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# Communication Technologies: Five Myths and Five Lessons from History

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EXECUTIVE SUMMARY

Mobile phones in the developing world have myriad uses: banking services, reminders for medicine regimens, e-governance, and more. This is a far cry from a generation ago when 99 percent of the people in low-income countries lacked POTS, or "plain old telephone service."

Local Sourcing: Telecommunications and Electricity in Favela Racinha, Rio de Janeiro, Brazil
Photo credit: J.P. Singh

Information and communications technologies are now indispensible for development, prioritized through varying levels of market-driven measures and participatory politics. From international organizations to local administrations, the importance given to these technologies for development today is a counterpoint to the immediate post-colonial era when telephones were considered a luxury and nationalized radio broadcasting was used for bringing "modern" ideas to populations. Along with policy changes, the move toward market forms works to ensure that people have phones and access to communication infrastructures, in turn providing incentives for entrepreneurs and political brokers to develop applications for delivery of social services and provide alternatives to users who in an earlier era lacked even basic access to these technologies.

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Information technology diffusion rates can be quite spectacular. Only one in a thousand people had a mobile phone in 1995 in low-income countries. Now more than 25 in a thousand people do. Social media and the Internet have revolutionized political participation globally and provided voice and solidarity to communities. In January 2008, a 33-year-old civil engineer from Bogotá used a Facebook page to organize a protest in 40 countries against the paramilitary group FARC, gathering over 12 million people. The digital divide is not fully bridged, but the exponential growth rates of political voice and telephony promise a bright future.

What lessons can policymakers learn from the last 60 years of deploying communication technologies for development? Looking beyond the growth rate numbers suggests processes that either need to be continued or encouraged, but also fine-tuned at micro levels to address demands.

- *Encouraging Markets:* Ensure regulatory independence and market incentives for providing access to infrastructures. Problems remain with corruption among officials and private firms, which calls for independence of regulatory agencies and dispute resolution, as well as smart policies to incentivize delivery in underserved areas.
- *Developing Polycentric Policymaking:* Direct, top-down development interventions do not work effectively. International civil-society and international governmental organizations are best served as knowledge brokers and facilitators of information exchanges.
- *Allowing Participation and Voice*: Locate political spaces for participation and voice. Development interventions tend to be expertise driven and top-down; however, it is not difficult to provide synergies between development aspirations and local contexts.
- *Understanding Representation*: Allow people to represent themselves over various forms of audio-visual media. Old paternalistic habits are still too controlling, even as new social media defy this logic.
- *Prompting Ingenuity*: Encourage technological and business entrepreneurship that enables political voices, social services delivery and micro-level efforts.

## From Modernization to Participation

The history of communication and development is instructive for the rationale behind the current policy options listed above. This history helps to dislodge a set of myths that continue to inform policy. Therefore, the historical legacies are recounted here in terms of myths:

### *Myth #1: Communication Technologies Were Not Prioritized Until the 1980s*

There is a myth in policy circles that communication issues in development were ignored until recently. The emphasis on *all forms* of communication in development today is in fact only a departure from the early efforts to recognize the importance of

*a few* communication technologies for development. In the immediate post-colonial era, mass-communication was prioritized and deemed to be important for development, but telecommunication was considered a luxury. Later thinking about the importance of new technologies to communication fit into this gestalt and helps account for the paternalistic holdover.


Development Communication Messages: A Public Health Announcement on Preventing Disease with Good Sanitation, from the Chief Medical Officer in a North Indian District. Photo credit: J.P. Singh

Both the socialist and liberal models of development in the post-war period emphasized industrialization and a "modern" society. In the Soviet Union, government-controlled mass media was deployed to instill a communal, progressive and modern outlook.1 Liberal thinking in the West shared the belief that a cosmopolitan and modern outlook came from communication contact with other societies.2 Radio was the chief instrument for propagating this outlook, and television followed. Development messages were also painted on walls and billboards (see Picture) or broadcast through loudspeakers on buildings and traveling vans.

### *Myth #2: U.S. Academics Were Opposed to Top-Down or Government Measures*

Early proponents of this modernization perspective in U.S. academies, such as Wilbur Schramm and David Lerner, are now often critiqued for their propagandistic perspectives that met the aims of the U.S. government and, in a few accounts, were financed through the Central Intelligence Agency.[3] Nevertheless, in this critique of modernization perspectives, two things can be overlooked: both liberal and radical thinking elevated industrialization and modernization for development, and most

[1] Art and media were conscripted for these purposes. The work and writings of filmmakers such as Sergei Eisenstein and Alexander Dovzhenko, and the works of composers such as Sergei Prokofiev and Dmitri Shostakovich are often cited. The State owned almost all media -- including print, broadcasting and film -- and strictly controlled them for propaganda. See Gayle Durham Hollander, *Soviet Political Indoctrination: Developments in Mass Media and Propaganda Since Stalin* (New York: Praeger, 1972). For a view on how this propaganda might not have produced due to obedience, see Ellen Mickiewicz, *Split Signals: Television and Politics in the Soviet Union* (New York: Oxford University Press, 1999).

[2] Karl Deutsch, *Political Community and the North Atlantic Area: International Organization in the Light of Historical Experience* (Princeton, NJ: Princeton University Press, 1957). For a recent reiteration of this argument, see Pippa Norris and Ronald Inglehart, *Cosmopolitan Communications: Cultural Diversity in a Globalized World* (Cambridge: Cambridge University Press, 2009).

[3] Wilber Schramm, *Mass Media and National Development* (Stanford, Ca: Stanford University Press, 1964). Daniel Lerner, *The Passing Of Traditional Society* (Glencoe, Il: Free Press, 1958). For an analysis of these theorists' involvement with the propaganda of the U.S. government, including its overt operations, see Christopher Simpson, Editor, *Universities and Empire: Money and Politics in the Social Sciences during the Cold War* (New York: New Press, 1998).

development communication campaigns were centrally planned and implemented much like they were in the Eastern Bloc countries.[4]

Modernization-led development communication was hypothesized to produce literacy and education through forms such as broadcasting. Schramm's *Mass Media and National Development* (1964), a book that was initially well-received before he was denounced as a U.S. propagandist, encouraged several national communication campaigns. Decades before the ICT4D literature did so, it connected communication with distance education, health and sanitation, political participation and good citizenship.[5] Earlier Lerner, evoking Keynesian terminology, had called communication a "great multiplier."[6]

Modernization critiques, which follow from the two myths refuted here are often presented as if ideals such as industrialization were limited to conservative thinking and were a thing of the past. This is incorrect as modernization ideals traversed the ideological spectrum. However, instead of repeating this critique, it is useful to bring up two issues from the development communication perspectives of the 1950s and 1960s, which continue to inform present thinking.

*First*, many international organizations, development organizations and governments continue to propagate top-down approaches in development communication. The word "participation" is erroneously employed for "expert-driven" initiatives designed and planned at organizations situated far from the people, usually by the very academics and scholars who would otherwise critique them, and then are passed on to the grassroots level in the name of participation. The problem with such initiatives in the 1950s, as now, is that people do not take ownership of the communication message and disregard it even if useful. As Rogers points out, the reason that people may not boil water for health reasons is not because there's anything intrinsically wrong with the content of the message, but because of their distrust of an external medium bringing the message.[7] Thus, the development communication landscape is littered with "build-it-and-they will-come" expertise and supply-driven mechanisms within civil-society organizations, liberal organizations such as the World Bank, or UN specialized agencies such as UNESCO. A critique of UNESCO in general from an ex-official applies equally well to top-down thinking in development within and outside of the agency: "When I look back on the hours and hours I spent listening to experts who had never actually dealt with a juvenile delinquent, never had been party to the negotiation of a labor dispute, never tried to

[4] J. P. Singh, "Communication Technology and Development: Instrumentality, Strategy and Pluralism." In William Gudykunst and Bella Mody. Editors. *Handbook of International and Intercultural Communication.* Second Edition. (Thousand Oaks: Sage Publications. 479-497) 2001.
[5] ICT4D: Information and Communication Technology for Development.
[6] Lerner, *Passing of Traditional Society*. p. 47.
[7] Everett M. Rogers, *Diffusion of Innovation.* (New York: Free Press, 1962).

cope with problems of a mother of eleven in a *favela* or the dilemmas of small business in precarious situations talking airily about applied social science I must wonder where I have been these thirty years."[8]

*Second*, modernization messages were mostly monologic, assuming one-way communication. In broadcast media, until the current period of interactivity, such one-way communication was a technological constraint. This predicates against broad public participation and continues to be a constraint in development communication. Even proponents of cost-effective and progressive community radio often overlook the fact that radio by itself is not interactive. Health messages broadcast from radio or billboards do not produce desired results alone, but home visits from healthcare workers can set up dialogues.[9] *Third*, most of these development communication campaigns remain quite grandiose in their design and purported effects, just like the *grand projets* of the modernization era. One need only look at campaigns such as "one-laptop-per-child" or endless campaigns to interconnect everyone to discern how such grandiosity is carried in our midst. In general, the current emphasis in development perspectives toward micro-level approaches that "nudge" people toward desired results is a corrective. Although this approach is compatible with participation and dialogues, it can be quite paternalistic in practice in its project design and evaluation.[10]

### *Myth #3: Telecommunications Was Prioritized Because Experts Said So*

There has been a spate of studies since the 1960s that point out the importance of telecommunications to development. But ideas must either await a supply-push or a demand pull for policies to happen. In the case of telecommunications, which began to get prioritized in the developing world in the 1980s, the demands are hard to ignore.

Table 2 provides an overview of several newly industrializing and developing countries in 1980 and 1995 to show their low teledensity and the long waiting lists for telephones. Although, telephones tended to concentrate in large cities, it could take 10-15 years to get a telephone connection in Bombay (now Mumbai). *Favelas* in Brazil featured illegal telephone connections obtained by tapping into telephone lines; a similar story repeated in other parts of the world, even among affluent customers. South Korea, at that time a newly industrializing country, now boasts one of the best broadband infrastructures in the world. But in 1980 it had only seven mainlines per

[8] Peter Lengyel, *International Social Science: THE UNESCO Experience* (New Brunswick, NJ: Transaction Books, 1986), p. 93.
[9] T. Paul Schultz and Shareen Joshi, "Family Planning as an Investment in Female Human Capital: Evaluating the Long Term Consequences in MAtlab, Bangladesh" (Yale Center for Economic Growth Working Paper No. 951, 2007).
[10] See, Abhijit Banerjee and Esther Duflo, *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty* (New York: Public Affairs, 2011).

100 people, and the waiting list for telephone lines exceeded five million lines for a country with a total population of 40 million. Nevertheless, in response to middle-class and student protests, President Chun Doo Hwan (1979-1987) undertook a telecommunication prioritization and corporatization programs and by 1987 the waiting lists were eliminated.

## NATIONAL TELECOMMUNICATIONS INFRASTRUCTURES

| | **Main Lines (Per 100 Population)** | | | **Waiting List (000)** | | **Waiting Time Years** | **Largest City Main Lines (% of total)** |
|---|---|---|---|---|---|---|---|
| **Country** | **1980** | **1990** | **1995** | **1980** | **1995** | **1995** | **1995** |
| *Singapore* | 25.98 | 38.96 | 48.18 | 4 | 0.2 | 0 | 100 |
| *S. Korea* | 7.34 | 30.97 | 41.47 | 604 | 0 | 0 | 33.7 |
| *Mexico* | 3.73 | 6.55 | 9.58 | 409 | 196 | 0.3 | 36.1 |
| *Malaysia* | 2.95 | 8.97 | 16.56 | 133 | 140 | 0.3 | 9.5 |
| *China* | 0.2 | 0.6 | 3.35 | 164 | 1,400 | 0.2 | 4.6 |
| *India* | 0.33 | 0.6 | 1.29 | 447 | 2,277 | 1.3 | 12.7 |
| *Brazil* | 3.93 | 6.5 | 8.51 | 3,250 | n.a. | 0.7 | 17.4 |
| *Myanmar* | 0.1 | 0.17 | 0.35 | n.a. | n.a. | n.a | 46.3 |

Adapted from J.P. Singh, *Leapfrogging Development? The Political Economy of Telecommunications Restructuring* (Albany, NY: State University of New York Press, 1999), p. 57

Sources: ITU, *Yearbook of Telecommunication Statistics*, various years

Demands, whether economic or social, are inherently participatory and, as the South Korea example above shows, hold governments accountable directly or indirectly. In this sense, the supply of telecommunications infrastructures responded to demands and participatory pressures in ways that supply-driven broadcast technology initiatives did not. Pressures within countries for telecommunications provision and the inability of the Post, Telegraph, and Telephone departments PTTs to meet demands – especially from businesses and urban middle-income consumers – also led to a period of telecommunications restructurings and liberalization. These restructurings reflected not just the political economy of societal and economic demand, and but also the "supply" of industry policies, regulations, and structure.[11] Put simply, demands from politically powerful groups and the state's capacity to meet these demands usually lead to limited provisions for a limited number of users,

[11] In previous work, I specified the institutional provision of club goods such as telecommunications, wherein the membership and provision levels of the good are always sub-optimal. J. P. Singh, *Leapfrogging Development: The Political Economy of Telecommunications Restructuring* (Albany, NY: State University of New York Press, 1999).

which accounts for the slow and partial growth of infrastructure.

### *Myth #4: Washington Consensus Caused Telecommunications to be Liberalized & Incentives to Run Amok*

Washington Consensus, or the push toward market-driven policies, starting with the Reagan-Thatcher years through Bretton Woods institutions, is now often presented in development literatures as the sole cause of liberalization and privatization in the developing world. Nevertheless, its coincidence with the failed state-led model of development, import substitution industrialization (ISI), is undeniable.

The ISI model was deemed ineffective for incentivizing enterprise, and governments ventured toward various forms of corporatization, privatization, and liberalization for the telecommunications industry. Sri Lanka and Malaysia were among the first group of developing countries in the 1980s to prioritize and corporatize telecommunications, but soon several countries followed in Latin American and Asia. In Latin America, the crippling international debt crisis, which began in August 1982, further weakened the stronghold of ISI among government and labor groups. Mexico, ruled by the pro-labor party PRI, led the way in 1990 with the privatization of Telmex.

The credibility – in other words, transparency, enforceability, and interoperability – of the emergent property rights or governance structures in telecommunications shaped the pace of telecommunications restructuring. Regimes that could centralize decision-making (such as Mexico's Presidential and one-party dominated system, or China's State Council) proceeded faster than democratic regimes such as in India or Brazil, or predatory ones such as in the Philippines or several sub-Saharan countries.[12]

Liberalization created demands for impartial regulation. Politicians benefitted immensely from providing licenses to new providers; India's telecommunications ministers over the last twenty years could be the poster boys for corruption. Incumbent providers added to the "rent-seeking" by denying interconnections to new providers or charging exorbitant prices. Nevertheless, incentives did not run as amok as the popular media stories of corruption might posit. There was a huge need for impartial regulations and dispute settlement, and the emergence of organizations and bodies to provide these services may be the single-most important property right or incentive that spurred telecommunications rollouts in the developing world, especially those that involved foreign investment. In 1997, Mexico created the Comisión Federal de Telecomunicaciones (COFETEL) and India created the Telecommunications Regulatory Authority of India (TRAI). Subsequently, both

[12] J.P. Singh, The Institutional Environment and the Effects of Telecommunication Privatization and Market Liberalization in Asia." *Telecommunication Policy*. Vol. 24, 885-906. 2000.

countries experienced double-digit infrastructural growth rates and took in high amounts of FDI. One estimate calculated FDI in telecommunications for the top 10 developing countries to be $133.7 billion for 131 projects.[13]

Parallel and synergistic developments at the international level helped to clarify, incentivize or synchronize national telecommunications restructurings. The 1997 World Trade Organization telecommunications agreement, known as the Fourth Protocol after the instrument that attached this agreement to WTO's General Agreement on Trade in Services (GATS), is the most important in this regard. Earlier, the Uruguay Round of multilateral trade agreement that ended in 1994 could not reach agreement on basic telephony due to differences in approach among developed countries. However, the 1997 agreement, which 99 governments have now signed representing over 90 percent of the total telecommunications market, was far-reaching. This is especially true in its formulation and the signing of the Reference Paper, which provided regulatory disciplines and guidelines for interconnection, pricing and competition.[14] The movement for telecommunications restructuring from an engineering- and government monopoly-oriented International Telecommunications Union to a more market-oriented WTO was an important element of global governance and regime change for telecommunications.[15]

### *Myth #5: Technology is Not the Answer; People Are*

Technology is not a deus ex machina for prosperity or weakening the hold of authorities who reduce the alternatives for a good life. Early development communication campaigns instrumentalized technology to meet particular ends but did not achieve their desired objectives. People did not immunize their children or have fewer of them because they heard radio broadcasts about smallpox or saw a banner about a happy small family. A telephone connection did not destroy governance hierarchies and provide access to bureaucracies. Even with social media and the Internet, the list of the disenfranchised and marginalized remains long.

Instrumental notions of technology have been so thoroughly debunked, and development practitioners have been so much on the bandwagon that we might now be guilty of not noticing many technological solutions and their ingenuity. Mobile telephony can be viewed as the ultimate success story of technological ingenuity. No doubt, liberalization, good regulations and institutional incentives are necessary for technology diffusion, but the exponential growth rates of mobile telephony, and the

[13] Pierre Guislan and Christine Zhen-Wei Qiang, "Foreign Direct Investment in Telecommunications in Developing Countries," in The World Bank, *2006: Information and Communications for Development: Global Trends and Policies* (Washington, DC: The World Bank, 2006), p. 5.
[14] J.P. Singh, *Negotiation and the Global Information Economy* (Cambridge, UK: Cambridge University Press, 2009), chapter 4.
[15] Peter F. Cowhey, "The International Telecommunications Regime: The Political Roots of Regimes for High Technology." *International Organization.* 44:2. 169-199. Spring 1990.

various uses mobile telephony facilitates, suggest that technology itself may be part of the answer.

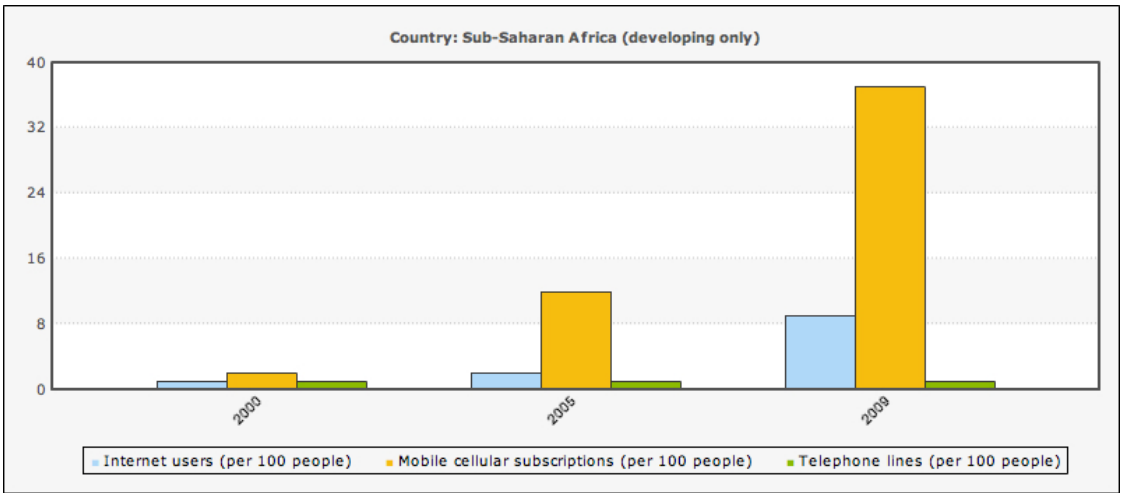
When you add in the exponential growth rates and uses of social media, the role of technological ingenuity becomes hard to deny (Tables 2 & 3). India's mobile licensing period in 1992 is considered a failure, but subsequent licensing processes in 1999 and 2002 jumpstarted its regional carriers, even though in hindsight it is now clear that even these licenses were marked with gross corruption. By the middle part of last decade, India added nearly 30 million mobile telephones per month, while in 2000 there were barely 10 million mobile telephones in the entire country. Mobile telephony is now used in innovative ways for education, banking and health services (examples follow later) in various parts of the developing world. Moving beyond telephony, the use of the Internet and social media to provide political voice or access services suggests that technological instrumentality or ingenuity cannot be easily overlooked. On February 4, 2008, a 33-year old engineer from Bogota employed Facebook to organize a global protest against paramilitary groups in nearly 200 cities and 40 countries. The estimates range in hundreds of thousands of protesters up to 12 million.

## GROWTH RATES OF INFORMATION INFRASTRUCTURES

| Category | Income Levels | 1995 | 2000 | 2005 | 2009 |
|---|---|---|---|---|---|
| **Internet users per 100** | *High Income* | 3.75 | 30.55 | 59.43 | 72.20 |
| | *Middle Income* | 0.42 | 1.71 | 8.27 | 20.72 |
| | *Low Income* | | 0.13 | 0.93 | 2.57 |
| **Mobiles per 100** | *High Income* | 7.76 | 49.84 | 84.79 | 111.07 |
| | *Middle Income* | 0.29 | 4.88 | 27.19 | 66.63 |
| | *Low Income* | 0.01 | 0.26 | 4.56 | 25.07 |
| **Telephone Lines per 100** | *High Income* | 48.66 | 55.34 | 51.29 | 45.04 |
| | *Middle Income* | 4.68 | 8.92 | 14.97 | 14.54 |
| | *Low Income* | 0.49 | 0.59 | 0.89 | 1.16 |

Source: The World Bank, *World Databank: World Development Indicators (WDI) & Global Development Finance (GDF). Available at databank.worldbank.org* Accessed August 10, 2011.

## INFRASTRUCTURE GROWTH RATES IN SUB-SAHARAN AFRICA




Source: The World Bank, *World Databank: World Development Indicators (WDI) & Global Development Finance (GDF). Available at databank.worldbank.org* Accessed August 10, 2011.

## Policy Lessons

What can we learn from the above historical legacy for the five policy lessons that began this essay? From the early days of mass media prioritization at a grand level, the developing world moved toward the provision of telecommunications infrastructures, and the current phase has now looked at technology applications at various levels, also known as information and communication technology for development (ICT4D).

### *Lesson #1: Encouraging Markets:*

Without market-driven growth of information infrastructures, the subsequent growth of ICT4D initiatives would have been impossible. Wishful accounts that seek to encourage ICT4D applications and advance a strong critique of market-driven solutions, ignore the market provision of infrastructure that allows for such applications or may be compatible with them (as in the open source movement). This does not mean that market-driven strategies should not be questioned -- in fact, their specific scope and regulations raise many questions -- but the historical context for

their salience is equally important.

Global mobile providers have allowed for leapfrogging toward competition and investment that the incumbent landline providers blocked. Most telecommunication investment has come from private providers of which foreign mobile providers make up a majority share. A World Bank report noted that 213 foreign providers began to provide mobile services between 1990 and 2003. In 2003, out of 164 countries, 130 allowed competition for at least three providers for mobile telephony.[16] Eighty-eight developing countries privatized their telecommunications carriers by 2003. In fact, 70 percent of total FDI in Latin America and 35 percent in sub-Saharan Africa came from telecommunications privatizations. Another estimate from the World Bank calculated private investment in telecommunications in the 1 992-2002 decade to be $210 billion.[17]

The macro data on the high correlations among competition, investment and provision are hard to dismiss.[18] Competition also lowered prices. The persistence of ideas causally relating neo-liberalism with digital divide is more indicative of ideological hubris at this point than of historical or empirical validity. Evidence also continues to pour in on the provision of ICT through market means even in underserved areas. In general this has happened because of universal service policies that mandate or provide incentives (taxes, subsidies, etc.) for serving marginalized areas. Pure market rationales cannot be dismissed either. Brazilian *favelas*, long the subject of marginalization and violence, are beginning to experience an economic revival as more residents become middle-income.[19] Communications firms such as Brazilian provide Embratel, Spanish provider Telefonica's subsidiary Vivo, and Telecom Italia's TIM now serve the *favelas* in Rio de Janeiro. Similar stories come in from other parts of the world. Cable TV operators regularly serve the slums and shantytowns in India. Safaricom, Kenya's biggest mobile provider, and Vodafone launched M-PESA (*pesa* means money in Swahili), an innovative way of making payment through mobile phones. Within 10 years, the service has 10 million subscribers, many of them from slums and rural areas where banking and payments are difficult to access.

Nevertheless, competition needs policy and regulation. The corruption unleashed through licensing practices is a powerful instance of how "rent-seeking" occurs even

[16] Pierre Guislain and Christine Zhen-Wei Qiang, "Foreign Direct Investment in Telecommunications in Developing Countries," in The World Bank, *2006: Information and Communications for Development: Global Trends and Policies* (Washington, DC: The World Bank, 2006).
[17] Global Information and Communication Technologies Department, *Financing Information and Communication Infrastructure Needs in the Developing World: Public and Private Roles*, World Bank Working Paper No. 65, World Bank, Washington, DC, 2005.
[18] See, for example, Scott J. Walsten, "An Econometric Analysis of Telecom Competition, Privatization, and Regulation in Africa and Latin America," *The Journal of Industrial Economics*, Vol. 49, No. 1, March 2001.
[19] Joseph Leahy, "Fortune Favors the Favelas," *Financial Times*, February 8, 2012.

in ICT liberalization. Two of the biggest corruption cases in the Indian government have been those of telecommunications ministers accepting bribes: Minister Andimuthu Raja was charged for a loss of $39 billion to the national treasury in 2008 after preferential 2G spectrum sales, and Minister Sukh Ram has been indicted for corruption during telecommunication equipment sales in 1996 after Rs. 36 million (just over US $1 million) in suitcases was seized from his residence.

Beyond these sensational stories, regulation is needed to ensure interconnection and moves toward cost-based pricing. Historical pricing in telecommunications has been inefficient, and past regulation allowed for a rate of return on investment that encouraged providers to inflate their investment costs. The important thing to remember is that while policy and regulation are necessary, as the next section shows they cannot be centralized, although in present times it may even be hard to do so.

### *Lesson #2: Polycentric Decision-Making:*

One of the strengths of ICT policies is their formulation at various levels. Just as national and provincial governments have scrambled to meet demands and needs, global prioritization and expertise have raised awareness and led to a convergence of expectations. Global institutions are especially adept at being knowledge brokers and should foster exchanges among national and local practitioners.

It was noted earlier that almost all ICT4D accounts begin with the global context of these efforts at UN agencies in the late 1990s, thus ignoring national prioritization of telecommunication and the development communication efforts that preceded them. Furthermore, the story of ICT4D needs to include the national prioritization of landlines and mobile telephony, along with the Internet and new media.

By 2003, between 70 and 90 national governments had e-strategies in place in the world, linking ICTs with social and economic priorities.[20] Beyond the formulation of these government strategies, the transformative potential of these technologies was widely discussed in the developing world. While telecommunications infrastructures were being rolled out, local training institutes cropped up to impart basic computer skills. Telecenters that offered some access to government services, market information, and rudimentary computing facilities with telecommunication services were the first instance of the ICT4D applications that were decentralized and available at the local level.[21]

[20] Aref Adamali, John Oliver Coffey, "Trends in National E-Strategies: A Review of 40 Countries," in The World Bank, *2006: Information and Communications for Development: Global Trends and Policies* (Washington, DC: The World Bank, 2006), p. 87.
[21] Michael L. Best and Rajendra Kumar, "Sustainability Failures of Rural Telecenters: Challenges from the Sustainable Access in Rural India (SARI) Project." *Information Technologies and International Development*, Vol. 4, No. 4, pp. 31-45.

In the 1990s, the World Bank and the ITU began to prioritize ICTs. Early pioneers at the World Bank had sought to urge governments to prioritize telecommunication. These efforts culminated in World Bank's flagship program in ICTs called Infodev. The theme of the World Bank's 1998/99 World Development Report was *Knowledge Society and the Knowledge Gap*, which spoke to the importance of ICTs. At the ITU, a major restructuring in 1992 led to the creation of a division aimed at development (ITU-D) as one of the three major divisions within its secretariat, along with ITU-S dealing with standardization and ITU-R dealing with radio-telecommunication. By the end of the 1990s, the ITU was calling for a multilateral multi-stakeholder summit to discuss the implications of an information society in the developing world. These efforts led to the convening of the first World Summit on Information Society in Geneva in 2003.

The United Nations itself moved toward prioritizing ICTs with the Economic and Social Council's Resolution 2000/29 on July 28, 2000, and ECOSOC's Decision 2001/210 on March 13, 2001, to convene the multi-stakeholder UN ICT Task Force, which began to hold its meeting by autumn 2001. The multi-stakeholder approach also paralleled the efforts of UN Secretary-General's Kofi Annan's "Global Compact" to create public-private partnerships, and thus UNICTTF brought in several civil-society groups and businesses into the discussions. For example, Anriette Esterhuysen, Executive Director of the Association for Progressive Communication, chaired the ICT Policy and Governance working group, one of the four working groups that UNICTTF created.

The two World Summit for Information Society (WSIS) summits of 2003 and 2005 stand out at the pinnacle of UN's multi-stakeholder approach to ICT4D. The summits brought together nearly 175 governments, scores of international organizations, and civil society participants. ITU was the lead agency in the organization and coordination of the efforts although several other UN specialized and other agencies were also involved. Building on the 2003 summit, the 2005 summit led to the Tunis Agenda for the Information Society, which encapsulates in its priorities the entire gamut of ICT4D.[22]

### *Lesson #3: Allowing Participation and Voice:*

Development interventions tend to be expertise driven and top-down. However, it is not difficult to create synergies between development aspirations and local contexts. The early industrialization approach to development was based on a mechanistic rather than a human understanding of development. Development economists tended to isolate a magic bullet for development, such as a high savings rate or

[22] For Tunis Agenda, see: http://www.itu.int/wsis/docs2/tunis/off/6rev1.html

central planning, which would induce a process of economic growth. Gunnar Myrdal likened the capital-output ratios of economists to violin-music ratios that excluded human beings.[23] Without direct participation, these projects lacked legitimacy.

Development communication models were some of the first to attend to human needs assessment and stakeholder participation. A bias toward communication, even when it was situated in the modernization paradigm, perhaps ensured that human needs would be directly brought into empirical examinations of communication effectiveness. For example, a failure to produce desired behavioral changes from development communication messages led to examining what sorts of interactive involvement might lead to communication effectiveness. Studies showed that if media were made interactive, communication was more effective. For example, a radio show in Costa Rica on human sexuality that allowed listeners to call in was more effective than when it merely broadcast its messages.[24]

Inclusion or participation can thus range from communication needs assessment among stakeholders to allowing some voice to participants to influence governance effectiveness.[25] At a more complex level, though, ICT4D efforts can involve people in the direct formulation of policies and problem-solving in the sense that Paulo Freire meant. While deliberation can take various forms, at the least deliberation involves giving public arguments and reasons in which all stakeholders have been included.[26] A higher form of deliberation would involve problem-solving among citizens. In the context of moving ICT4D toward similar models, Archon Fung provides the example of deliberative budgeting in Porto Alegre, Brazil, in which municipal budgeting involves neighborhood committees in iterative exercises meant for deciding resource allocation.[27]

To date, there are few instances of ICT4D practices involving rigorous citizen engagement and deliberation in a problem-solving sense. However, in indirect and

[23] Gunnar Myrdal, *The Asian Drama: An Enquiry into the Poverty of Nations* (New York: Pantheon, 1968)
[24] Felipe Risopatron and Peter L. Spain, "Reaching the Poor: Human Sexuality Education in Costa Rica," *Journal of Communication*, Vol. 30, No. 4, pp. 81-90, Fall 1980.
[25] For distinction between a participatory and a deliberative democracy, see Diana Mutz, *Hearing the Other Side: Deliberative versus Participatory Democracy* (Cambridge, UK: Cambridge University Press, 2006). For application in development communication, see Paolo Mefalopulos. *Development Communication Sourcebook: Broadening the Boundaries of Communication (*Washington, DC: The World Bank, 2007).
[26] Gerry Mackie, "Travelling to the Village of Knowledge," Paper presented at the conference on "Deliberation for Development: New Directions," The World Bank, Washington, DC, November 12 & 13, 2010; Arjun Appadurai, "Success and Failure in the Deliberative Economy," Paper presented at the conference on "Deliberation for Development: New Directions," The World Bank, Washington, DC, November 12 & 13, 2010.
[27] Archon Fung, "Minipublics: Designing Institutions for Effective Deliberation and Accountability," in Odugbemi and Lee, *Accountability Through Participation*, 2011. See also Gianpaolo Baiocchi, Patrick Heller, and Marcelo Silva, editors, *Bootstrapping Democracy: Transforming Local Governance and Civil Society in Brazil* (Stanford, CA: Stanford University Press, 2011).

more general ways, ICTs are often deployed to mobilize populations and provide feedback to policymakers prior to program implementation. SMS may be used to provide citizen feedback or report cards to government. Social media in general are well-suited for crowd-sourcing. In such cases ICT4D might be seen as approximating ideal forms of deliberation.

### *Lesson #4: Understanding Representation:*

Communication technologies are technologies of cultural representation allowing people to find voice. Often these technologies are only presented in terms of their bias toward a particular medium or reflecting the constraints of those who create them. Marshall McLuhan famously argued specific media enable and constrain specific choices. Today we may speak of Facebook as already coded to produce scopes of action even as people seek to represent themselves. Nevertheless, technologies can affect much more.

In traditional development communication models, radio was supposed to bring modernity to the developing world by awakening "traditional" societies to "modern" forms of communication.[28] Although we dismissed these models as too instrumental and unaware of structural constraints, thankfully we did recognize in these early communication messages creative possibilities of representation. Current conceptualization of the "capacity to aspire" relies on some instrument or the other to make individuals and groups aware of their condition and aspire for a better life in the future. Arjun Appadurai accords special attention to the staging of rituals in helping individuals acquire this capacity to aspire.[29]

We have come a long way in thinking of traditional and new media in terms of voice, aspiration and social change. Radio's monologic and, at times, propagandistic nature notwithstanding, community radio often provides for interactivity that was missing earlier. The proliferation of mobile telephony may also account for the popularity of call-in shows. Scatamburlo-D'Annibale et al note the important role of "alternative media" in fostering dialogic communication.[30] As opposed to corporate media, which they posit as legitimizing capitalist oppression, people-owned radio and television *can* lead to an "active, engaged, informed political participation". In particular, they note the importance of the Independent Media Center movement, a global progressive network "dedicated to "horizontal" and "non-hierarchical" forms of communication and organization…. As in many other parts of Latin America, Indymedia Argentina represents *media for the oppressed"*(p. 7). Indymedia offers broadcasting possibilities through multimedia uses such as the Internet, radio and

[28] Lerner, *Passing of Traditional Society*; Rogers, *Diffusion of Innovation*.
[29] Arjun Appadurai, "The Capacity to Aspire: culture and the Terms of Recognition." In Vijayendra Rao and Michael Walton. Editors. *Culture and Public Action*. (Stanford, Ca: Stanford University Press. 2004).
[30] Scatamburlo-D'Annibale et al (2006).

pirated TV signals, but most importantly its proponents celebrate its ability to provide alternative forms of story-telling.

Radical analysts such as the one above regularly scoff at representational politics offered through "corporate media," but these alternative story-telling possibilities, nonetheless, are regularly found. Take the example of *telenovelas* or soap operas. Two billion people all over the world, and not just in the Spanish-speaking world, now watch Latin American *telenovelas*, and the cultural establishments backing them challenge Hollywood's dominance, itself the sine qua non of media imperialism for radical writers. More importantly, while these soaps are often critiqued for offering escapist and commodified fantasies revolving around romance and beauty, the emphasis in the plotlines on structural obstacles such as poverty, class and bureaucracy distinguishes them from U.S. soap operas.[31] Even these supposedly monologic representations open up dialogic possibilities in allowing the audiences to imagine a different world. The popularity of media-savvy Arab female singers from Lebanon and Egypt offers another example. The lyrics and the sex-appeal of these music videos are now seen as challenging patriarchal practices in the Arab world.[32] These scattered examples do not amount to an unquestioned acceptance of all media messages but an exploration of these messages in dialogic terms so we do not throw out the proverbial baby with the bathwater.

In Brisbane, Australia's Virtual valley, marginalized aboriginal youth used the World Wide Web from the mid-1990s onwards to produce critical representations of their reality, including poetry and role-play. "In developing alternative textual readings and writings of the Valley, participants produced artifacts that could serve very well as codes, or codifications, for a Freirian approach to dialogical pedagogy."[33]

### *Lesson #5: Prompting Ingenuity:*

The shift has now been made from thinking of technology as panacea for poverty to thinking of it as a facilitating factor. However, in taking this stance a couple of factors need emphasis. First, a few features of ICTs make them well-suited for development purposes, either in the form of enhancing participation and deliberation, or through cutting transaction costs for fulfilling particular objectives. Second, like any other human endeavor, technology invites creativity and human ingenuity and there are many innovative applications in ICT4D. Taking these factors into account does not elevate technology to instrumentality but does point to its potential for development.

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[31] Martinez, Ibsen. November/December 2005. "Romancing the Globe." *Foreign Policy*.
[32] Mellor, N. November 11, 2005. "Girl Power." *Financial Times*.
[33] Lankshear C. and Knobel, M. (2005) "Paulo Freire and digital youth in marginal spaces." In G. E. Fischman, P. McLaren, H. Sunker, and C. Lankshear. *Critical Theories, Radical Pedagogies, and Global Conflicts* (Lanham, MD: Rowman & Littlefield, 2005), p. 301.

It is instructive to revisit the UNDP report on *Making Technologies Work for Human Development,* which while warning against techno-instrumentality, begins with the following foreword:

> "Development and technology enjoy an uneasy relationship: within development circles there is a suspicion of technology-boosters as too often people promoting expensive, inappropriate fixes that take no account of development realities. Indeed, the belief that there is a technological silver bullet that can "solve" illiteracy, ill health or economic failure reflects scant understanding of real poverty.
>
> Yet if the development community turns its back on the explosion of technological innovation in food, medicine and information, it risks marginalizing itself and denying developing countries opportunities that, if harnessed effectively, could transform the lives of poor people and offer breakthrough development opportunities to poor countries."[34]

Turning now to human ingenuity itself, it speaks to the roots of the word technology in the Greek word techné for human art. The open source movement, led by software engineers in academic institutions and private firms, has led to a variety of applications. In a prominent move in 2004, the Brazilian government moved toward adopting open source software and applications in order to cut technology expenditures. Taking another example, the software platform Ushahidi, named after the Swahili word for testimony or witness, was first used in the December 2007 Kenyan elections.35 It allowed citizens to use a variety of media such as mobile, landlines, radio or the Internet to monitor elections and report cases of violence that were then centrally collected and reported on Google maps. Since then, the Ushahidi platform has had a variety of applications including reporting from conflict and disaster zones and even in the 2010 winter snowstorm in Washington, D.C. Entertainment industries have also been widely utilized for applications.36 The practice of crisis-mapping, spurred by initiatives such as Ushahidi, now employs crowd-sourcing and multimedia devices to provide humanitarian intervention, disaster updates, and violence reports.

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[34] United Nations Development Program, *Human Development Report 2001: Making Technologies Work for Human Development* (New York: Oxford University Press, 2001), p. iii.
[35] Jose Vericat, "Open Source Mapping as Liberation Technology: An Interview with David Kobia," *Journal of International Affiairs*, 64: 1, 2010, pp. 195-201
[36] UNCTAD/UNDP, *Creative Economy Report 2010: Creative Economy – A Feasible Development Option* (United Nations, 2010); Singh, J.P., *Globalized Arts: The Entertainment Economy and Cultural Identity* (New York: Columbia University Press, 2011).

The BBC TV program Sanglap in Bangladesh introduced politicians and public officials to questions and discussions among live audiences and citizens, and was one of the most popular programs on Bangladeshi TV.37 The history of entertainment education – to convey socially progressive messages, through song and telenovelas, for example -- is an old one. More recently, changes in technology have allowed for these messages to be accessed over a variety of devices and networks and allow interaction with others who are doing so. Steven Livingston has noted that information technologies now increasingly for allow for accountability and transparency in Africa, and perform function of information gathering, which used to be limited to large bureaucracies earlier.38

It must be remembered that just because applications are widely available does not mean they are productive. The Bhoomi system in India is criticized for cutting out the village assemblies as farmers now must spend money and time to travel to sub-district headquarters, known as *taluks*, to access the service.[39] In other applications, Indian matrimonial and astrology markets have experienced a boom in applications, where the social productivity of these endeavors may be questionable. In this sense technology is neutral: it can have effects that are socially useful and economically productive, but the opposite can also be true. The Ushahidi platform did not prevent all of the violence among Hutus and Tutsis following the election; in fact, other rumors circulating over mobile phones and social media may have also contributed to violence.

Many of the technology applications are donor-driven and the official development agencies or private firms with technology foundations have built-in biases toward narrating successful stories and overlooking the failures. While human ingenuity is an important factor for judging the usefulness of ICT4D, we may also need to account for the many failed projects in ICT4D to provide a balanced story.[40]

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[37] BBC World Service Trust, "Bangladesh Sanglap ' Dialogue on Bangladesh' – Case Studies." Available at http://www.bbc.co.uk/worldservice/trust/research/casestudies/2008/03/080221_research_impact_casestudies_governance.shtml Accessed August 21, 2011

[38] Steven Livingston, Africa's Evolving Infosystems: A Pathway to Security and Stability, Research Paper No. 2, Africa Center for Strategic Studies, National Defense University Press, Washington, DC, March 2011.

[39] Prakash and De, "Importance of Context," 2007.

[40] Between 2000-03, I was involved in implementing an electronic commerce project to assist women's shawl-making cooperatives in a rural area of India. We received a Development Marketplace Award from the World Bank for this project. The e-commerce part of the project was a failure, but the development intervention resulted in other useful effects such as opening up marketing possibilities in domestic markets. See J.P. Singh and Shilpa Alimchandani, "Development as Cross-Cultural Communication: Anatomy of a Development Project in North India." *Journal of International Communication*. 50-75. 2004.

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