

## 4. Information Revolutionaries

### Keynote: Ernest Wilson, University of Maryland<sup>8</sup>

Is Latin America's IT glass half full or half empty? Globally, IT is developing fast in the poorer countries, at 18 percent yearly, but it is growing faster in the rich countries, at 23 percent.<sup>9</sup> The result is that the gap between “haves” and “have-nots” is growing. In consequence, Africa, Latin America, and much of Asia are sometimes viewed as emerging market opportunities and sometimes, more cynically, as regions that are too far behind to be priorities. “Information revolutionaries,” or the lack thereof, are important shapers of countries’ IT futures.

Why are they important? Why should we care about *who* is making the information revolution? There are four compelling reasons why. First, we should seek best practices in the information revolution – and find out what works and what doesn’t. Second, examining information revolutionaries is another way to identify and examine patterns that emerge across nations. Third, a critical look at the IT players is an examination of leadership, which seems especially important during periods of great institutional change. The information revolution is, in fact, only half about technology. It is also about institutional and organizational arrangements, and so the character of relations among the government, the non-governmental organizations (NGOs), the telecoms, and the ISPs are key.

Looking at the information revolutionaries lets us better understand the unique roles as well as the interconnections of the private sector, the public sector, and civil society. Who are the local allies, local partners, local competitors, suppliers, customers – and who is leading these groups? Who are the leaders in the government, and what role do they envision the government playing in investment and regulation? Who are the leaders in civil society? This is an especially important question for poorer countries, including in Latin America, because NGOs can spur both public and private sectors into action.

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<sup>8</sup> See his forthcoming book, *The Information Revolution in Developing Countries*, (Cambridge, MA: MIT Press, 2001).

<sup>9</sup> Cited in Wilson and Francisco Rodriguez, "Are the Poor Losing the Information Revolution", available at [www.bsos.umd.edu/cidcm/wilson](http://www.bsos.umd.edu/cidcm/wilson). The numbers are indices reflecting a basket of IT applications, such as Internet hosts, faxes, TVs, and cell phones.

A study of the “revolutionaries” across a number of developing countries found them to be mostly males, with degrees in technical fields, neither poor nor rich but upper middle class, most of whom attended graduate school in the United States. They returned home not to make money but to make a difference for “their people.” One such Chinese, for instance, observed that his country had missed the industrial revolution, and he wanted to do what he could to assure that it didn't miss the information revolution. The revolutionaries spread across the public, private, and not-for-profit sectors, with a small handful highly placed in government. In Morocco, the core group consisted of two people at a polytechnic institute, one person in the private sector, a handful of others in NGOs, plus one who had the ear of the Prime Minister. How do they do what they do? They appear to blend technical savvy and social skill, making use of pre-existing personal networks. The personal networks appear to precede technical networks, and to contribute to the development and diffusion of the latter.

As they are distributed throughout government and industry, different people play different roles. One role is *promotional*, attending meetings and promoting technology. A second role has to do with the *development of legal structures* that are necessary if IT is to grow, including the protection of intellectual property rights. A third role is *leadership* to build a national constituency, one that is invested in the growth of information technology. Finally, there are those who *promote structural and institutional changes* in order to forward IT growth. Perhaps the role of *entrepreneur*, actually linking capital, technology and a business model, is a fifth one. It would be interesting, though it remains to be proven, if the revolutionaries turned out also to be carriers of ideas such as transparency, accountability and democracy because they realized that institutions had to change in order to take advantage of new technology.

Information revolutionaries appear and play different roles at different stages in the development of a country's IT. The case of Brazil illustrates four phases. The first phase might be called *pre-commercial*, during which most changes took place in research and university institutions. In Brazil this activity centered on the National Research Council. The second phase was a *commercial* period in which ISPs were developed and individuals got online. In Brazil this period began in June 1992 with the creation of the first ISP. By 1995 about 45,000 Brazilians were online.

A standoffish attitude by Brazilian information revolutionaries toward the government in the first period was reflected in the second. The revolutionaries had sought and succeeded in banning telecom ownership of ISPs not because they disliked Telebras per se but rather because the government owned it. They

wanted to move fast, and they regarded the government as slow and so sought to keep it out of the Web. During this period, a consortium of Brazilian newspapers joined to form UOL. The third period, extending from approximately 1996 to 1998, can be deemed the *competitive* period, when privatization was occurring and "property rights" were in doubt. The fourth and final phase might be called *consolidation*, but Brazil has not reached that stage and so what it will entail remains unclear.

## Bottom Lines

The interaction of the university-based national research community, the government, and the private sector, both national and multinational, is critical. The United States reached its leading position in IT through several phases. In the first, the government led the way in early research and development, virtually all of it sponsored by the military. More recently, the government has mostly gotten out of the way, letting private sector innovation and competition drive new business models. That latter process features, in Joseph Schumpeter's words, much "creative destruction." In contrast, many Europeans would prefer a more predictable, more controlled, government-led process.

Where does Latin America stand? Might Latin American governments again enact high barriers to make sure that foreign companies don't overwhelm the domestic companies as they did in the 1970s? Will information entrepreneurs in the region want governments to stay out of the way or protect them? The answers to these questions are directly related to assumptions about the role of IT in development more generally. If it is believed that growth ensues because countries *make* IT products, then it is tempting to protect infant IT industries from foreign competition and to rely on them to substitute for exports. Instead, if growth comes from *using* IT, then import substitution is inappropriate, and the country should seek the best technology at the lowest price, whatever the source. Now, there is some renewed interest in the region in import substitution, driven by the frustrations of a generation of export-oriented policies that produced growth but very uneven growth, both within countries and across the region. The interest may also be driven by the worry that the region cannot hope to keep up, let alone catch up, in a global IT competition.