follows [4]:

- Individual factors (leadership, attitude & IT knowledge),
- Organizational factors (business size, structure & culture), and



- Environmental factors (political, social, economical & technological factors).

Some of the internal and external factors are as follows:

- Internal Factors: Organizational structure and the corporate culture, Management and business process, the organization's strategy, and Individuals and roles.
- External Factors: Social, economical and political issues

5.0 BARRIERS

Barriers and problems that have been experienced in a number of ICT-based projects and initiatives in some developing countries can be summarized in the following items:

- High telecommunication costs in some developing countries - The cost of basic Internet remains a strong deterrent in many developing countries,
- Infrastructure - The telecommunication and electricity infrastructure in developing countries is often inadequate,
- High rate of illiteracy in rural areas – “Illiteracy is a fundamental barrier to participation in knowledge societies”. This means that these individuals are disadvantaged and lack the basic skills required to harness the benefits of ICTs,
- Inadequate human resources - To ensure more meaningful participation in rural development and to pave way for the creation of a critical mass of people that effectively harness ICTs in developing countries, training and capacity building must be an integral part of all ICT projects,

6.0 PROPOSED GUIDELINES

By reviewing literature in combination with observed practical situations few guidelines are proposed for successful

These guidelines include three main steps as follows:

- A. Clarifying national ICT strategies
 - Strengthen of customer service through IT,
 - Strengthen of national enterprise's IT approach,
 - Strengthen of and validate national enterprise's IT security and privacy,
 - Identify and assess national enterprise's IT infrastructure readiness,
 - Identify and assess national enterprise's IT needs and funding, and
- B. Clarifying national ICT goals
 - Use IT to improve community's processes,



- Simplify and standardize the community's IT environment, and
- Modernize the community's computer network.

C. Liberalized, pro-competitive telecommunications policy

6.0 CONCLUSION

This paper extends the existing evidence of important role of ICTs on nation's sustainable development. The investment in human resources and ICTs are probably the important two factors in building nation's sustainable development. ICTs investment can be more effective in growth if accompanied by better organization and management in government sector and private sector. ICTs offer tremendous opportunities for the developing countries to fully share in the benefits of the global information economy and contribute in sustainable development. The deployment of ICTs will improve services to citizens and empower citizens to access information and knowledge. The proposed guidelines are a step-by-step methodology that can help the developing countries to establish their own ICTs strategies. These guidelines need further studies to set the criteria and process for applications according to country's situations.

ACKNOWLEDGEMENT

We extend our heartfelt thanks to the organizing committee of the Conference for selection and publication of the article.

REFERENCES

1. Benjamin, P. (2001), "Does 'Telecentre' mean the centre is far away? Telecentre development in South Africa", *The Southern African Journal of Information and Communication* – Vol. 1, No 1.
2. Bhatnagar, S. (2000), "Social Implications of Information and communication Technology in Developing Countries: Lessons from Asian Success Stories", *Electronic Journal on Information Systems in Developing Countries*, 1, 4, 1-9. Available (<http://www.ejisdc.org>).
3. Cees, J. (1997), "New Information and Communication Technologies, Social Development and Culture Change", United Nations Research Institute for Social Development (UNRISD).



4. Chen, Y. (2003), "eGovernment Network: The Role of Information Technology in Managing Networks", The National Public Management Research Conference, Washington D.C.
5. Chieochan, O., Lindley, D. & Dunn, T. (2000), "Factors Affecting the Use of Information Technology in Thai Agricultural Cooperatives: A Work in Progress", *Electronic Journal on Information Systems in Developing Countries*, 2, 1, 1-15. Available (<http://www.ejisdc.org>).
6. Coulibaly, A. (2002), "New Information and Communication Technologies and Professionals in the Media, Information and Communications Technologies and Social Development in Senegal", United Nations Research Institute for Social Development (UNRISD).
7. Dabla, A. (2004), "The Role of Information Technology Policies in Promoting Social and Economic Development: The Case of The State of Andhra Pradesh, India", *Electronic Journal on Information Systems in Developing Countries*, 19, 5, 1-21. Available (<http://www.ejisdc.org>).
8. Daffé, G. & Dansokho, M. (2002), "New Information and Communications Technologies: Challenges and Opportunities for the Senegalese Economy - Final Report", United Nations Research Institute for Social Development (UNRISD).
9. Danziger, J. & Andersen, K. (2002), "The impacts of information technology on public administration: an analysis of empirical research from the "golden age" of transformation", *International Journal of Public Administration*. Vol. 25. Issue 5.