

How the National E-Strategy Shapes Competitiveness in the Information Economy

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INTRODUCTION

The ongoing discussion on what e-strategy does and what it can do for national information and communication technology (ICT) development has brought up a variety of government functions for the ICT environment, readiness, and usage in a country. The ICT sector plays a key role in furthering the ICT development process. This paper sheds light on the connection between e-strategy and the development of dynamic ICT businesses in Tunisia. The central question is how far e-policies may not only create a supportive environment for ICT, but also contribute to sustained success and competitiveness of ICT firms.

FROM ICT TO COMPETITIVENESS

Tunisia is one of the leading developing countries regarding its achievements in information and communication technologies (ICT) and competitiveness. Recently published comparative indicators illustrate some remarkable performances in both fields. Tunisia is ranked 34 in the Networked Readiness Index (NRI) which covers 82 countries (Dutta & Jain, 2003). The country holds the highest ranking in Africa and in the Arab world. In the Growth Competitiveness Index (GCI) the country is ranked 34 (Cornelius et al., 2003), and in the Microeconomic Competitiveness Index (MICI) it ranks 32nd out of 80 countries (Porter, 2003). With the exception of South Africa, Tunisia's competitive indicators outperform all African and Arab states in the rankings. Also, with regard to government efforts to successfully promote ICT competitiveness, Tunisia is clearly showing the way among poor and middle-income countries (Lanvin, 2003).

The government e-strategy defines the overall framework for national ICT development. In Tunisia the underlying e-policy framework is embedded in the national development plan, currently the Tenth Plan 2002-2006. This intends software and information technology (IT) service companies to play more of a key role in furthering the Information and Communication Technology (ICT) development process both as suppliers of technology at the core of the Tunisian information economy and in-

creasingly as exporters (Ministère du Développement et de la Coopération internationale, 2001). The question is, beyond all the indicators, how far the e-strategy creates not only a supportive environment for ICT, but also contributes to the competitiveness of ICT firms, especially regarding software and IT service exports.

LINKING E-STRATEGY AND COMPETITIVENESS

Through development priorities set by the government e-strategy for the information economy and society, supply and demand conditions for ICT in a country are essentially influenced by the state. According to Lanvin (2003), the influence is more or less direct on four crucial determinants of ICT supply and demand. These are human and financial resources, and domestic and international market conditions. The role of the government changes from directly producing and using technology to indirectly fostering the information economy and society as both facilitator, by providing a supportive environment for ICT, and as leader by providing visions for ICT and its role in social and economic development.

However, the e-strategy integrates a variety of policy areas, and pursues a diverse set of social and economic development goals. Thus, it does not necessarily address the development of a specific economic sector or its competitiveness. The impact the e-strategy has on competitiveness depends primarily on the overlaps between the proximate business environment of firms and the national ICT environment. The more overlaps exist, the more the national conditions achieved and envisaged for ICT can affect the pool of essential input factors including the skills and knowledge firms can draw on and the corporate goals that determine investments. According to Porter (1990), there are four attributes determining the business environment and its eligibility to support the capabilities of firms to develop and enhance competitive advantages. These are factor and demand conditions, the presence of related and supporting industries, the context of strategy, and rivalry.

The sector that is most dependent on the e-strategy regarding the effects of competitiveness is the ICT sector

itself. The role of the government which either directly or indirectly takes part in ICT development has an impact on all relevant attributes of the proximate business environment (Lanvin, 2003).

As public ICT producer and buyer, the government may provide the fundamental ICT infrastructure and generate demand for ICT on the one hand, but may stand also in rivalry to private ICT producers on the other. Therefore a key question is, how much public demand and rivalry to public enterprises may affect the competitiveness of ICT firms (Porter, 1990), especially concerning software and IT service exports.

The more a government moves towards indirect ways of influencing ICT development, the more important is the focus of the e-strategy on improvements of macroeconomic conditions for the information economy, the generation of technological expertise, and the setting of market signals to trigger dynamic ICT businesses (Lanvin, 2003).

THE TUNISIAN GOVERNMENT AS ICT LEADER

Tunisia gave a high priority to ICT in its national development plan (Ministère du Développement et de la Coopération internationale, 2001). In so doing, the government made clear that it is a visible and driving force for technological progress in the country. For instance, Tunisia together with Singapore, Taiwan, and Finland has taken the lead in the international comparison of governmental ICT readiness (World Economic Forum et al., 2003). Regarding ICT usage, the government is also more advanced than many other countries in Europe, or Asia, such as France, Portugal, Spain, Hungary, and India (World Economic Forum et al., 2003).

LAYING THE FOUNDATIONS FOR THE INFORMATION SOCIETY AND ECONOMY

Building the ICT Infrastructure

For the period of the Ninth Plan between 1997 and 2001 the Tunisian government invested \$1.016 billion US dollars¹ in ICT infrastructure, including telephone networks, Internet backbone, and other digital communication networks. The Tenth Plan provides \$2.070 billion US dollars to advance this process between 2002 and 2006 (Ministère du Développement et de la Coopération internationale, 2001).

Despite these investments, the country still has a below-average position regarding the availability and quality of access to communication networks (World Economic Forum et al., 2003). As with many other countries, Tunisia is still working on the densification of its existing telecommunication infrastructure. However, it is important to note that significant progress has been achieved over the last years regarding access and affordability (Dutta & Coury, 2003).

The number of fixed-line and mobile phone subscribers per 100 inhabitants increased from 6.5 in 1997 to 15 in 2001. Further progress of the network densification can be expected due to the liberalization of the market for mobile communication in 2002 when the monopoly of Tunisie Telecom was broken and a second mobile provider, Orascom Telecom Tunisie, entered the market. The costs of mobile telephony are declining constantly and the number of mobile phone subscribers is increasing significantly. For example, in 2002 there were 400,000 subscribers and by 2006 the government estimates up to 3,000,000 users (Ministère du Développement et de la Coopération internationale, 2001).

Regarding the Internet, Tunisia plays a pioneer role for the region. In 1991, it was the first country connected to the Internet in Africa and the Arab world. Currently there exist 12 Internet service providers (ISP) in Tunisia. The Internet access for individuals and businesses has been improving constantly (*factor conditions*). With 12.83 per 100 inhabitants in 2002, the number of Internet accounts still remains low internationally. Whereas, Tunisia is the most advanced country in the Maghreb region in successfully facing the densification challenge for Internet access (World Economic Forum et al., 2003).

Eventually, the question is how far the priorities concerning the extension of infrastructure to reduce the digital divide on a broad social scale stand in conflict to the infrastructure improvement with special regard to the competitiveness of ICT firms through, for example, policies that support low costs for international communication (*factor conditions*).

Government Prioritization of Software and IT Services

Public investments in ICT contribute an important share in the overall turnover of the ICT sector (*demand conditions*). The public budget for hardware, software and IT services has expanded continuously. The Tenth Plan intends to increase investment from \$668 million to \$1.296 billion U.S. dollars between 2002 and 2006. Whereas, the government puts stronger emphasis on software and IT services with an average annual budget extension of 18.6% for services compared to 12.3% for hardware

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