Informatics Diffusion in South American Developing Economies

RICK GIBSON
American University

Lessons learned from the countries highlighted in this article suggest that appropriate transfer of informatics to developing countries requires a framework that uses the abundance of literature highlighting the relationship of informatics and economic development. The informatics issues that concern developing countries are those associated with operational and infrastructure problems. This study seeks to identify important developmental factors by considering the situation in three countries in South America.

There exists an abundance of literature highlighting the relationship of informatics and economic development. At the present time, the most widespread diffusion of informatics in developing countries consists primarily of economic activities related to its consumption rather than its production. Consequently, the informatics issues of most concern to developing countries are those associated with operational and infrastructure problems. This study seeks to identify important developmental factors by considering the situation in three countries in South America. The broad coverage of three distinct countries necessitates a corresponding narrow focus on only the communications component of informatics.

Informatics in Economic Development

The United Nations has implemented a classification scheme for Computer Industry Development Potential (CIDP), in which countries are considered Advanced (Japan), Operational (Mexico), Basic (Chile), or Initial (Zimbabwe). It has been suggested that the CIDP classification is related directly to economic development (Palvia et al., 1992). Developed nations are primarily concerned with strategic informatics issues, rather than operational or infrastructure problems that concern developing and underdeveloped nations, respectively. Support for this contention was found in a study of informatics policy makers in the foreign government administrations of developed European countries (Gibson & McDonough, 1996). Increasingly, researchers, such as Lehmann (1995), point to the need to generate suitable development policies for the adoption of informatics by less developed countries (LDCs). Poates (1991) argues that the basic issues are management issues that require a close partnership between the technology community, economic and social policy makers, and the people at large, in order to define orientations and processes that direct technology resources to advancing broad-based economic development. It is crucial to detail the potential influences of technology in the national development plans of LDCs. This awareness may influence national planners to consider informatics an important tool to promote national growth. What follows is a brief description of some issues that might be affected by informatics.

Employment—informatics transfer increases business activity and may lead to the development of related technolo-
gies and the creation of new jobs and may also lead to the development of new skills that may be necessary to satisfy growing and changing industrial demands. In turn, this will increase competitiveness and innovation that also encourage the development of new products and services, leading to further increased employment. However, the adoption of a novel technology requires new labor skills that are usually not found in LDCs. The required labor force must first be trained in order to accomplish the desired goal of raising the level of employment and promoting economic growth.

Economic Development—From the perspective of the LDCs, it is mandatory that economic development be achieved if they are to be able to sustain their growing populations and continue to provide social services for them. Certainly, the stability of these regions is threatened if their economies do not dramatically improve. UNESCO’s 1992 World Communication Report notes substantial shifts in sectoral economic growth due to informatics. UNESCO reports an increase in sectoral per capita income of 0.3% to 1.6% of overall per Capita earnings in areas in developing countries in South America such as Peru and Chile all due to communication technologies. Wesley-Tanaskovic (1993) contends that the use of informatics within a developing country might suggest dependence on software and peripherals manufactured in developed nations, but conversely, it could decrease the reliance of the latter on the industrialized nations for information and data-processing services.

Research and Development—Once informatics has been successfully transferred to a developing country, research and development (R&D) is necessary for refinement and adaptation of the technology to the structural changes that occur as a consequence of development. LDCs are often characterized as less than innovative in their use of new technology—new and simple methods of doing things may need to be developed in an LDC. However, R&D is costly and a luxury in a country where the majority of the population live in extreme poverty. The participation of international aid agencies such as the World Bank, The Inter-American Development Bank or the U.S. Agency for International Development is vital to promote R&D in these countries.

According to Munasinghe (1993), international aid agencies do not have a well-established technology policy for third world countries. Policy appears to be developed implicitly through the expenditure approvals of these agencies. The inclusion of computers in development projects depends mainly on the government’s demand or the inclination of the aid agency staff. As a consequence, the latter tends to choose technologies with which they are already familiar, instead of performing an evaluation process to ascertain which option is the best for a particular country with its own unique environment. Factors such as standardization of the manufacturer, type or model are at the discretion of the project officer or the recipient organization. There is a common perception among these international aid agencies that informatics is being diffused by private companies.

Education and Training—Knowledge in informatics is a crucial factor for adequate transfer and maintenance in an LDC. Ito (1986) noted that unless sufficiently capable of maintaining an introduced new system, enhancements are impossible. Without a suitable education and training program, the recipient of a new technology will never be able to realize the full benefit of the technology, and moreover, will be unable to mold the new tools to fulfill the user’s needs. An LDC cannot leave the evolution of informatics education to the discretion of informatics suppliers. Continuing and specialized education about computing as part of an integral strategy towards a real transfer of technology have a great potential to help developing nations succeed in the development process (Galvis, 1993).

Infrastructure—As the literature (e.g., Heldman, 1995) on the telecommunications millennium explains, there have been considerable advances in technology in the many years since the breakup of the heavily regulated telecommunications industry monopoly. Now, more than ever, there is a need for establishing the appropriate solid infrastructure for sustaining long-term growth; upon this infrastructure, numerous services from thousands of information service providers, enhanced service providers, and source database servers can grow and blossom.

Since developing countries have poor communication infrastructures, informatics development is paramount to economic development. Informatics-enabled connections have a potentially higher payoff for developing counties than for developed countries because of the lack of reliable alternative delivery mechanisms in place, such as relatively inexpensive; they include mail, telephone service, fax, couriers and other private delivery services, and inter-county public transport systems based upon physical roads, rail and air transport networks. Developing countries have less of this infrastructure, and it is generally less reliable. Yet the poorest nations of the world, those who are desperately in need of these advantages, are the least connected to the electronic networks.

Government Intervention—Teitel (1993) pointed out the absence of conscious policy choices for the transfer of technologies among LDCs. He suggests that the root cause is a lack of technical capability by governments to assess the specific demands for technology in their country. This is not the case of developed nations where a technology evaluation is performed beforehand to determine priority areas for development in accordance with the national development agenda. For example, in Japan the process of technology transfer was derived from previously-defined policies for industrial development, trade expansion, and control over foreign investments. Nearly every developed nation, including the newly industrialized countries of the Asia/Pacific region has or is in the process of formulating a strategy for creating a national information infrastructure. Usually starting with an emphasis on telecommunication policy, the countries then extend their concerns to the development of the local economy, participa-
Related Content

E-Government Strategies in Developed and Developing Countries: An Implementation Framework and Case Study
www.igi-global.com/chapter/government-strategies-developed-developing-countries/28621?camid=4v1a

What Make People Getting Charged Apps Instead of Free One?
www.igi-global.com/article/what-make-people-getting-charged-apps-instead-of-free-one/163088?camid=4v1a

Better Army Housing Management Through Information Technology
www.igi-global.com/chapter/better-army-housing-management-through/6305?camid=4v1a

IT Diffusion & Socio Economic Change In Egypt
www.igi-global.com/article/diffusion-socio-economic-change-egypt/51262?camid=4v1a