

## Chapter 1.9

# The Evolution of ICT Institutions in Thailand and Malaysia

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### ABSTRACT

*A country's national technology strategies can be an important contributor to economic development through its support of technology adoption and by advancing the national technology capacity. The development of a domestic information and communications technology (ICT) sector within a developing country requires the creation of specialized institutions that carefully coordinate their initiatives with the private sector. This case study research of Thai and Malaysian science and technology (S&T) institutions shows that this institutional and policy reform process is directly influenced by regional activities, as countries seek to match their regional peers for technology development. This effort to support ICT utilization requires governments to rapidly alter their policy goals and initiatives in response to shifts in technologies, global market demand, international investment, and local workforce capabilities.*

### INTRODUCTION

National public support for increased technology innovation and utilization can take many forms, including government-supported technology training; aggregating demand and serving as an anchor tenant; fostering e-government, e-health, and other services; universal service funds; and

governmental safeguards for services such as e-commerce (Frieden, 2005). The communications technologies also need to be adapted to the needs of the local economic, political, and cultural environment, particularly if these services are originally introduced by an international entity. To meet local requirements, these national efforts require public-private-university coordination to successfully adapt information and communications technology (ICT) technologies transferred

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internationally and to enhance services created indigenously (Feinson, 2003; Balaji & Keniston, 2005).

The chapter offers a detailed look at both Thai and Malaysian ministries of ICT and S&T, including a discussion of the evolution of these institutions, the cross-border influence between the two countries, and the organizational challenges facing these agencies as they seek to implement their national technology strategies.

## **LITERATURE REVIEW**

To understand the ICT policy choices of national governments, it is first important to note three major trends identified by the literature within the telecommunications sector. The first is the development of mobile and Internet technologies in addition to fixed line telephony (Baliamoune-Lutz, 2003). The second shift is the global trend away from monopoly operators to competitive carriers across these fixed, mobile, and Internet technologies (Wilson & Wong, 2003). The third shift under way is from governmental control to private ownership, or a mix of public and private with independent regulatory agencies (Levy & Spiller, 1994). Steinmuller suggests that ICTs, which can lower transaction costs, may be able to offer developing countries a conduit for avoiding stages that require high levels of capital and fixed asset concentration, as defined by Rostow's "stages of development" (Rostow, 1960), and moving directly to a knowledge-based economy (Steinmueller, 2001). As a result, many developing countries now view these technologies as an important conduit to fostering both productivity gains (McGuckin & Stiroh, 1998; Baumol & Solow, 1998) and economic development (Saunders, 1994).

Developing countries have accelerated their efforts to deliver affordable ICT access and improved utilization rates among their residents through a range of ICT policy initiatives (Graham, 2000). The two goals of increased access and utilization

are important in enhancing a developing country's ability to compete globally for jobs and investment. Although these goals are touted frequently, they are not always tailored for a given country (Cohen-Blankshtain & Nijkamp, 2003). Policymakers must ask themselves how they define affordable access and improved utilization within the geographic, competitive, and political environment of the country (Javary & Mansell, 2002). Once these goals are defined, a set of policies can be implemented and a decision on the optimal ICT solutions can be made.

ICT infrastructure and applications will be adopted by a developing country in stages, with policymakers shifting their goals from supporting increased access, to developing a robust private sector, and finally to creating a globally competitive ICT industry (Grubestic & Murray, 2004). Although these goals are not mutually exclusive, there is a progression in policy and technological complexity as countries move away from directly supporting access infrastructure through a state-owned enterprise, to directing market competition through a regulatory agency, and then to indirectly supporting access through a ministry of ICT. In countries that support a domestic ICT industry, the government's role shifts to becoming a coordinator and advisor to the private sector. To overcome these changing priorities and governmental roles, countries are forced to reevaluate their goals on a regular basis, adjusting their policies and technology choices accordingly. As a result, ICT goals within a developing country will not be static; in fact, they must be flexible enough to adapt to the changing technological and economic conditions to achieve an optimum outcome (Strover & Berquist, 1999).

Institutional structure is defined as the level of institutional, legal, and regulatory structures put in place to support the creation of a national ICT strategy. Depending on the focus of the national policy, there can be a wide range of institutional structures across developing countries. For policies focused on indirect support to the market, such

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