

Policy

The Poverty of ICT Policy, Research, and Practice in Africa^{1,2}

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In responding to some of the major narratives in the literature on information communication technologies and development, this article attributes the relatively poor ICT policy outcomes in Africa, particularly regarding the deployment of information and communication technologies for poverty alleviation, to the paucity of critical research that acknowledges the political dimensions of policy reform and economic regulation. Such research would be able to more meaningfully inform and capacitate policy formulation, regulatory practice, and business operations to produce positive growth and development outcomes.

The essay argues that the purely economic analyses of ICT sector reform that dominate the literature on Africa fail to explain why, in the face of global evidence of the success of the reform paradigm of regulated competition—which has successfully driven increased penetration of information and communication technologies at lower and lower prices across the world—in Africa, communications sector reform has been so uneven and often resisted. Political economy approaches that highlight the political context in which economic reforms take place seem to have greater explanatory value. Rather than focusing on market reforms only, analyses of the interaction of state and market, and the interplay between various sector institutions may better explain how reform is facilitated or constrained.

Introduction

This essay provides an African response to some of the major narratives in the literature on ICT for development and poverty alleviation.³ It attributes the relatively poor ICT policy outcomes in Africa, particularly regarding the deployment of information and communication technologies for poverty alleviation, to the paucity of critical research that acknowledges the political dimensions of policy reform and economic regulation. Such research would be able to meaningfully inform and capacitate policy formulation, regulatory practice, and business operations to produce positive growth and development outcomes.

The underlying question this raises is why, in the face of global evidence of the success of the reform paradigm of competition—which has successfully driven increased penetration of information and communication technologies at lower and lower prices across the world—in Africa, communications sector reform has been so uneven and often resisted.

1. *With apologies to E. P. Thompson's Poverty of Theory (1978).*

2. *My thanks to the thoughtful critique and insights of the blind reviewer of this paper, to whom I can attribute some the reformulation of arguments and clarification of purpose in the paper. Any errors or omissions remain those of the author.*

3. *This paper engages primarily with those narratives identified in the annotated bibliography prepared by Randy Spence and Matthew Smith for the second IDRC Harvard Forum.*

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The article contends that “best practice” reform checklists and economic reviews showing lagging ICT sector performance in Africa fail to explain why this is the case.

It argues that adopting stronger political economy approaches to policy reform, approaches that analyze the interaction of the state and the market to facilitate the implementation of reform, would go some way toward explaining why the reform paradigm, which promotes competition, dilutes incumbents’ monopoly-wielding power, and adopts universal service policies that do not distort the incentives of the market actors, has only been adopted piecemeal, limiting its efficacy. Such an approach would lay greater emphasis on the role of institutions and the interplay among them. This would allow a greater understanding of what enables or inhibits their effectiveness to translate a market-based reform paradigm into action.

Further, despite the ICT euphoria in development circles over the last decade, even in the more pervasive realm of economic research, there is little non-anecdotal evidence in Africa linking communications sector policy reforms aimed at increased penetration and lower costs of communications to growth, to development, and particularly, to poverty alleviation. The article does not conclude from these observations, however, that these linkages do not exist, but rather, that the dearth of rigorous, indigenous research means we are unable to establish them or not, or to understand how they might best be triggered for developmental gains.

From a research perspective, filling this evidence gap requires research to demonstrate such a linkage at a macro level for the African continent, an effort for which systematic collection of data—already begun—is important to continue. Second, and more important, indigenous research should engage and guide policy, and should also be oriented toward institutional arrangements and capacity requirements, so as to implement a reform paradigm based on the consideration of market entry and effective, innovation-enabling regulation. It is necessary to move beyond the articulation of what reforms should be, and on to building the capacities and capabilities for implementing reforms. Until and unless these capacities are built and there is a locally

informed engagement of the policy intellectuals with the policymakers, the poverty of ICT policy, research, and practice in Africa, which has inhibited the desired developmental benefits of ICTs, is likely to prevail.

Transformative Impact of Mobile

For the five years since Harvard Forum I, Research ICT Africa (RIA) has been systematically collecting current supply-side data, as well as developing the only systematic demand-side information communication technology (ICT) indicators in countries across the African continent. The purpose of these efforts has been to provide the data and analysis required for evidence-based policy. From this, one of the primary narratives in the annotated bibliography, about the transformative impact that mobile and wireless communication has had on access to communication, can be affirmed by the evidence of the dramatic changes mobile communication has brought to Africa. With average teledensities in sub-Saharan Africa of less than 1% 10 years ago, the much-acclaimed fastest mobile telephony growth rate in the world has delivered millions of Africans their own communications devices and services for the first time.

These spectacular growth rates are, however, off very low bases in most countries, and such aggregated data mask the facts that, first, millions of Africans still do not have access to ICTs, and second, for those who do, their use tends to be suboptimal, a result of limited choice and the high costs of services. As a result, despite checking the boxes on a number of reform requirements measured by multilateral agencies,⁴ Africa still lags dramatically behind the rest of the world in terms of ICT access and usage, constraining the opportunities for including the poor in African economies and societies (Sciadas, 2005). The failure of inadequately reformed markets and the absence of capacity to regulate them effectively are factors that have undermined reform initiatives across Africa.

While anecdotal evidence of the way mobile phones, in particular, have been utilized by the poor for improved access to information is plentiful, there is no hard evidence that there are fewer poor people on the continent as a result of access to ICTs.

4. ITU (2009) identifies 93% of African countries as having separate sector regulators, more than any other region, for example.

With relatively low current levels of ICT diffusion across the continent, this is hardly surprising. While the work of Röller and Waverman (2001) shows correlations between economic growth and ICT penetration, there is no clarity on the issue of causality: Does ICT penetration improve economic growth, or does economic growth drive ICT penetration? An important caveat in their findings for developing countries is that, for traditional fixed networks, a critical mass, estimated to be 40%, needs to be achieved before the network effects that drive economic growth and development are realized (*ibid.*). Although increasing, only a few countries in sub-Saharan Africa have recently achieved this critical threshold, which allows commercial innovations, such as mobile banking, applied employment, or agricultural information services, to kick in. Over and above these caveats, it is widely accepted that economic growth does not automatically translate into poverty alleviation.

But trying to demonstrate aggregate reductions in poverty from ICT deployments is probably not the best way to assess the potential of ICTs to contribute to development and poverty alleviation. Perhaps as with the situation of the “productivity paradox,” when early-adopting firms continued to invest in ICTs on the basis of improved work experiences, despite a lack of correlation between ICT investment and productivity gains, the benefits of ICTs, and particularly of mobile phones, are evident to today’s African poor, even if they cannot be quantified by researchers and donors. All the usage evidence (Harris, 2002; Gillwald & Stork, 2008; Mascarenhas, 2009; Heeks, 2009) suggests that poor people are resourceful in their adaptation of cost-saving technologies and services, putting their devices to uses, often unintended by the developers or suppliers, that are relevant or affordable for them.⁵

From the access and usage evidence, one can

conclude that the quality of life of poor people has improved. This has largely been through processes of social and economic inclusion enabled by the increasing pervasiveness of commercially viable communication services, rather than through services specifically targeted at the poor, such as supply-side-driven telecenters, for example. Access to emergency services, 24-hour contact with family members, low transaction-cost receipt of remittances, and contact numbers for casual employment cannot to be dismissed on the basis of the marginal nature of the gains. Case study evidence suggests informal and small businesses might achieve greater efficiencies and cost savings by knowing in advance the price of produce at markets, or by being more readily reachable to provide services or procure supplies, impacting positively on livelihoods (Stork & Esselaar, 2006). What the usage patterns from the 2007/2008 RIA Access and Usage Individual and Household Survey (Gillwald & Stork, 2008) reveal, however, is that all these opportunities for improved well-being are severely curtailed by the high cost of communications for those who do have access to them.

With policy-induced constraints limiting competition in many African countries, and with ineffectual regulation of the resultant excessive pricing prevalent across the continent, access to mobile communication in poorer households may have placed an even greater burden on household expenditure. The RIA demand-side survey found that the bottom three quarters of mobile phone users spent, on average, between 11% and 27% of their income on mobile communications, rather than the standard reference to 2–3% of income spent in developed economies.⁶

So one of the main narratives in the review of the literature, that of mobile telephony as a panacea in the context of *connectivity and universal access*

5. *Please-call-me services and even mobile banking, for example, were commercialized versions of usage innovations by those who “buzzed” or “miss called” friends and families to have them call back when they could not afford to, or by those who bought airtime for dependents or friends as a form of remittance or payment.*

6. *There has been increasing evidence that people in the developing world are spending considerably more than the average of 2–3% of income spent on communications in the developing world referred to historically in ITU (Milne, 2005) and OECD reports. A study conducted by Moonesinghe, de Silva, Silva, and Abey Suriya (2006) among low-income groups in India and Sri Lanka found levels of telecommunications expenditure ranging from 4–8% of household income. Barrantez and Galperin (2008) demonstrate that, in Latin America, the cost of the OECD low-user mobile basket exceeds 10% of the income threshold of those living below the poverty line. An Intelcon (2005) study estimates that poor Nigerian households spend up to 8% of their income on telephone services, and Souter (2005) estimates telecommunications expenditure in the range of 10–14% for poor households in Tanzania. Duncan (2009), reporting to the South African parliament on a statistically nonrepresentative snap survey in the Eastern Cape in South Africa, in-*

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and beneficial access, blurs the fact that, in Africa, millions still do not have access to mobile services or any other form of telecommunications. And even for those who do, this narrative tends to ignore the fact that usage by individual consumers or businesses of the full range of services—from mobiles to leased lines, to broadband—is highly constrained by some of the highest costs in the world. At the national level, such pricing drives up the input costs on often-struggling economies, further undermining their global competitiveness.

While the world has changed in the last five years, with increased access to bandwidth at lower prices than ever before, the gap between Africa and the rest of the world, or even other developing continents and sub-continents, has grown. The 2007/2008 RIA access and usage individual and household survey found that less than 4% of households owned a PC, and that less than 1% had any form of connectivity at home. For the few who accessed ICT networks at home—or more frequently in the workplace, educational institutions, or cybercafés—their usage was constrained by the high costs of communications, not least of all as a result of the high cost of international bandwidth. The average retail price for basic broadband in sub-Saharan Africa is US\$366 per Mbps/m, compared to US\$40 in Europe and India (Williams, 2008, p. 2).⁷

Problems with Orthodox Reform Model

The reasons for this highly inflated price structure, provided both by the RIA papers in the annotated bibliography and by others referring to other parts of the global South, such as LIRNEasia and DIRSI on Latin America, are often listed as the implementation of inappropriate policies, the lack of competition in markets, ineffectual regulation, the pervasive absence of capacity, and in some instances, corruption. Although, generally, these reasons may be correct, research on ICT policy and regulation in developing countries has largely failed to explain

why, when there is overwhelming evidence of communications sector market reforms' success elsewhere in the world, such reforms are not being comprehensively implemented in developing countries, or why their implementations are done so piecemeal or ineffectively as to not realize their intended benefits. That being said, even in more developed economies, a large question mark hangs over both the assumed success of telecommunications reform and the contribution of research to the sector. In his cynical assessment of ICT policymaking and research over the last 20 years in Europe, Garnham argues that the sector is characterized by "policy over-reach and research under-reach" (2005, p. 7). The sector, he argues, has been subject to policy analysts and advisors who fail to fully understand its complexity and dynamism, nor indeed, the complexity of the changing economy and society. The result, he contends, is that communication researchers suffer from "severe historical amnesia and hubris." While also critical of policy outcomes and the lack of research in Europe over the last two decades of reform, Melody argues, however, that it is naïve to believe that policy outcomes and their underlying market theories would evolve smoothly and not be contradictory. "The real world is characterised by imperfect policy research informing imperfect policy development attempts to shape imperfect markets" (2005, p. 51).

But what are the determinants of these imperfect conditions? What makes them more manageable in some jurisdictions than in others? The answers to these questions cannot lie in the economic realm alone, where the reform strategies are developed and their failures are analyzed. There is little focus in the literature, or in much donor and multilateral agency research, on the reasons why these obviously beneficial reforms are not being undertaken. Global indices⁸ and other monitoring and evaluation tools confirm the failure of most developing countries to harness ICT optimally for economic growth and development, but they do not tell us why this is so.

dicates the widespread use of food money to buy airtime. Respondents spent, on average, 26% of their income on airtime.

7. *While the recent launch of submarine fiber optic cable off the coast of East Africa has increased competition and brought down wholesale prices, commercial arrangements are largely resulting in additional bandwidth being passed on to the end users, rather than in price reductions. While this is probably welcomed by high-end users, it is unlikely to drive increased take-up of the services by people currently barred from them by high prices.*

8. *See, for example, the Digital Opportunity Index (www.itu.int/doi), or the World Economic Forum Global Information Technology Report (<http://www.weforum.org/documents/GITR10/index.html>).*

Openness and Capabilities Narrative

While the enabling connections between these deficits and the narratives of *openness and capabilities* in the annotated bibliography are clear from a normative perspective, they also lack explanatory value in the developing country context. The symbiosis of “internal capabilities” and “openness” may, indeed, be a necessary condition for development. But is that combination sufficient? And if they are so obvious, why have they not been implemented in many developing countries? What can be done about their absence, where, and how?

Innovation and Creative Access Narrative

In the related narrative on *innovation and creative access*, the success stories also tend to focus on technologies, individuals, and single-company innovation. In this narrative, innovation is hailed for occurring under conditions of extreme constraint. The examples provided are of low-cost business models that enable the poor to use communication strategies to overcome low access rates and the extraordinarily high prices of “regular” services. They cite the marginal gains that may allow the poor to live beyond the poverty line or perhaps not so far below, or agricultural applications that allow people to endure marginally lower levels of market exploitation. Those with the resources to pursue entrepreneurial strategies may put communications to marginally better use, but these initiatives are not Silicon Valley or Yokohama solutions, nor are they the kind of programs that turned South Korea from a developing country into a leading provider of ICT services and products over a couple of decades. The often-isolated success stories are largely of single projects, individuals, or at best, communities. There are few stories of successful national or regional upliftment having been achieved through the use of ICTs, despite the rhetorical commitment to this by governments in Africa.

This is not to diminish the remarkable achievement of such innovative practices and business initiatives. Even marginal improvements in the quality of life or economic status of the poor cannot be dis-

paraged or dismissed. But are these the sustainable strategies required to alleviate poverty at a national and regional level? What is necessary to mobilize resources in support of more even and widespread success, for them to scale up and extend their scope, and to have broader application? Are they likely to enable the harnessing of ICTs to reduce the *unevenness of globalization and development* so glaringly evident in the global indicator research and resultant indices?⁹

Open Access and Access to Knowledge Narratives

What seems essential for all the proposed initiatives, and presupposed by several of the narratives despite the absence of references to them, is the necessary institutional endowments and capacity to develop, access, and optimize ICTs. This is evident in the *open access and knowledge access* narrative, the *economy of the national innovation systems (NIS)* narrative, and indeed, in the more general narrative of *poverty reduction and human development*. These presuppose a functional state and vital institutions. In this context, an innovation system is defined as “a set of functioning institutions, organizations and policies which interact constructively in the pursuit of a common set of social and economic goals and objectives and which use the introduction of innovations as the key promoter of change” (Paterson et al., 2003). The first part of this definition does not refer to “systems of innovation”; instead, it refers to the kind of functional state on which any integrative system is dependent. Like economic growth or development, the potential to innovate, and then to turn that innovation into a viable product, service, or process, is enabled by institutional integration and functionality, despite the examples of innovation cited above that have arisen in the absence of such conditions.

Global Economic Crises and Global Warming Narratives

The narratives of *mitigating the negative impacts of the global economic crisis* and *lessening global warming and carbon omissions*—the latest items on the global agenda—both present problems in an

9. See ITU *Telecommunications Development Report (2009)*, World Economic Forum *e-Readiness Report (2009)*, OECD *African Communications Outlook (2009)*.

African context. The potential of ICTs to contribute to developing countries' innovation and development in these areas is unlikely to be realized outside of organized systems of funding, of regulation, and of incentives and penalties. The conditions for vital foreign direct investment, identified as a further area of research, are not determined by individuals or communities—other than those few who are actively participating in policy processes and as consumers—but by the formulation of appropriate and realizable policies, as well as by institutions with the capacity and capabilities to implement those policies effectively. This is what has produced different, but optimal, outcomes in Scandinavia, the Asian Tigers, and the United States.

Good Governance and Service Delivery Narratives

Assessing such reform failure in Africa in the context of “good governance” and “service delivery” managerialist models only enables further compliance—and more often, noncompliance—with a hypothetical “best practice.” Bounded primarily by rationality, or what seems feasible, as well as by timeframes and budgets, the lack of engagement with the reasons for noncompliance in donor and multilateral agency research generally reflects an absence of politics.

Excellent strategic intervention frameworks focusing on policy and regulation, quite succinctly summed up in the UNESCAP article by James George (2003), are clearly vital to any successful reform program, but the fact is that the skeletons of these plans litter the continent. George's article, like so many of ours, goes on to acknowledge the importance of local conditions and the participation of stakeholders, as well as the centrality of vision and leadership. It is against such incontestable policy frameworks that the failures of countries to reform, or perform, are being assessed. But this pattern of evaluating interventions by checking their compliance with a “best practice” policy reform checklist provides no basis for understanding noncompliance. Reform has been effectively reduced to the reiteration of “best practice policy,” and since droves of African countries have “failed to implement” those practices, the upshot has been to entrench their stereotyped incapacity and marginalization. This oversimplification has resulted in a poverty of ICT policy research and, therefore, a poverty of policy.

Understanding the Changing Nature of the State

One area of investigation that might address this problem, and one in which there remains a dearth of donor research, is to better understand the nature of the state in developing economies. Perhaps this has come to be because global reform initiatives have erroneously focused on the reform of markets at the expense of the state, or because there is often such antagonism from developing countries to critical research on the state—especially if that research is sponsored by external agencies. Or perhaps, it may be because the problems identified by academic research on the state in developing countries present such intractable difficulty: There is too much to solve, and the problems are not suited to short-term budgets or realizable deliverables.

The neo-liberal reform paradigm of the 1990s, which became known as the Washington Consensus, and of which ICT sector reform was a central element, dichotomized the state and market. Rather than understanding the two as necessarily delineated, but coordinated, instruments required to achieve effective policy outcomes, it forced them into a false duality. At the center of the wider critique of the Washington Consensus was an acknowledgment of its failure to understand the significance of the state and, particularly, the transitional state, in developing-country reform strategies. As a result, the state, which in many cases was, indeed, bloated and ineffectual, rather than having its scope reduced as a condition of loans or aid, very often had its strength reduced or not adequately developed, rendering it unable to implement the very reforms that were being sought (Fukuyama, 1996; Evans, 1995). The limitations of conditionality as a reform lever, however, have been increasingly acknowledged. The manner in which aid, often seeking short-term quantifiable targets, can undermine longer-term institutional development has become part of the new millennium critique (Fukuyama, 2005; Stiglitz, 2002).

An area related to this is that of institutional failure, in which there is acknowledgment of the importance of the “new” state, particularly in its governance approaches. Much of this work in the donor/multilateral-funded research, however, is generally conducted in the context of “good governance,” and as indicated before, is largely normative. It does not explain why governance is

generally not good in Africa. This is largely the result of it tending to be apolitical, or because the case is presented outside of its political context. But without politics, the failure to implement economic reforms cannot be understood.

Mushtaq Khan (2006) has argued that institutional failure in states undergoing dynamic transformation from pre-industrial production to capitalism is not necessarily a result of rent-seeking and corruption, distortions in the market, or the absence of democracy—reasons often cited and indicated in several of our references in the Spence annotated bibliography. Echoing the seminal work of Levy and Spiller (1996), he argues that, rather, institutional failure in the state is often “driven by the lack of institutional capacities and more importantly, the incompatibility of institutional capacities with pre-existing distributions of power” (Khan, 2006, p. 1). Unless such dynamics are understood and accommodated, reform strategies are unlikely to be successful.

This is a long-term project. African academia has historically not examined ICT policy issues critically, nor has it engaged with governments who, themselves, have largely not encouraged critical participation in policy formulation. Engaging with the complexities of transformation and poverty alleviation will require the nurturing of a substantial body of African policy intellectuals who can effectively critique the political economy of reform. Support for the development of indigenous doctoral programs and fora in which to conduct the original research necessary for intellectual engagement by those immersed in local conditions may go some of the way toward developing a cadre of policy intellectuals with the capacity to engage critically on policy and regulation. This would be in addition to, but quite different from, the ongoing technical and professional training required to build vital individual competencies and institutional capacity on the continent.

Such an approach will also enable the exploration of another neglected area of policy research development in Africa that requires a political economy context to be effective: creating viable

regional—and indeed, continental—markets for Africa. It is clear from the existing evidence that policies among nation-states need to be harmonized to create regional markets, and even a continental market, to ensure the economic viability of nations, especially smaller countries. This is also necessary to create geopolitical substance and global competitiveness. For example, while, in many countries, access to the Internet may, in time, come through mobile devices, the possibility and viability of broadband connectivity, with its associated multiplier effects (Katz, 2009), is dependent on the development of, and access to, regional backbones and undersea cables.

Again, there is research at the national and regional level, largely supported by multilateral agencies, that acknowledges ICT infrastructure as an enabler. This highlights both the need for investment in this socially valuable infrastructure, as well as the thus-important need for policies that enable such investment to be made efficiently and on a timely basis.¹⁰ But this is not a sectoral or economic issue only, as it is often portrayed. It raises again the importance of state coordination. Studies from the developed world show how access to ICT is unlikely, by itself, to improve livelihoods, but when it is associated with other physical infrastructure, such as better roads and storage, or with social infrastructure, such as education, access to information can become very valuable.¹¹ Current policy approaches, however, tend to deal with infrastructure development in silos, as does the limited research in Africa, which generally fails to recognize either the political constraints on such infrastructure initiatives, or any ways in which they might be overcome.¹²

Conclusions

Arising from the assessment of the narratives on ICT and development, the following areas of research are identified as those that need to be focused on in the next few years in order for the potential of ICTs to be optimized for economic growth, development, and alleviation of poverty on the African continent.

It is essential that the indicator, measurement, and evaluation research developed in the Global

10. See Mark Williams' (2008) excellent review of the state of ICT infrastructure in Africa and the importance of its improvement.

11. See Guild (2001) for a review of complementary infrastructure development and spatial planning.

12. A national case study on broadband infrastructure policy in South Africa by Gillwald (2007) provides an example of both a political economy approach and the “silo” treatment of infrastructure planning and research.

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South by nongovernmental organizations in the last few years should continue if the pressure toward evidence-based policy is to be maintained. Despite efforts by the International Telecommunication Union (ITU) and the United Nations Conference for Trade and Development (UNCTAD) post-WSIS to develop national ICT statistical databases, hopes of getting African governments to take on this function in any significant way at this stage are premature. Unless this collection and analysis of data continues to be done through the kind of initiatives that have been supported by IDRC in the Global South in the past, large parts of the continent will again be plunged into a data and analysis vacuum in relation to ICT developments.

These data collection and analysis efforts, together with the individual and micro-success stories, need, however, to be systematically extended to macroeconomic examinations of the impact of ICTs if a stronger case for their prioritization is to be made. If the divide between Africa and the rest of the world is not to widen further, the impacts on economic growth, development, and employment from the deployment of new technological developments, such as broadband—the ubiquity of which is both a necessary condition for a modern economy and, currently, largely absent in Africa—require examination, as do appropriate policy and effective regulation of it. Analyses of the linkages between markets and states and the institutional interfaces among them are essential to creating the enabling environments for market and institutional reforms. This is similarly true for business innovation, whether at the bottom of the pyramid, or in the positive effects of disruptive competition, which brought mobile roaming charges to an end in Africa, or in any of the other success stories the literature presents us.

The national data, analysis, and case studies of ICT-enabled successes and failures also need to be extended to the regional and continental level more systematically to identify points of policy intervention and how deficits might be addressed. Moving from the now-moribund rhetorical appeals for harmonization of policy at the regional and continental level to an empirical and, indeed, self-interested basis for action, is also more likely to be effective in driving the vital integration of regional and even

continental markets for Africa's survival in the global economy.

Evidence suggests that we are likely to witness more poverty alleviation through the application of ICTs in commercial endeavors than through the fabulously innovative, but still localized, ICT4D technology pilots and the state-driven, heavy-handed approaches to universal services of the past. Strategies likely to reduce the market-efficiency gap within market strategies are more likely to improve the affordability of services and result in smaller portions of the population requiring assistance to access telecommunications services.¹³ Resources could then be more effectively targeted at the real-access gap, rather than through the scattershot approach adopted to achieve universal services through the largely failed, supply-side-driven access strategies of the first phase of reform.

Finally, the current poverty of ICT policy can be overcome by strengthening the linkages among policy formulation, research, and intellectual endeavors, as well as through the development of the array of different capabilities required to capacitate institutions—from schools to ministries and regulatory agencies—that are necessary for the effective implementation and realization of appropriate and innovative policies. ■

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13. See Navas-Sabater, Dymond, and Juntunen (2002) for original conceptualization of this approach to addressing universal access.

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