Chapter 4.49
Technology Leapfrogging in Thailand

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TECHNOLOGY LEAPFROGGING

The phrase "leapfrogging development" reflects the belief, especially in the 1980's, among policymakers and theoreticians that information technologies, especially telecommunications, can help developing countries accelerate their pace of development or telescope the stages of growth (Singh, 1999).1

The telecommunications literature uses the word "leapfrogging" in three ways:

- First, it is meant to imply that telecommunications can help developing countries skip over the stages of development and become members of a post-industrial society.
- Second, leapfrogging is used in "an engine of growth" sense to mean that telecommunications can help developing countries accelerate their pace of development2.
- Finally, leapfrogging is used in a technical sense to signify skipping over the technological frontier or product cycle3.

Often the word leapfrogging is used interchangeably referring to both technical and economic "leaps"4 (Singh, 1999), usually though the two are interdependent. The term "Technology Leapfrogging" is also being used to describe the phenomenon that is being seriously and widely considered in the developing world with countries such as Egypt, Malaysia, Thailand, Canada and Bangladesh having gone or going through the experience at the moment (Davison, Vogel, Harris & Jones, 2000).

PROMISE OF ICT-DRIVEN GROWTH

The possibility of developing countries leapfrogging has come about through the progressively lower cost of technologies and the user friendliness that is allowing the development and implementation of systems that would otherwise be unavailable to them (Weiss, 1994). Further, "economic and social progress has forged in South East Asia (SEA) a perception of growth previously unparalleled in human history" (Lander, 2000). There is an inevitability in SEA that ICT-driven economic expansion will simply occur because of the size of the population, "which is young, well-educated and with rising incomes" (Lander, 2000). It can be further suggested that the expanding market and the use of high-tech devices are interpreted as cultural systems that are used in the construction of modernity and that the economic and social focus of the South East Asian nations is on market corporatism, market socialism and high tech developmentalism" (Boyd, 2002). Asian Tiger countries have been pursuing a number of projects that use Technology Leapfrogging to surge forward in this development and economic race, to rescind the ever-growing gap between the developed and developing countries (Gray & Sanzogni, 2004).

Availability of funds in the South Asian region has attracted $4.196 billion (2.5% of total FDI) (Saidi & Yared, 2002). However, it is unclear how many countries fully appreciate the need for a coordinated effort across all sectors in terms of the implementation of an ICT-based commerce strategy. Such an implementation represents a considerable challenge requiring integration of technology, law, policy, business processes and skilled people (Keretho & Limstit, 2002). But that's not all. A major problem facing developing nations is the lack of a sound telecommunication infrastructure which forms part of the basic building block for a modern ICT-based socio-economic infrastructure (Davison et al., 2000).

The close relationship of communication networks and development is one of the reasons that investment in communications has become a priority for so many governments. Only 5% of the population in developing countries has access to the Internet. With the measure of telecommunication access expressed as teledensity, we note that 50/100 people have telephones in the developed world against 1.4/100 in developing world (Tipton, 2002). In Asia the lag in provision of a basic telephone service was starkly illustrated by a report estimating only 10% of the 500 million telephones in the world were in Asia in 1991 (Asia Money, 1991; Larson, 1995). ICT has good potential to create (via communication) social and economic networks leading to advances in development. However, lack of ICT implementation not only runs the risk of an economic divide, but also a political divide with people being potentially cut off from participation in future economic activities beyond regional boundaries.

Further clouding the issue, there is no clear evidence, according to economists, to support the belief that ICT can create growth. There is also indication (Tipton, 2002) that difficulties in measuring success in ICT solutions increase when moving from the private to the public sector as there is lack of a framework of analysis (ultimately the P&L). Other difficulties cited are of a cultural nature, such as the resistance to systems leading to greater transparency and accountability, as in developing countries there are cultures of subservience, gifts in exchange of favours, etc.

NATIONAL FRAMEWORKS FOR "TECHNOLOGY LEAPFROGGING" DRIVEN DEVELOPMENT

Ultimately however, governments recognise the need to enhance physical and knowledge infrastructures to improve competitiveness. ICT solutions are seen as a strong central to enabler of these