

## FOSTERING LOCAL RESOURCES AND TECHNOLOGIES IN THE SOUTH PERSPECTIVES FOR THE ARAB WORLD

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### Introduction

The World Summit on the Information Society (WSIS) is centred on the so-called “digital divide”<sup>1</sup> between the North and the South.<sup>2</sup> Therefore, it should deal with providing solutions on how to implement and follow up the Geneva and Tunis decisions by stakeholders at national, regional and international levels. Particular attention has been given in the process to the challenges that Least Developed Countries (LDCs) currently face.

Actions decided at the WSIS, however, will take time to be implemented. The extent to which the agreed policies and activities will cover the digital gap between North and South is questionable. In the interim, in order not to lose critical time, a look at what is feasible with the existing human, in-kind and financial resources in the South and, more particularly to this paper, the Arab region, should be assessed.

This briefing paper focuses on potential supplementary resources to address the digital divide. The idea is to use the resources available at the academic institutions involved in information and communication technologies (ICTs) in the Arab region as a starting point for serious local actions of ICTs for development (ICT4D). From a grassroots perspective, policy discussions are lengthily adding to the fear that the time-lag will exacerbate an already tenuous developmental situation.

At the first phase of the WSIS in Geneva, member States could not reach an agreement on the implementation of specific financial mechanisms to develop ICTs in Southern countries and they considered that, “while all existing financial mechanisms should be fully exploited, a thorough review of their adequacy in meeting the challenges of ICT for development should be completed by the end of December 2004”. This review was entrusted to a Task Force on Financial Mechanisms (TFFM), under the auspices of UN Secretary-General, Kofi Annan. The TFFM report was submitted to the second meeting of the WSIS Preparatory Committee (PrepCom 2), held in Geneva in February 2005.

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1 Commonly defined as “The gap that exists between those who have and those who do not have access to technology (telephones, computers, Internet access) and related services”. “Digital divide” is simplified here to encompass infrastructure, access, content and training, among others.

2 According to the UN General Assembly Resolution 56/183, the WSIS was convened “to marshal the global consensus and commitment required to promote the urgently needed access of all countries to information, knowledge and communication technologies for development so as to reap the full benefits of the information and communication technologies revolution, and to address the whole range of relevant issues related to the information society, through the development of a common vision and understanding of the information society and the adoption of a declaration and plan of action for implementation by Governments, international institutions and all sectors of civil society.” [www.itu.int/ws/ docs/background/resolutions/56\\_183\\_unga\\_2002.pdf](http://www.itu.int/ws/ docs/background/resolutions/56_183_unga_2002.pdf)

What seems lacking in the TFFM report<sup>3</sup> and other WSIS discussions is how to leverage local human capital and in-kind resources readily available in the South. The TFFM's role has been "to identify sustainable ways to ensure the continuation of current trends and innovative approaches to accelerate the use and availability of ICT resources to a wider range of developing countries and to a broader sub-set of the population in individual countries". TFFM's objectives can be furthered by countries in need of financial assistance to become integrated into the Information Society.

### **Using local human capital and technology**

The Arab region has an adequate number of skilled information technologies (IT) experts and students. Most Arab countries have established national and regional universities that house computer engineering faculties and/or departments. Many governments (United Arab Emirates, Egypt, Lebanon, Jordan, and Morocco, among them) have made it an educational policy to make computer literacy a mainstream skill taught throughout the school system and at diploma level education. Resources are tight in most cases, computer labs are not universal at schools, but the plans exist to make them so.

Egypt is an example from the Arab world; it has an adequate number of IT educated youth at the university level that, if the right incentives are given,<sup>4</sup> could be used to spread ICT use and training in many areas of the country that are lacking in services and know-how. Computer faculties can also encourage students to start low cost research and development (R&D) projects that address local needs. In this way universities could become an engine to help address the digital divide. At the same time, they provide for their students hands-on experiences and a foray into exploring potential market opportunities they could use in the future.

Universities are not the only educational institution that can play a role. Jordan is a good illustration of the innovative use of school children's IT knowledge. King Abdullah<sup>5</sup> launched an ambitious national initiative to bring computer equipment and basic technology training to the country's schools. Yet financing the day-to-day ICT technical support for school labs proved to be too costly to sustain. This problem turned out to be prevalent in richer countries. New York City's public schools were financially strapped to pay for needed technical support for their computer labs. To meet this challenge, a not-for profit organization, Making Opportunities for Upgrading Schools & Education (MOUSE),<sup>6</sup> established a programme that trains elementary, middle, and high school students to establish and run computer help desks. In addition, the learned IT troubleshooting skills provide job shadowing opportunities to the participants outside the school system.

Computer coverage is a big challenge, not only in the Arab region, but for most Southern countries. To improve computer accessibility, India is producing low cost computers at USD 75 without a monitor and USD 120-150 with a used monitor.<sup>7</sup> The concept of developing

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3 [www.itu.int/wsis/documents/doc\\_multi.asp?lang=en&id=1372|1376|1425|1377](http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=1372|1376|1425|1377)

4 The incentive could be a curriculum assignment, for example, such as how to make a certain software user friendly or to know the needs and the challenges that a local person of low income faces in accessing ICTs.

5 Like many of his counterparts in Egypt, Lebanon, Jordan, the Gulf states, to mention a few.

6 Since its inception, nearly four years ago, 315 MOUSE members have provided technical support to 52,217 students and 3,675 teachers in 49 New York City and 8 regional schools. The subsequent cost benefits have been enormous: as of June 2004, MOUSE has saved the city's Department of Education an estimated USD 708,936 in technology support costs. <http://www.mouse.org>

7 Kanellos, M., "India's tech renaissance: The \$ 100 computer is key to India's tech fortunes", CNET, 29 June 2005. [http://news.com.com/Indias+renaissance+The+100+computer/2009-1041\\_3-5752054.html](http://news.com.com/Indias+renaissance+The+100+computer/2009-1041_3-5752054.html)

inexpensive and easy-to-use computer devices, conceived as a “platform for social change”, was already present in India with the “Simputers” project<sup>8</sup> and similar ideas are being implemented in Brazil. These computers have preinstalled Linux operational system. Free and Open Source Software (FOSS), like Linux, makes it possible to efficiently operate many outdated computers at the same level of the latest proprietary operational systems. This means an extended lifetime and use for refurbished computers. It also allows low income earners to afford such a refurbished computer and still have the software that supports higher end applications.

A more tailored solution is offered by Fantsuam,<sup>9</sup> a Nigerian non profit organization currently working to create the “tropicalised computer” - a low cost, solar-powered computer suitable for the sub-Saharan rural climate. Fantsuam became aware of the unsuitability of Northern-made personal computers (PCs) through its imports of refurbished computers from Europe that it sells in rural Nigeria. While there was continuous demand for more refurbished PCs, technical breakdowns and premature failure occurred due to the PCs getting overheated in the tropical climate of northern Nigeria. Fabricated in the North, PCs use mechanical drives which are cooled by air-flow from the surroundings. This creates problems in hotter climates, where computers need air-conditioned rooms to be housed in - an added expense that is hard to meet in many cases.

To counter this problem Fantsuam is currently testing “Solo”, a PC that employs a solid-state drive instead of rotating magnetic media. With no inbuilt mechanical devices, the expected lifetime is in excess of 10 years, even in a hot climate. Solar energy is provided by a DIY (do-it-yourself) solar system. The main service items on a Solo are the replacement (high-temperature) battery stacks and the backlight on the LCD (liquid crystal display) screen. The Solo is designed for all of this service work to be done locally and is based on Linux. The project hopes to transfer technology and new skills, and to open up marketing opportunities for rural ICT enterprises.

These are a few examples of many. The lesson is that there is a lot of technical potential in the South. The talent in the faculties for computer engineering, grassroots offshoots, and small enterprises can be used to create ICT solutions that fit the local circumstances. Furthermore, if the IT experts are supported by grassroots, the spread of ICT services and knowledge can go further. This knowledge and research potential can be tapped in at a relatively low local cost.

It is to be seen if the e-strategies that are going to be developed will to look at these low cost possibilities in addition to more time and money demanding national strategies, least to say regional ones. The most critical aspect in creating an Information Society is time. Therefore, immediate action with a creative use of the available resources should be a priority.

### **Major funding is still an issue**

The creative use of local resources, human and otherwise, does not diminish the reality of the financial gap that faces the South and that makes the digital divide such an acute developmental problem. This has already been addressed by many other contributions to the WSIS process and will not be developed here.

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<sup>8</sup> The “Simple, Inexpensive, Multi-lingual Computer” or “Simputer”, was first described in a concept paper presented at the first Bangalore IT.com conference in 1998. Later, a Simputer Trust was formed dedicated to realizing this concept ([www.simputer.org](http://www.simputer.org)). Even if not having been made widely available, Simputers have been used in pilot projects with promising results. For a general overview of “low-cost” computer projects in India, see [www.networkmagazineindia.com/200508/coverstory07.shtml](http://www.networkmagazineindia.com/200508/coverstory07.shtml).

<sup>9</sup> [www.fantsuam.org/](http://www.fantsuam.org/)

To consider the magnitude of the challenge faced by Southern countries some examples in the North should be looked at: the European Union (EU), for instance, has allocated just under € 1.4 billion for its “Leonardo da Vinci” vocational training from 2000 to 2006, serving 31 countries with a yearly training of around 40,000 persons. The “Leonardo da Vinci” programme promotes transnational projects based on co-operation between the various players in vocational training - training bodies, vocational schools, universities, businesses, chambers of commerce, etc. - in an effort to increase mobility, foster innovation and improve the quality of training, with the end goal of maintaining Europe’s competitiveness in the global market place.<sup>10</sup>

### **What should be done?**

All the above mentioned experiences present both a challenge and an aspiration for the Arab region, and another reason to take some essential measures as soon as possible to address digital - and social - gaps among its countries. Some steps that could be taken include:

- *Creating partnerships* between the decision-making levels (i.e. national, regional and local) but also between public authorities and education service providers (schools, universities, etc.), the business sector and grassroots partners, vocational guidance services and research centres, among other actors.
- *Attract adequate resources* from private and public sources in the Arab region and beyond by presenting IT pilot initiatives that address local needs, preferably having a market potential. At the same time, a system has to be established that ensures the effective transparent allocation of these resources and the encouragement of new forms of investment.
- *Striving for excellence* at the ICT sector through creating mechanisms for quality control that use standards, guidelines and mechanisms whereby achievements can be recognised and rewarded.
- *Facilitating access to learning opportunities* by making them more visible and removing obstacles to access. For example, through the creation of more local learning centres - these can be established at local schools to make them more cost effective. Special efforts are necessary in this context for different groups such as women, people with disabilities or people living in rural and/or remote areas.
- *Investment in human capital* at all points in the economic cycle; making digital education accessible in various forms to all citizens. Educational institutions should gear their curricula towards the needs of the knowledge-based society - redefining basic skills to include ICT technologies. Analysis should be made to forecast labour market trends.

### **Conclusion**

The financial discrepancy is glaring, still the Arab countries and the South in general are cautioned not to be overwhelmed by the challenges and economic inequities. Through creative use of their human resources local solutions can be found.

The so called “less developed” countries can make important contributions to the global Knowledge Society and, most importantly, synergies can be discovered that benefit the North as

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10 [http://europa.eu.int/comm/education/programmes/leonardo/leonardo\\_en.html](http://europa.eu.int/comm/education/programmes/leonardo/leonardo_en.html)

much as the South. Finally, human linkages can be forged as a bi-product of enhancing ICT for the global good and, then, we might have achieved much more than we have set out at the start of the WSIS.