

The Global IT Torrent Is Washing Away “The Poverty Trap”

What Japanese Industries Failed to See & Where Lessons Can Be Drawn for Revival

By Akihiko Shinozaki

Digital Divide Is Thing of the Past in Global Community

The remarkable rise of the emerging economies is widely recognized, but it is wrong to see this merely as a change in their relative positions as the result of a drop-off in developed countries due to the Lehman Shock. A sea change in the global mechanism for economic development had been taking place that included not only emerging economies but also developing countries even before the economic crisis. Driving this metamorphosis was the explosive spread of information technology (IT) symbolized by the cell phone.

The economic impact of IT was largely considered within the context of developed countries as recently as 10 years ago, when catching up to the United States, which had leveraged corporate IT investment to revive the economy, was the talk of the other OECD member countries. As for the emerging economies and developing countries, there were worries about the “digital divide” that would widen the economic gap as the technological revolution left them behind, while their chances for development as new markets were given short shrift. The 2000 Kyushu-Okinawa Summit that committed the international community to addressing the widening digital divide symbolized this concern.

However, this global piece of conventional wisdom executed a massive turnaround in the mid-2000s: the understanding spread all of a sudden that IT was not the cause of the economic gap but rather would be the driving force for economic progress even in developing countries. Moreover, it was an understanding common to all that recognized the problem-solving powers of IT as a general purpose technology (GPT) and saw that it could be applied for a wide range of purposes, including business startups, job creation, economic growth, education, and medical care. Serving as the backdrop to this was the rapid spread of IT and social and economic transformation, which drew in farmers, fishermen and other people in developing countries to whom new technologies had been a remote phenomenon.

In Africa, agricultural instructors who used to have to travel to areas dozens of kilometers away could now expand their coverage by transmitting information regarding planting dates and the weather through short message services (SMS). Farmers who could now find out what the market would fetch for their produce were no longer at the mercy of brokers and their dirt-cheap offers, while fishermen who could now figure out which ports fetched the highest prices while still on their fishing boats saw their incomes soar. Cash transfer services for small amounts using mobile phones have brought plenty of

benefits to low income households that had not been able to access banking services because of minimum deposit requirements and account management fees. They have also been applied effectively to food vouchers for refugees by the World Food Program.

Why Did New Technology Spread So Quickly Worldwide?

This is a phenomenon that can be confirmed globally, not an exaggerated account of a few isolated examples. Using a global database covering approximately 200 countries and regions worldwide that I have developed in cooperation with InfoCom Research, Inc. to get an overview of long-term macro data such as diffusion rates of landline phones, mobile phones, and Internet as well as literacy diffusion rates, and per capita GDP, it becomes clear that mobile phones replaced landline phones over the past decade as the central means for telecommunication and that the main drivers of this process have been countries and regions other than developed countries. Moreover, this has spread without exception to all countries and regions regardless of their levels of education or income.

Let’s take a look first at the explosive growth of mobile phone penetration — even as landline phones hit a ceiling — in emerging economies and developing countries during the 2000s. In 2000, developed countries accounted for 75% of mobile phone contracts, but the majority of post-dotcom bubble customers from 2001 onwards came from emerging economies and developing countries, with their total share reaching 75% of the 5.4 billion worldwide contracts in 2010. A similar phenomenon can be observed on the Internet with several years’ lag, where 56% of the total 2 billion users in 2010 were in emerging economies or developing countries.

The year 1995 is regarded as year one of the Internet, but from a global perspective the world was still in the landline era. Mobile phones and the Internet began to spread around the end of the 20th century as the IT boom peaked, but up to around 2000 this was heavily skewed towards developed countries, where literacy rates were higher than 90%. However, during the mid-2000s they spread all at once, overtaking landline phones in countries and regions with literacy rates as low as 50% to 80%. Today they are rushing into developing countries where less than half the population is literate (*Chart 1*).

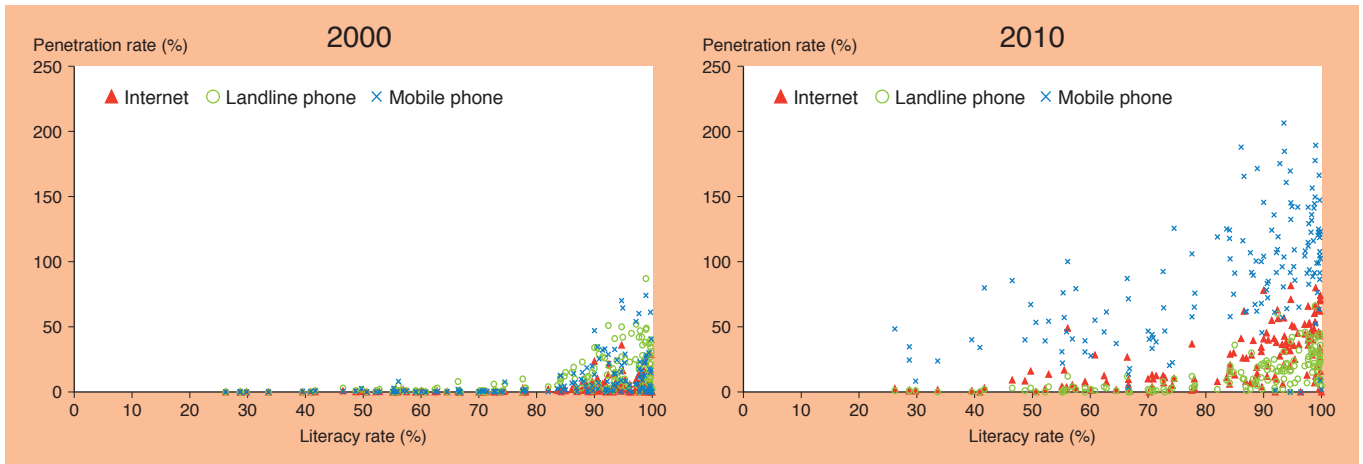
Five factors are behind this explosive growth. First, the 2G communications equipment and terminal devices that became outdated as the mobile phone market in developed countries reached



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CHART 1

Distribution of landline phones, mobile phones, Internet penetration rates & literacy rates



Source: "Global Views on the Socio-economic Impact of ICTs" in ESRI Discussion Paper Series, No. 289, Shinozaki et al. (2012)

saturation point were supplied at low cost to developing countries. Second, unlike fixed telephony infrastructure, wireless facilities can be put in place point by point even in isolated mountain regions and other geographically hard-to-access locations, and are easy to maintain as well. Third, even people who cannot read can still use voice telephony in their local language. Fourth, prepaid phones made complex contract procedures and fee collection unnecessary. Fifth, costs can be reduced by sharing mobile phones as handsets can be moved around easily (Table 1).

The synergy from these factors coming together at the beginning of the 21st century led to their global dissemination. Today, in developing countries, mobile phone services are being sold like household goods at open-air stalls.

Global Companies Do Not Overlook Digital Opportunities

History since the Industrial Revolution tells us that dissemination and societal integration of the wide variety of new technologies were limited for those without a certain level of education, as well as the income that made it possible. The "Poverty Trap", in which these

TABLE 1

Factors & background for global dissemination

Factor	Background
1 2G technology supplied at lower cost	• saturation of developed countries market & need to open up new markets
2 Easy-to-set-up infrastructure	• point-by-point location, short construction periods, low maintenance costs
3 Convenient voice usage	• dissemination possible even in low-literacy and/or local-language communities
4 Prepaid services	• easy to sell and purchase
5 High convenience at low cost	• easy-to-share devices, facilitating co-ownership

Source: Compiled by author

limitations in turn obstruct progress, had long presented a challenge to the global community. However, today's IT with the mobile phone at its core is generating a phenomenon without precedent in human history.

As a result, we are seeing rapid improvements around the digital divide that troubled the global community 10 years ago. When the GINI coefficient is calculated for 1990 and every fifth year thereafter, it was high for mobile phones and the Internet up until 10 years ago, clearly demonstrating the digital divide. However, as we entered the 21st century, while the disparity for landline phones more or less had stopped shrinking, the disparity for mobile phones shrank rapidly, and the Internet has been following this with a five-year lag (Chart 2). Professor Jeffrey Sachs, who was special advisor to the United Nations secretary general for the Millennium Development Goals aimed at eradicating poverty, calls the mobile phone "the most effective piece of equipment" and says its rapid dissemination is "resolving the digital divide" faster than expected.

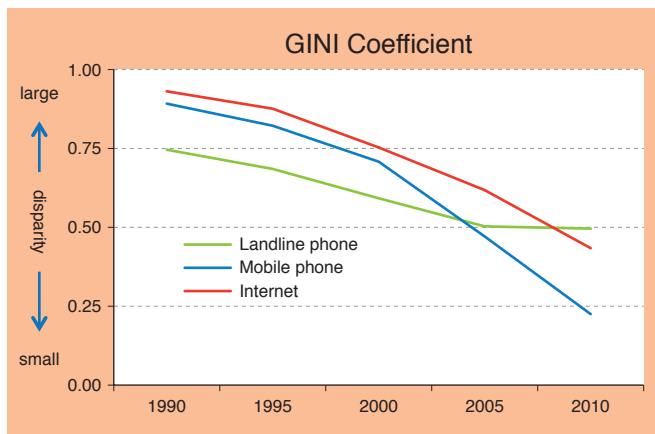
Businesses worldwide that target the global market are not overlooking this opportunity. Chinese and South Korean firms such as Hwawei Technologies (China), Samsung Electronics (South Korea) and LG Electronics (South Korea) have penetrated deeply into these markets with devices and infrastructure facilities. M-PESA, set up by the United Kingdom's Vodaphone jointly with Kenya's Safaricom, is well-known for small-amount money transfer services, and is being deployed worldwide. The Arab Spring made us realize how widely the US Twitter and Facebook media were being used in developing countries. All kinds of digital opportunities are being generated at every level from infrastructure, devices and other hardware to the upper layers of software and services.

Innovation Is Not about Developing Cutting-Edge Technology

It is dangerous to see this frontier, which the new technology is opening up, within the conventional framework of an international market with developed countries as the main players. The

CHART 2

Changes in Digital Divide



Source: Compiled by author based on material from ITU database

development process in a global market with very different income and education levels will not be uniform. The postwar development of the Japanese economy saw consumption transitioning upscale with the rise in income from the “Three Sacred Treasures” (black and white TV, washing machine and refrigerator) to the “Three Cs” (color TV, air conditioner — called “cooler” in Japan — and car) to the digital devices today.

In the developing market, by contrast, this process has been reversed. Mobile phones and other cheap digital devices are the first to permeate the market, while household appliances follow in their wake as the new technologies increase earning opportunities. The Japanese experience does not apply very well there. In fact, the Chinese and South Korean firms that are making their presence felt in the developing markets appear to be adopting business strategies that first establish their brands through low-price, standard versions of their products and then go to work on the promising household appliances market.

In this kind of global market, innovation is not only about pursuing cutting-edge goods and services; it is also about making good use of the wide range of easily accessible technology whose costs have gone down dramatically. With IT as GPT in particular, there is value not necessarily in technology development in the narrow sense but in the ideas and actions that provide solutions to previously intractable problems by using the new technologies.

The African experience that I mentioned is but one among many that drive home this point. In each case, the technology has existed for dozens of years; it is their skillful application that is effective. The essence of innovation consists of the creative ideas aimed at resolving problems and the dynamism that makes them reality.

What Lessons for Japan’s Revival?

The lesson to be learned for Japan’s revival from the “global IT torrent” of the last decade is not limited to taking advantage of the growth potential of the globally expanding IT market. Of greater urgency is the need, common to all countries, developed and developing, to use IT to solve their own problems and to review the

wide range of existing socio-economic frameworks in order to achieve this.

In this regard, introspection is in order for the Japanese government and businesses to see whether they overlooked this global torrent because they were too absorbed in their attachment to the *status quo*. More than 10 years have passed since the IT Basic Act was passed, and it feels as if the e-Japan Strategy and other programs have made a world-class information and telecommunications environment a matter of course in our daily lives. However, it is hard to say that this has been put to good use in meeting the challenges posed by a declining workforce, fiscal reconstruction, environment and energy, public pensions, medical care and education, among other things, in order to revive the Japanese economy. As this year’s White Paper on Information and Communications in Japan illuminates from many directions in terms of international indices, Japan has made progress in developing infrastructure but has tended to “stall” in utilizing it.

Deserving of notice is the fact that a wide range of empirical research has shown that investment in IT, which is at the center of innovation, plays a central role in problem solving and economic growth. Indeed, there is a broad range of areas in which IT investment can generate breakthroughs. By rendering the contents of medical treatment visible and teasing out optimum treatment and medication, high-quality medical services can be provided at lower cost. If a taxpayer/social security ID system that uses identification information safely and securely can be implemented, this can be applied to reliable means to prevent illegal payments of pension and other personal benefits and to serve as the basis for the introduction of tax credits, coupled with income subsidies and other elements of a social security system, that provide incentives for working. In the energy-environment field, IT investment in smart grid, for example, can also enhance the security of electricity supply by utilizing it to control a wide range of sources and demand.

Nevertheless, incorporating IT will not automatically result in such an outcome. A fundamental reengineering of the institutions, organizations, and other elements of the existing framework is necessary to maximize the problem-solving power of IT. If we allow our attachments to the past to make us falter on reform, IT investments will not be effective, and ineffective investments will not be sustainable as they falter in operation. The public and private sectors should both reflect in earnest to see the two “Lost Decades” have been a repetition of this failure.

There is a strong need for a powerful, principled set of policies that enhances investment opportunities geared toward the future by bringing IT as GPT to bear on a wide range of structural reforms including radiowave and telecommunications administration, which plays a central role in promoting informatization. **JS**

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