Strategic Planning for e-Development in Developing Countries

Abdel Nasser Zaied

College of Graduate Studies, Arabian Gulf University, Bahrain

Abstract: *One of the most persistent criticisms of open markets and free trade is that they increase the gap between developed and developing countries. The rapid emergence of the internet economy is giving this argument new impetus and is increasing focus on the digital divide and e-development to reduce the gap between "information rich" and "information poor" countries. Information and Communication Technology (ICT) is widely recognized as a potentially powerful tool to minimize this gap. ICT can provide a great opportunity for developing countries to leapfrog stages of economic development. A strategic management approach to ICT is therefore necessary in providing national guidelines on how ICT can be harnessed by developing countries to increase their technological capabilities towards e-development. This study proposes a framework that aimed at facilitating the process of creating and implementing ICT strategies. This framework which comprises three phases is a step-by-step methodology that can help the developing countries to establish their own ICT strategies. It needs further studies to complement with countries mission based on their resources and situations.*

1. Introduction

Although many developing countries already have the basic infrastructure to connect to the global information network, affordable and equitable access is still a critical issue. Also, most of them do not have legal frameworks and institutional capacities to foster widespread adoption and absorption of Information and Communication Technology (ICT) or to attract the relevant national and international investment for infrastructure, enterprise, services and capacity development [12]. e-development should not simply involve installing more telephone lines or computers and increase using internet. The more important are business environment, supportive government policies and regulations, and institutions and culture which encourage innovation and entrepreneurship. Accordingly, it is necessary to have comprehensive programmes to address the strategic areas in an integrated ICT development strategy. A strategic management approach to ICT is therefore necessary in providing national guidelines on how ICT can be harnessed by developing countries to increase their technological capabilities towards e-development.

Doss and Lumpkin [7] define strategic management as a process consists of the analysis, decisions, and actions an organization undertakes in order to create and sustain competitive advantages. Wheelen and Hunger [14] define strategic management as a process consists of four basic elements: environmental scanning, strategy formulation, strategy implementation and evaluation and control.

Strategic planning for e-development is the process of examining the internal and external environments of the country to determine the best strategies for achieving its national goals, objectives and programs for e-development mission. It facilitates a rational and deliberate effort of purposive e-changes. Strategic planning uses the following approaches to manage e-change [4]:

a. Communication to all members.
b. Involvement of all affected parties.
c. Empowerment of employees.
d. Generation of support and commitment.
e. Overcoming resistance caused by uncertainty and lack of information.

The main purpose of this work is to outline the possible main issues regarding to the e-development using ICT in developing countries and suggest framework or guidelines to help them to create their own strategies.

2. Strategic Planning for e-Development Using ICT

There are many researches and success stories among both developed and developing countries in achieving a high level of e-development through the use of ICT. In this part, we will outline some of the main issues regarding to the e-development as follows:

- *Adam* [1] describes the ethiopian key priority areas that could lead to national development. The major

areas of e-development are the development of integrated national information and communication policy, improving the application of ICT in substantive sectors and their use by the community in Ethiopia. Also, the areas are building communications infrastructure, development of content, tools and technologies for community access to information, expansion of internet and intranet to institutions and building a strategy for human resources development in ICT.

- *DESA* [6] describes the effective national sustainable development strategies. These strategies starting with building country ownership and commitment, then integrated economic, social and environmental objectives across sectors, territories and generations. The broad participation and effective partnerships from all citizens and develop capacity and enabling environment lead to focus on outcomes and means of implementation.

- *Šimić et al.* [11] summarize the plan of further implementation of strategic recommendations for ICT in republic of Croatia in many items starting with launching the National Council and the Parliamentary Committee for the Information Society Technology followed by offering inexpensive, fast and safe information and communication infrastructure, liberalizing the telecommunications market and encouraging access and participation of citizens in the information society. Also, Croatia issues e-business, e-government and teleworking.

- *ADB* [4] proposes three strategic thrusts can help the Asian countries to manage their own ICT strategies and activities to achieve their e-development agenda. The first thrust is creating an enabling environment by fostering the development of innovative sector policies, strengthening of public institutions; and developing ICT facilities, related infrastructure, and networks. The second thrust is building human resources to improve knowledge and skills, and to promote ICT-literacy and lifelong learning of citizens through e-learning and awareness programs. The third one is developing ICT applications and information content for Asian countries good governance.

- *NITC* [10] highlights some areas should be covered when studying e-development, theses areas are community leadership and support, economic development and e-commerce, telecommunications infrastructure, technological literacy and access, advanced technology training, community services and information, social capital and quality of life.

- *Ahmed* [2] explores the dimensions of risk of e-government initiatives and analyzes the cause of failure such as design reality gap, cultural resistance and management and technology investigation.

- *Hietanen et al.* [8] study the ecological, cultural, social and economic criteria and their potential for aiding sustainable development in the information society.

- *The COMESA* [13], in its e-strategy study recommends some areas as major policy and strategy issues for the sub-region: Infrastructure (development of nation-wide backbone, universal access and rural telephony networks), human resources (university education research and technology support networks, school-net, and introduction of ICT at secondary level), industry (support for industry growth/ incubation, simplified business registration and taxation processing) and regulation (liberalizing ICT sectors with due data security mechanisms in place).

- *ASCWA* [3] proposes ten guidelines that are aimed at facilitating the process of crafting and implementing strategies towards the knowledge society. These guidelines are: formulate a national mission, vision and objectives, analyze ICT environment, analyze the differences between actual and desired status, use a measurement system that relates ICT to socio-economic development indicators, prioritize initiatives, create awareness, provide financing mechanisms, orchestrate a network of partners, promote and develop knowledge clusters and develop a monitoring and feedback system to keep the strategy dynamic and alive.

- *CEPRC* [5] provides a uniquely canadian perspective on the development of national e-strategies in eight polices: connectivity program, e-commerce and e-government, ICT for development, information society metrics, internet governance, spectrum management and telecommunications policies.

- *Economic Commission for Africa* [13] suggests an institutional mechanism for coordination and efficient implementation of strategies to harness and accelerate socio-economic development. These strategies are: scan ICT (study on regional telecommunication regulation and multi-stakeholder partnerships) and policy process (political stability-gender sensitive policies and plans-participatory approach-enhanced participation of the private sector-human and institutional strengthening).

- *Zaied* [15] suggests six guidelines to help developing countries in setting up their own national e-goals, objectives and programs for sustainable development using ICT. These guidelines are: launch a national strategy and policy framework for ICT development, development of the telecommunication infrastructure, build legal and regulatory environment, institutional reforms, and development of human resources and promote e-government.

3. Proposed Framework for e-Development

E-development requires a coherent strategic planning, starting with an examination of the nation's political will, resources, regulatory environment, and ability of the population to make use of planned technologies. Strategies towards e-development are aimed at harnessing ICT to improve socio-economic conditions in a country.

The formulation of strategy of e-development is a combination of rational and scientific considerations. The process of creating a strategy aimed at achieving progress towards the e-development starts by determining the mission, vision, values, goals, objectives and also roles and responsibilities of that strategy. The following are suggested phases for e-development in developing countries:

3.1. Phase One: Establish a National Strategic Council for Telecommunication and Information (NSCTI)

The first step in the strategic planning process for e-development is establishing a National Strategic Council for Telecommunication and Information (NSCTI) to deal with the following functional areas:

- Strategy and policy
- Systems and standards.
- ICT operations.
- ICT business management and environment.
- The initiation of new government contracts.

The main responsibilities of NSCTI are to:

1. Lead development and annual updates of government mission, policies and standards based on governmental and departmental business objectives and priorities.
2. Review and provide advice on departmental ICT strategies.
3. Create awareness about e-development and ensure that business owners are aware of ICT-enabled business opportunities (e.g., service delivery options).
4. Lead development of government ICT projects.
5. Review and provide advice on departmental ICT projects.
6. Review proposals of governmental and large departmental ICT projects.

In addition to the NSCTI, the supporting governance mechanisms need to be established. The first step is to set up the governance committees and forums, and to further detail select management processes to ensure that effective collaboration mechanisms are available from the first day.

3.2. Phase Two: Develop (or establish) ICT National Strategy

The NSCIT should develop or establish the national ICT strategy. This can be achieved using the following scenarios:

A. Create awareness about e-development;
B. Facilitate ICT environment.
C. Build human capacity.

A. Create Awareness About e-Development: create awareness among the general public and all stakeholders about the role of ICT in e-development process, increase levels of ICT functional literacy in all sectors and build human resource capacity among the following steps:

Step I: Clarify national ICT mission, vision and goals: the first step in the strategic planning process for e-development is clarifying national ICT mission, vision and goals. It starts with re-examination of the country's current mission and vision. The effective mission statements incorporate the concepts of stakeholders (market, community, interest group (NGOs) and governmental organizations). Strategic objectives are used to operationalize the mission statement. It should be focus on:

- Positioning of the ICT initiatives within the national e-development strategies.
- Positioning the e-development among other priorities of national growth.
- Establish a strategy for human resources development in information and communication technologies.

This can be done by:

- Engaging stakeholders in developing the e-business strategies and ensuring that business owners are aware of new service delivery options enabled by ICT.
- Leading the development and annual updates of ICT strategies.
- Initiating governmental ICT projects, with well defined strategy and policy.
- Facilitating links and relationships between national institutions and researchers and similar institutions and researchers abroad.
- Creating a system of contact, cooperation and information interchange with institutions of higher education and research centres in other countries.
- Encourage the use of information and communication technologies in government and public administration.
- Set up national databases that are reliable and easily accessible to all the people of the country.

Step II: Conduct the e-readiness assessment: the second step in the strategic planning process for e-

development is conducting e-readiness assessment. The most important thing a government can do to ensure an accurate and comprehensive e-readiness assessment is to involve a diverse group of stakeholders, and to involve them right from the beginning. The assessment should cover the following areas:

- Community leadership and support.
- Telecommunications infrastructure.
- Technological literacy and access.
- Advanced technology training.
- Economic development and e-commerce.
- Community services and information (education, health care, law enforcement, and emergency services).

To obtain a clearer picture of the e-readiness of the selected areas for ICT, a more detailed country analysis is needed to assess variables such as connectivity, e-leadership, information security, human capital, and e-business climate.

B. Facilitate ICT Environment: this can be achieved using a series of tactics including:

Step I: Improve laws and regulations of ICT environment: establish legislative and regulatory framework for ICT issues like IPR, data security and protection, digital signature, e-government, e-commerce, ICT education etc., as well as to ensure quality ICT education provided by different private organizations.

- Liberalize the telecommunications market and ICT related sectors.
- Deregulate the telecomm sector.
- Promote strategic alliances and partnerships with existing ICT initiatives at national, regional, and international levels, and establish principles of effective public-private sector partnerships.
- Enact laws and regulations for ICT career and issue mechanisms for ICT professional recognition.
- Set up a very high quality ICT institution to promote and foster ICT industry.
- Increase employment opportunities in the communications and information technology sectors.
- Promote fair competition and private investment in the ICT sector with particular emphasis on development and encouragement of local participation including specific incentives for investing in ICT.

Step II: Develop ICT infrastructure and services: upgrade existing telecommunications infrastructure or setting up of an enabling infrastructure for e-development, which comprises of setting standards, establishing communications networks, setting up of

security infrastructure and common services delivery architecture.

- Develop the ICT nation wide-backbone, universal access and rural telephony network.
- Encourage increasing levels of bandwidth from service providers.

Step III: Develop ICT business management: financial and non-financial business development plays a central role in the country's e-strategy. This step includes the following course of actions:

- Compile and analyze ICT resource usage data, such as budgets, staff, projects, contracts, and identifying and highlighting opportunities for improvement.
- Identify and establish innovative financing mechanisms that address specific needs of ICT development.
- Create jobs through ICT enabled businesses, such as content businesses, software businesses and business process outsourcing industries.
- Support entrepreneurs to utilize ICT for socially beneficial purposes like education, health, environment, and rural/ urban development.
- Attract international investors and partners to participate in the development of national infrastructure to support ICT use.
- Tax exemption of newly established ICT firms for a defined period of time.
- Introduce and increase levels of competition into the telecommunications sector to encourage a reduction in price and increases in service and quality.

C. Build Human Capacity: this scenario is a long term project aims at building the capacity of educational system to deliver qualified and skilled talent to business and government. It aims also at getting ICT to schools, reducing costs, increasing affordability and developing low cost content for training. This can be done through the following steps:

Step I: Reform the educational system: the higher educational system is a key provider of technological and managerial know-how for IT businesses. This step includes the following course of actions:

- Expand and consolidate the use of ICT and develop the material, organizational, and intellectual bases for futures research.
- Support the higher education institutions based on futures research.
- Foster contacts among researchers in ICT filed and those who could utilize their work.
- Communicate the latest results of futures research to the public and emphasizing the necessity of such research.
- Standardize the local language for internet usage.

Step II: Qualify human resources specialized in ICT: this step includes the following actions:

- Define professional profiles for ICT and establish methods for the recognition of ICT professionals.
- Create centres of excellence for the training of informatics professionals as well as in the application of informatics solutions and standardise the activities and functioning of these training centres.
- Build human capacity through education and training.
- Define high quality professional informatics training as a high priority and an indispensable condition for the development of the area of informatics and define minimal training programs in informatics for government managers and community leaders.

3.3. Phase Three: Develop the National Strategic Plan

The NSCIT should develop the National Strategic Plan (NSP) through:

- Prioritize e-readiness areas that will be included in the plan based on assessment findings.
- Draft action plans for each e-readiness area that will be included in the strategic plan.
- Develop an implementation plan.

Decision makers should build the action plan based on sound "E strategies" using PEST approach: political (legal and regulatory framework), economical (micro and macro-economic environment), social (socio-cultural factors) and technological factors (appropriate technology, capacity and affordability). the proposed action plan is expected to be implemented sequentially and will initially comprise the following main activities.

- Integrate ICT applications to improve the flow and use of information and knowledge for the effective execution of national-supported projects and activities.
- Establish a center for learning, information, communication, and knowledge to improve the dissemination and use of information and knowledge for e-development, as well as best practices, through ICT.

4. Conclusion

The ICT issue is recently brought to the forefront of the international development agenda. ICT, which transcend national borders and make knowledge more important than physical assets, is now acknowledged to have the potential to seriously widen the gap between people with access to the information economy and those without. In developed countries, ICT and the Internet help globalize production and capital markets

and speed up innovation. This is not generally the case for developing countries, where the cost of computers and telecommunications remain generally high and accessibility to internet is not easy.

The governments in developing countries should move quickly to institute their own national ICT strategy, establish a council or governmental body for telecommunications and information sector and create the necessary environments and arrangements to guide existing business initiatives from a government perspective and to implement the identified standardization opportunities. The private sector can play a lead role in ICT development but more progressive and innovative policies and a determined leadership are required to enable the full potential of ICT to work for the benefit of developing countries. The national strategic planning for ICT must include an analysis of the current status of the knowledge society (the 'as is' stage) and a vision of what the status should be in a fixed number of years (the 'to be' stage). The gap between those is the driver of what should be done during a certain period of time. This gap also acts as a driver in terms of prioritizing certain initiatives over others. Finally, analysis of a particular environment is critical, it provides a sense of reality for what can be achieved and the appropriate timing in that regard.

This study proposes a framework that is aimed at facilitating the process of creating and implementing CT strategies. This framework comprises three phases:

- Establish a National Strategic Council for Telecommunication and Information (NSCTI).
- Develop (or establish) ICT national strategy.
- Develop the national strategic plan.

The proposed framework is a step-by-step methodology that can help the developing countries to establish their own ICT strategies. This framework needs further studies to complement with countries mission and according to their resources and situations.

References

[1] Adam L., "Information and Communication Technologies in Ethiopia: Past, Present and Future Potential for Social and Economic Development," *Ethiopian Information Technology Professional Association*, 1999.

[2] Ahmed S., "Threats to e-Government Initiatives, and How to Reduce Failure Risks," *Applied Computing and Informatics- Saudi Computer Journal*, vol. 3, no.1, pp. 26-37, 2004.

[3] Ascwa, "Towards an Integrated Knowledge Society in Arab Countries: Strategies and Implementation Modalities, */Escwa/Ictd/*2005/3, 2005.

[4] Asian Development Bank, "Toward e-Development in ASIA and the PACIFIC-A

Strategic Approach to Information and Communication Technology," *Asian Development Bank*, November 2003.

[5] CEPRC, "Global e-Policy Resource Network (ePol-NET)," *The Canadian e-Policy Resource Centre* (CePRC), http://www.ceprc.ca /index_e .html, 2005.

[6] DESA/DSD/PC2/BP13, "Guidance in Preparing a National Sustainable Development Strategy: Managing Sustainable Development in the New Millennium", *The Division for Sustainable Development, UNDESA*, 2001.

[7] Doss G. and Lumpkin G., *Strategic Management: Creating Competitive Advantages*, McGraw Hill, 2003.

[8] NITC, "The Building Information Age Communities Community Information Technology Planning Workbook," *Nebraska Information Technology Commission and the University of Nebraska*, http://www.nitc.state. ne.us/toolkit /workbook/index.htm, 2004.

[9] Olli H., Sirkka H., Kati K., Jari L., and Ulla R., "Indicators of Sustainable Information Society," *Turun Kauppakorkeakoulu, Tulevaisuuden Tutkimuskeskus*, Tutu-julkaisu 1/2004, Turku, http://www.tukkk.fi/tutu/etieto/english.htm, 2004.

[10] Sahraoui S., "e-Government in the Arabian Gulf: Government Transformation vs. Government Automation", *e-Government Workshop'05 (eGOV05)*, Brunel University, UK, 2005.

[11] Šimić D., Vračić T., and Repulec T., "National Report on Strategy Implementation Information and Communication Technology: Croatia in the 21st Century 2002-2003," *Republic of Croatia Ministry of Science and Technology*, 2003.

[12] UNDP, "Information and Communication Technology (ICT) for Development," *United Nations Development Programme, Bureau for Development Policy*, 2001.

[13] United Nations Economic and Social Council-Economic Commission for Africa, "The Status and Impacts of Development of National and Regional ICT Policies, Plans and Strategies," *Report to the Fourth Meeting of the Committee on Development Information (CODI IV)*, 2005.

[14] Wheelen T. and Hunger J., *Strategic Management and Business Policy,* Addison-Wesley, 2006.

[15] Zaied A., "The Role of Information and Communication Technologies in Developing Country's Sustainable Development," *The Saudi 18th National Computer Conference: Information Technology and Sustainable Development, Riyadh*, pp. 189-196, 2006.

Abdel Nasser Zaied is an assistant professor of Technology Management, Arabian Gulf University, Bahrain. He obtained his PhD in industrial engineering. He previously worked as assistant professor Zagazig University, Egypt and was a visiting assistant professor at Oakland University, USA. He has served as industrial and technical expert for many banks and organization in the arab region. Also, he is an international auditor for quality systems, and an industrial and technical consultant in the field of technology management and development. He is a member of Egyptian Engineers Syndicate, Egyptian Society of Information Systems, Egypt, Association of Muslim Scientists and Engineers (AMSE), Dearborn, Michigan, USA and Bahrain Societyof Technology Transfer, Bahrain. His current interests cover competitiveness development, feasibility studies and technological evaluation, information technology, organization restructuring, and quality management systems.