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Negotiating the Net in Africa

The Politics of Internet Diffusion

edited by
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Introduction: Negotiating the Net in Africa

*Ernest J. Wilson III
and Kelvin R. Wong*

THE DIFFUSION OF MODERN information and communications technologies in developing countries is a subject of growing importance for entrepreneurs, government officials, and leaders of civil society. They are beginning to recognize that their own future—and the future of the institutions, nations, and cultures they lead—will hinge substantially on their capacity to harness the beneficial effects of powerful new communications and information resources, while minimizing the disruptive influences of those resources. Scholars, too, are trying to understand and explain the diffusion of these new information and communication technologies (ICTs). Yet many of the available explanations are either highly aggregated descriptions of global ICT diffusion measured against indicators like gross domestic product (GDP) per capita, or descriptive accounts of specific local projects in Africa, Asia, or Latin America, such as telecenters or cybercafes, for which each description is unique and fails to contribute to an aggregate understanding of the reasons for the spread of ICTs.

Thus, analysts of ICT diffusion are confronted with 200 countries with 200 seemingly distinct experiences. We lack an approach that can incorporate distinct experiences and different cases into a single analysis, one that can provide a coherent narrative and comparative analysis of how the Internet, for example, spreads through society. Absent this kind of a framework, we have a jumble of stories of false starts, half initiatives, some successes, and many failures. Confronted with these contradictory accounts, many questions remain about the spread of these technologies: What drives their diffusion—the technology itself, policy, or money? What explains national and regional differences in their spread? How are the “rules of the game” rewritten to create new ICT markets and sectors, and whom do they benefit? And especially important, why does the Internet spread faster and farther in some countries and

communities than in others? These questions and this kind of analysis are central to a whole range of policy questions.

Ultimately, these and other central questions can be answered by means of careful empirical research. Yet careful research alone is not enough; advancing knowledge also requires clear conceptual frameworks and compelling theoretical claims. Such is the ambition of this volume.

Project Framework

Our framework, termed “Negotiating the Net” (NTN), was designed to answer policy-relevant and theoretically important questions—principally, how to best explain the patterns of Internet expansion we observe in Africa and what kinds of purposeful interventions shape their performance. We found most explanations to be apolitical, naive, and technodeterminist. Thus we developed an alternative negotiation model based on our initial observations in Africa and drawing on previous research conducted in China, Brazil, and India. Our new model is built around a theory of “strategic restructuring” (Wilson, 2004). The initial NTN model was then further refined by the contributors to this volume over the three-year life of the project to capture several societal elements that other models seemed to ignore: politics; winners and losers; the nonautomatic, negotiated nature of technological diffusion; and indigenous innovation. The NTN framework is unambiguously built on the premise that politics and policy are primary to understanding the diffusion of the Internet.

Certainly, like other scholars, we recognize that the level of economic development, capacity for wealth creation, and technological advances are key determinants of the pace and extent of diffusion. A high level of GDP per capita in a country means more people can afford to pay for a “luxury” like the Internet. Widespread telephone infrastructure contributes positively to the availability of Internet services. Lower levels of education mean fewer people can fruitfully access the Internet. And a repressive military government will tend to thwart widespread Internet use. We appreciate the role played by these broad contextual factors. However, our singular contribution is to concentrate on precisely those important features of information technology (IT) diffusion that other analysts omit—the details of politics, processes, and policy.

Other analysts have recognized the centrality of policy and politics, of course, from the architects of the World Bank’s structural adjustment policies to the implementers of the Leland Initiative of the US Agency for International Development (USAID). Recognition of policy and politics as a key factor in diffusion is not entirely new. What is new is that the NTN framework insists on locating politics and policy at the center of our model, not as an adjunct or add-on. We also provide a unique set of analytic building blocks, which we call critical negotiation issues (CNIs), that give more focus and structure to the politi-

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cal and policy analysis, and facilitate greater comparative examination. There are, of course, many anecdotes about why an Internet or radio license application was first rejected and then accepted, why a contender failed at one point and succeeded at another, and why a minister, regulator, or telecommunications boss was sacked. Such stories abound. What has been missing and what we provide is a systematic way to process these anecdotes and other information.

Project Essentials

The NTN project explains the diffusion of the Internet in terms of negotiations that take place among variously competing and cooperating parties in society, focusing on a dozen critical policy issues negotiated among different groups (see Figure 1.1 on p. 7). The means by which these dozen issues are negotiated and resolved (or not) in turn affect Internet diffusion in a society, including its pace and extent. This process of negotiation and diffusion differs in its details from country to country, but there are important underlying elements common to all countries. Before we straightforwardly describe the why, what, who, when, and where of the NTN model, a brief definition: we use the term “negotiation” to indicate a multiparty interaction in which actors come together to seek accommodation and accord from other actors in order to advance their own interests (Boyer, Starkey, and Wilkenfeld, 2005).

These interactions may occur in formal settings like open regulatory hearings or legislative sessions. They also may occur in informal settings like hotel bars; they occur during commercial transactions among buyers and sellers. Negotiations involve all manner of actors—private-company executives, government officials, university professors, representatives of multilateral or bilateral institutions, and representatives of nongovernmental organizations (NGOs). Readers will find examples of all of them. We do not claim that negotiations are good or bad, or lead always to positive outcomes. Nor do we believe that all negotiations are fully “rational” in the sense that neoclassical economists use the term. As often as not, stakeholders possess partial information, hold narrow perspectives on their own and others’ positions, and can be incompetent or competent negotiators.

Why Do the Negotiations Occur?

Why do people compete and negotiate over the Internet? For the same reasons they negotiate over land, education, or freedom of speech. Negotiations occur because different stakeholders have conflicting views on how Internet services should be owned, controlled, regulated, used, and distributed. These stakeholders, moreover, are willing to fight to obtain their favored solutions. This reality drives the “why” of the CNIs. Suppliers negotiate with customers and vice versa. Large monopoly suppliers negotiate with small startup suppliers.

Foreign interests negotiate with local interests. They seek not only onetime benefits from onetime transactions; they also seek to benefit repeatedly over many transactions. Therefore, they enter into negotiations to change the rules and regulations that structure all the relevant transactions to their benefit, which are described more fully below.

What Is Being Negotiated?

All countries in the world confront a set of common issues that must be resolved if the Internet, and other telecommunications services, are to be diffused effectively. Taken together, these issues constitute some of the most basic "rules of the game" that guide the behavior of all the players in the Internet arena. Depending on how they are resolved, issues of Internet governance provide positive incentives for some activities and negative sanctions for others. Our NTN team identified twelve basic issues of Internet diffusion, ranging from market structure to issuance of a specific license. These constitute our critical negotiation issues, and they fall into four main categories: policy reform, access, national ICT policy, and technical issues.

Who Is Doing the Negotiation?

A number of different groups and their representatives are involved in Internet negotiations. In general, they are drawn from five distinct institutional areas: government, the private sector, the research and development community, nongovernmental organizations, and international organizations. More specifically, negotiations are conducted by a small handful of individuals located in institutions such as the country's telecommunications ministry or its equivalent, the office of the president or prime minister, the state-owned telephone monopoly, and the state regulator. In the private sector, interested parties include small startup companies that create the first commercial Internet service providers (ISPs), and representatives of large, private companies (mostly foreign but also sometimes domestic). University professors and researchers often play important roles early in the game, as do selected officials from multilateral and bilateral aid agencies.

In the early years of Internet diffusion, the number of people involved is relatively small, and most are from the university and research communities. The number of players grows as interest in the Internet increases. These innovators and early adopters can be thought of as "information champions," because of their fierce commitments to promoting the Internet. The champions clash with the "information conservatives," who seek to preserve the prevailing monopoly and statist system. The conservatives seek to block the Internet completely or to control it so that the new technology will not compromise

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their professional and personal interests. Typically, Internet opponents are the executives of the country's state-run telephone monopoly or senior government ministers. In this study we pay especially close attention to the Internet champions who launch ISPs, and examine how they negotiate with their suppliers, their regulators, their clients, and so forth.

From country to country, the early Internet leaders often share a common background. They are well educated, often have studied overseas, and are typically based in universities and motivated by civic-mindedness. As such individuals make contact with others like themselves, in different sectors, who are equally interested in Internet diffusion, they eventually come to constitute an evolving "mode of cooperation" across the four key sectors: public, private, nonprofit, and research and education. It seems that the more robust these cross-sector partnerships, the more successful the diffusion.

Over time, relationships based on negotiation and cooperation thicken and become institutionalized, and new groups form to protect their interests and perspective (Wilson, 2003).

When Do the Negotiations Occur?

This study examines the negotiations that transpired between the time just before the invention of the basic Internet-protocol technology and the present—that is, the 1990–2005 period. Within this fifteen-year period, distinct phases have appeared in all countries and the character of the negotiations within each phase has been similar. The first phase is an experimental, precommercial period based in universities and carried out by "geeks." The second phase begins when an ambitious entrepreneur launches the first open, commercial ISP in the country (this typically happened in the mid-1990s). The third phase, qualitatively different from the others, occurs when several new ISPs are launched, creating competition, which typically drives prices down and improves services for consumers. In the fourth phase (following the burst of the Internet bubble in 2000), there is simultaneously competition and some consolidation.

Where Do the Negotiations Occur?

The twelve important issues are negotiated among all interested parties. Some negotiations take place between the startup ISP owner and representatives of the incumbent telecommunications company over issues like interconnection fees; such issues may be thrashed out in meetings held at the country's communications ministry or in the office of the post, telephone, and telegraph (PTT) entity. Other negotiations occur between local champions and foreign suppliers of technology or finance. When ISP business associations appear, negotiations take place among the ISP owners themselves, and their associations become

key sites of negotiations. Increasingly, negotiations are migrating beyond the closed “iron triangle” (state monopoly, ministry, and political authorities) within which ICT policies were invariably determined in the past, toward more open, transparent, and democratic sites where more stakeholders can participate effectively. By 2000, many governments of least-developed countries (LDCs) had appointed various national consultative groups to address themes like “information society,” often bringing together four key interests—public, private, nonprofit, and research and education. The shift from closed iron triangle to a more genuinely open, inclusive, four-actor quad remains important, but differs from country to country.

Critical Negotiation Issues

Formally, we define a critical negotiation issue in the area of Internet diffusion as an issue having three components: it has high relevance to Internet diffusion, parties contend over it, and if left unresolved diffusion is seriously impeded. To identify, analyze, and explain a country’s CNIs, each chapter contributor agreed to address the following set of questions:

- Who were the main actors and what were their positions?
- What was the key issue of contention, what was its extent, and what was the nature of the conflict?
- How did the negotiations evolve over time? Did positions, strategies, and forums change?
- What alliances and coalitions emerged, and on what basis?
- How did the issue come to a head, and how was it resolved?
- What was the outcome? Was there any impact on Internet diffusion?

Focusing their analyses on these questions, the contributors initially identified more than twenty CNIs based on their observations across multiple countries. We pared the number down to the most significant twelve. Of course, any classification scheme is imperfect. Some of our CNIs overlap with others, and the dividing line between any two may be fuzzy. Some CNIs are almost always more important than others, while several CNIs prove more significant in some countries than in others (see Chapter 9). Still, in giving multiple presentations to scholars, policymakers, and activists in many countries over several years, our team observed again and again that audiences found these categories intuitively and experientially accurate and useful for framing complex processes using consistent terms.

Among the CNIs, some are quite obvious, such as policy decisions about privatization (private sector ownership) and liberalization (more than one

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actor in the market). Others, such as policymaking capacity, are not so obvious, and of course the dividing line between them is fluid. To preserve comparability and prevent unwieldy analysis, we decided that each contributor would focus on the four CNIs most important to his or her country case. As mentioned above, the twelve CNIs cluster into four broader categories: policy reform, access, national ICT policy, and technical issues (see Figure 1.1).

Policy issues reflect the ongoing rules of the game, who can play and how basic rules are interpreted: Are private sector actors allowed to play, and if so, under what conditions and in which service sector? Is voice over Internet protocol (VOIP) an information or telecommunications service? What level of cross-subsidy will be allocated to underserved users? Here the dominant questions for us pertain to privatization, liberalization, and regulation.

These CNIs are almost always politically very sensitive, as they have important and direct implications for ownership, competition, and control. "Privatization" means transferring part (rarely all) of the ownership from public to private groups, "liberalization" means introducing more competition into a market, and "regulation" brings into the market a body designed to ensure fair-

Figure 1.1 Critical Negotiation Issues

Policy reform issues

1. Privatization
2. Liberalization
3. Regulation

Access issues

4. Access to facilities
5. Monopoly pricing
6. Access legality

National ICT policy issues

7. Information society
8. Universal access and services
9. Policymaking capacity
10. Implementation capacity

Technical issues

11. Internet exchange point (IXP)
12. Voice over Internet protocol (VOIP)

ness, transparency, and competitive conditions while promoting consumer welfare.

Since in most African countries (as elsewhere) the traditional telephone company monopoly was, or is, owned by the state, an early and contentious step to reform is privatization of state ownership, often accompanied by more competition (i.e., sector liberalization). Regulation then shapes the form of the sector according to government policy and maintains public goods, such as stability, order, and harmony, among competing interests. Policy reform issues are particularly contentious because they define and change permissible ranges of behavior, and winners and losers.

Access issues, the second category, groups together three CNIs that reflect conditions and terms prevailing upon users' and service providers' ability to plug into networks: monopoly pricing, access to facilities, and legality of access. Access itself is the ability of users and service providers to effectively connect to the Internet.

Monopoly pricing issues center on negotiations over prices charged by the monopoly, and hence touch on cost as well as cross-subsidies (when one service subsidizes another). Monopoly pricing is an access issue (especially in poor countries) because the monopolies usually set very high prices, resulting in very limited actual demand and access despite high potential demand (Wilson and Wong, 2003). The very high cost of Internet service results in decreased access (Daly, 1999).

With the end of the "monopoly" and the introduction of some competition, dominant providers (former monopolies) often sought to disadvantage others by restricting access to "their" networks facilities. They did this by limiting telephone-line availability (needed for dial-up customers at an ISP) and generally providing less reliable and inferior service, and as a result, access to their facilities becomes an issue. Thus, access to facilities centers on negotiations over access to equipment and the physical connections that users and service providers have to telephone and data networks. Not surprisingly access to facilities is particularly contentious when monopolies from the ancien régime first connect with other service providers. Here, negotiations are essentially about terms and conditions for new entrant access to the dominant provider's network facilities.

Legality of access refers to the authoritative setting and enforcing of the terms for access to facilities by different service providers—how, when, and by whom. Here, points of contention center on interpretations and enforcement of laws, regulations, and other authoritative terms governing connections and plug-ins.

These two CNIs, access to facilities and legality of access, have been identified as different CNIs. The issues in contention, and stakeholder strategies associated with getting initial connection and maintaining it, are quite distinct.

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The third category of CNIs, national ICT policy issues, centers on how countries define and integrate ICT into their strategy of national development. These are essentially issues about national objectives for ICT. This category includes information society policy as well as universal access. In addition, technical capacity to make and implement policy is a critical issue, because in many African contexts expertise required for informed decisionmaking and policy implementation is a significant burden and is critical to success of national objectives.

The final category of CNIs involves very technical issues and includes establishing an Internet exchange point (IXP) and use of VOIP. An IXP connects the local Internet facilities to one another and increases efficiency and reduces cost, but requires some trust among those cooperating. VOIP is among the newer technologies for voice traffic and, as with an IXP, can significantly reduce calling costs. VOIP is also at the leading edge of data convergence.

Table 1.1 demonstrates the most important CNIs in each of the six country cases as well as continentwide. Of the CNIs examined in each of the case studies, the most prevalent involved issues of policy reform. This should not be surprising to anyone familiar with the disposition of a monopoly, in Africa or elsewhere, to resist liberalization. The least prevalent involved issues of national policy.

Table 1.1 Critical Negotiation Issues by Country

	CNI 1	CNI 2	CNI 3	CNI 4
Ghana	Access: international gateways	VOIP	Universal service	IXP
Guinea-Bissau	Privatization	Liberalization	Licensing, regulation	VOIP
Kenya	Access: ISP licensing	Access: national backbone	Regulation	IXP
Rwanda	Access: facilities	Pricing	Licensing	IXP
South Africa	Access: anti- competitive behavior	Access: facilities	Liberalization, privatization, regulation	E-commerce policy
Tanzania	Access: initial licensing	Sectorwide reform	ISP licensing	—
Continental	Access	Privatization	Cost-based pricing	

The Diffusion Outcomes

One of our primary goals was to explain the particular national stairstep diffusion pattern illustrated in Figure 1.2. We reasoned that there should be something about Internet politics and negotiations at the local level that affected the curves of Internet diffusion at the national level. That is, we should be able to link changes in indicators like numbers of Internet users and bandwidth availability to political bargaining and decisions surrounding critical Internet issues. We assumed we would be able to explain these patterns through the kinds of policy innovations that African governments pursued (Wilson and Wong, 2003).

At the broadest level, these patterns are not unique to Africa. The ultimate structural causes most likely to shape the baseline pattern (including the level of penetration) would be a mix of factors like level of economic development or education. But why do specific African countries exhibit certain outcomes? The most immediate determinants of the stairstep pattern, we reasoned, should be the nature and results of negotiations.

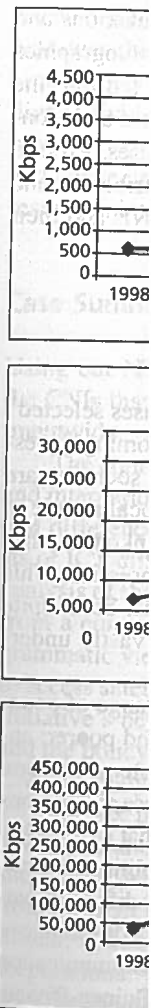
Figure 1.2 shows that all the national figures in Africa trend upward, and that many exhibit a visible uptick in 2000–2001. Yet beyond these similarities, there are also important differences cross-nationally: the country with the highest GDP—South Africa—exhibits curves that are more moderate and less sharp, while Rwanda and Tanzania, starting from a lower base, have steeper penetration curves. The question we seek to understand is why an uptick occurs when it does; our hypothesis is that changes in politics and policy are at least as important as other factors.

Field Methods

The methodologies employed to answer our research questions involved prodigious amounts of field interviews in each country with dozens of key actors, and an extensive review of local records. Over a period of almost two years, the chapter contributors analyzed the CNIs in painstaking detail by carefully interviewing and reinterviewing dozens of people from the public, private, research, and civil society sectors. Our project research team met with officials of international organizations like the World Bank. They poured over public and private records. All of the contributors already had substantial professional engagement with Internet issues and thus were “participant-observers.” They asked Internet stakeholders a uniform set of questions developed by the research team (see p. 6).

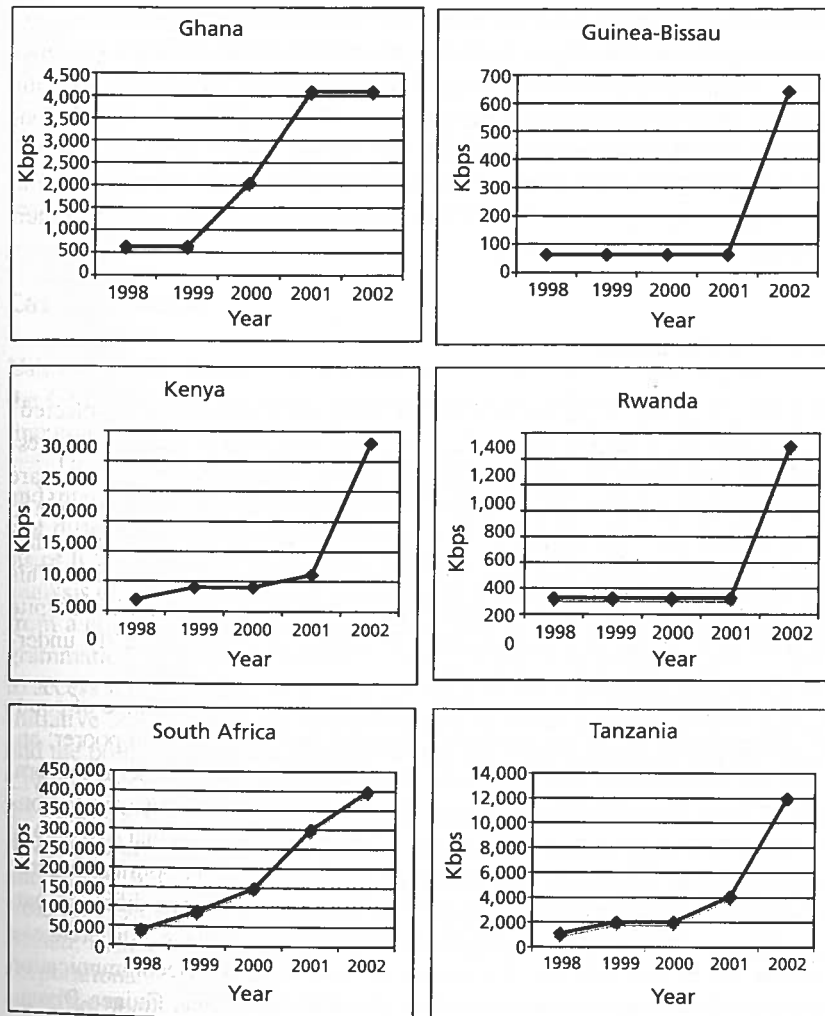
In almost every instance, the project’s researchers were the very first, or among the first, in their country to craft rigorous histories of the diffusion process and certainly among the first to create Internet biographies. Early on,

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Figure 1.2 Total Outbound Bandwidth by Country, 1998–2002



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we did not appreciate how important it would be to document the history of the participants themselves, from their own unique perspectives. As researchers, we found ourselves listening to new narratives, and even to counter-narratives to the "official" or conventional understandings of Internet diffusion contained in other accounts produced by international organizations and national governments. These unique grassroots histories and biographies greatly enriched each of the national case studies, but they also fed into the common NTN research framework (Project for Information Access and Connectivity, 2002). Interesting commonalities existed across the cases, even at the micro level. Sustained interaction between our chapter contributors and their subjects led our researchers to refine the meanings of the CNIs and their implications for Internet diffusion.

Selecting the Cases

Why did this project focus on the Internet? Why were national cases selected? The Internet was a natural focus of our research because it is becoming the essential communications medium through which contemporary societies are linked together in a globalizing world. The Internet is allowing local people to communicate with one another in new ways. It is increasingly linked to other media like broadcasting and print, and advances freedom of expression. This new technology is also a critical core infrastructure for businesses. Yet despite its growing visibility and importance, the Internet in Africa is vastly under-analyzed and poorly understood.

We selected national cases in Africa that illustrate the wide range of country circumstances across the continent: countries that are richer and poorer; anglophone, francophone, and lusophone; capitalist and socialist; eastern, western, and southern; and more and less democratic. We decided to use these dimensions for selection because they are proxies for independent variables that experts believe will shape diffusion outcomes. Just as wealth, education, political regime, and access to telephone lines might create differences in Internet diffusion patterns across African nations, so too might colonial heritage make a difference—contrast the British with the Portuguese in their colonial telecommunication policies and their current behaviors. Our six cases are Ghana, Guinea-Bissau, Kenya, Rwanda, South Africa, and Tanzania. While we have included two West African cases, we were not able to include Nigeria, resulting from complexity on the ground and a shortage of experts available at the time to do original research and write a chapter. This volume features an overarching examination of CNIs across Africa, and a survey of negotiations between local stakeholders and international actors.

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What the Model Excludes

By definition, a model excludes a great deal in order to concentrate on a narrow range of factors. The NTN model excludes several factors, most notably demand-side issues such as individual user profiles of education or income. Nor does the NTN model capture the details of the downstream social or economic effects of Internet expansion—for example, the Internet's impact on the digital divide (see Wilson 2004, chap. 6) or export competitiveness. The NTN model is explicitly concerned with the politics of the “supply side” of the story and concentrates on the individuals and groups seeking to introduce new ICT resources into communities otherwise underserved.

Case Summaries

Using our NTN framework, the chapter contributors analyzed in great detail the CNIs that emerged in our six case selections, individually as well as continentwide.

The continental case study has two focal points. One is the role of donors and international cooperation in ICT diffusion. Lishan Adem addresses important differences among donors and provides a concise chronology and analysis of ICT diffusion from the early 1990s to 2004. The other focal point is his analysis of the CNI process of two donor ICT programs. Adem undertakes this from a continental programmatic perspective as well as from a national programmatic view. The discussion of SatelLife and its negotiations for a license to access satellite-based Internet in the early 1990s in Ethiopia, and the Leland Initiative's negotiations on cost-based pricing in Mali, illustrate how politics and the policy process are captured within the NTN framework and the use of CNIs as analytical building blocks.

The six individual country cases range from South Africa, with a well-developed and sophisticated political system and robust economy; to Kenya and Ghana, with stable and promising economies; to Rwanda, which emerged from its 1994 genocide with less than a handful of telephone lines; to Guinea-Bissau, which experienced a coup and strong intervention from multinational corporations.

The South Africa case focuses on the long contest between the South African telecommunications monopoly and local, privately owned competitor ISPs. South Africa had a liberalized and privatized ISP sector that predated Telkom South Africa's entry into the Internet business. Telkom, with some myopia, had ignored the Internet until, like Gulliver, it found the local Internet market captured by a myriad of smaller ISPs. Then, as a giant awaking to a new predicament, Telkom South Africa turned to anticompétitive tactics and

attempted to quash the ISPs, which resulted in serious litigiousness. In the background of course, though not at the core of these contests, was the country's remarkable transition toward political and racial equality.

Ghana, like South Africa, entered the Internet era led by a private sector Internet company, National Computer Systems (NCS), which dominated the market well beyond its infancy. The Ghana case demonstrates the important role of international financial institutions, broad-based national policy reform, and the economic pressures and incentives of VOIP and universal access. The case also highlights how a fragmented regulatory approach to modern ICTs, with ambiguous roles and responsibilities among government agencies, and among powerful individuals, can hamper diffusion and complicate negotiations.

The Kenya case analyzes push-pull dynamics and linkages between the diffusion of the Internet and the democratization process, which culminated in the defeat of longtime president Daniel arap Moi. At the same time, the country reflects the continuing monopolistic tendencies held by most telecommunications companies. In Kenya the Internet had, until recently, found a cold host in government agencies. At one point government employees were forbidden to have e-mail accounts. In a telling statement, the telecommunications regulator remarked, "We were shocked to learn Telecommunications Service Providers of Kenya launched the new [IXP] service without applying for a license."¹ Despite this kind of governmental reticence, the ISP association and the Kenya Education Network, working separately, were able to make government policy more progressive. The Kenya and Ghana cases reflect interesting similarities, especially with respect to relatively well-developed *de jure* regulatory structures, yet in practice the Communications Commission of Kenya has been more successful than Ghana's National Communication Authority in its quest to introduce policy reform.

The Rwanda case illustrates how a small, war-torn country, having emerged from genocide in 1994, coped with a highly monopolistic telecommunications company and eventually made giant steps forward in bringing the benefits of the Internet to the country through a partnership between a domestic education coalition and international donors. With significant human resource shortfalls on all fronts, this small poor country, which experienced a genocide, a civil war, two significant militarized cross-border disputes, and continuing high-level insecurity in the past decade, was among the first in Africa to liberalize the Internet access providers (IAPs), even though their interconnection was only fully realized in 2004.

Like Rwanda, Guinea-Bissau is small and poor, and has experienced more than its share of instability. A coup was followed by a civil war. The Guinea-Bissau case, unlike the others, highlights how an international corporation hampered progress for a number of years.

Tanzania reflects the importance of telecommunications reform writ large, and the case study provides in-depth analysis of the country's experi-

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Democracy and Markets, David and Goliath, and the Second Speech in the Hotel Bar

Five of the six countries covered in this volume experienced a massive tectonic shift in their political economy during the 1990s. These remarkable, far-reaching changes were part of a larger wave of change that rolled across the entire African continent and other areas of Asia, Latin America, and Europe. One historic trend was the transition from socialist and command economies to more market-driven arrangements. A key aspect of this economic reform process was privatization and commercialization. Simultaneously, Africa was rocked by an unanticipated upsurge in political liberalization and democracy (Bratton and van de Walle, 1997). These two intertwined trends—more capitalism and more democracy—provided the sustaining environment within which the Internet diffused in Africa and, as we will see in some of the case studies (e.g., Kenya and Guinea-Bissau), the relationships among the Internet and political and economic liberalization could sometimes flow in both directions. Our evidence, however, suggests that prior economic and political liberalizations facilitated Internet diffusion more than technological diffusion generated political liberalization. This may change in the future, but it is the reality on the ground today.

One of the main themes to emerge from the studies contained in this volume is that whatever the specific details in each national case, and despite nuances across the CNIs, the story of Internet diffusion in Africa is very much a "David and Goliath" scenario. In each country, the incumbent national telecommunications company and its political allies elsewhere in government aggressively pursued multiple strategies against the small, private, and locally owned "impudent" startups. Entrenched interests, the Goliaths, used every means to protect their privileged position in the market and in powerful domestic political circles: discriminatory technological standards, discriminatory pricing, predatory regulatory controls, and even police raids. Unlike in the biblical tale, however, the little Davids did not slay the giant Goliaths. Instead, the Goliaths survived, but had to live in an increasingly competitive commercial environment surrounded by a growing number of Davids.

All matters of importance involve a compelling story or two. The dominant story—the conventional wisdom, the "way it is," the public truth—is widely accepted and widely repeated, and usually has some significant elements of veracity and accuracy. From the point of view of the "geek" community of ICT

experts, the dominant story and conventional wisdom of Internet diffusion in Africa and elsewhere is that if you build it, users will come. As one world-class ICT intellectual, Nicholas Negroponte, boldly said at a meeting in Rome recently, "Yes, indeed, if you drop a laptop in a poor rural school it really will transform the children."² The other story, told by Africa experts, is more likely to convey the deeply embedded institutional, cultural, and economic challenges that will shape—and often sink—Internet diffusion efforts: African society captures everything including a laptop's effectiveness in rural areas. The "geek" ICT expert's story is often overly optimistic about diffusion outcomes; by contrast, the Africa expert's story can be overly pessimistic.

Our third theme is that a new narrative is needed, one that tells a more nuanced and critical story of Internet diffusion in Africa. Whether novice or seasoned expert, many have probably heard the polite version of the "Africa Internet story" in countless conferences and seminars from South Africa to Senegal, from Cambridge, England, to Cambridge, Massachusetts. In this narrative, the African Internet expert offers up a story of great individual and social needs that will soon be met with adequate bandwidth, shining new hand-held devices like mobile phones or personal digital assistants (PDAs), steadily falling prices, and proper policies that allow for an adequate "enabling environment" for ICT. To achieve this, three "next steps" are called for, and the audience applauds politely. Then the speaker and a few senior audience members head to the hotel bar, where someone quickly asks, "Now tell me what is really going on," and why the Ethiopians (or the Thais or the French) are not pursuing what the conventional wisdom and technological logic suggest. At this prompt, there in the hotel bar, the speaker gives his "after-the-speech speech." This second narrative points to entrenched political and institutional interests, failures to reach political consensus, and frustrations among the incumbents and the new ISPs—the roadblocks and the blockbusters. This second narrative engages with the difficult realities of the critical negotiation issues—their coalitions, leaders, and followers—and is really more helpful for understanding Africa's advancement toward a more knowledge-intensive society at a time when many African countries are moving backward and away from such a society because of AIDS, poverty, mismanagement, and ignorance. This second narrative has not yet been constructed in a comprehensive fashion. We and our chapter contributors hope that this book will contribute to building such a second narrative, one that is more truthful, more transparent, and more politically realistic. Hopefully, at the next international conference, this second narrative will be told in the conference hall as well as in the hotel bar.

THIS CHAPTER SURVEYS the experiences of National Communications Service providers (NCSs) between 1994 and 2000.

- Establishing a regulatory framework
- The legality of NCSs
- The funding of NCSs
- The development of NCSs

Other critical issues are discussed because they had, at least, a bearing on (NCSs) discussed in this chapter. These issues will be examined in chapters 4 and 5.

Between 1994 and 2000, the telecommunications sector. Previous chapters (PTT) companies, telecommunications providers and mobile operators (e.g., Ghana Telecom). The liberalization of the telecommunications sector, structural adjustment programs, and the separation of postal and telecommunications companies. The impact of liberalization with a 30 percent share of the market.

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Conclusion

Ernest J. Wilson III

COMPARING AND CONTRASTING THE critical elements of a fast-moving phenomenon like the information revolution is no easy task. In the preceding chapters we have attempted to do so by analyzing the critical issues of political give-and-take, what we call critical negotiation issues (CNIs), whose resolution is essential for successful information and communication technology (ICT) diffusion.

Having organized the chapters in this volume mainly on a country-by-country basis, we now concentrate on the CNIs themselves. This chapter describes their common political and institutional features and how they differ from one another across several distinctive issues. It also reviews their relative effects on ICT diffusion. In contrast to Chapter 1, which was more conceptual and academic, this final chapter reverses the balance, to analyze and underscore the most policy-relevant findings that emerged from our negotiating model and that are particularly relevant to practitioners.

The contributors to this volume have chosen to employ the CNI approach, over other available approaches, in order to pursue several distinct goals:

- To illuminate the essential contribution of politics to Internet diffusion, and to criticize the “technology first” approach.
- To provide common reference points of choice and action that can be consistently compared and contrasted within each country and across them.
- To give practitioners a consistent narrative and storyline with a beginning, middle, and end, to help them better understand the complicated processes of Internet diffusion.
- To identify lessons and best practices that could be learned and selectively applied in the African context.

- To demonstrate convincingly the effects that particular negotiation outcomes have on the pace and allocation patterns of Internet service diffusion.

The contributors have been able to advance all five of these expected benefits, some more completely than others. The most problematic goals have been the final two—best practices and impacts. In the rest of this chapter, I review these and other issues and begin by analyzing issues of CNI sequence, duration, and principal actors. Subsequently, I address matters of policy design and implementation, politics, and the especially problematic elements of best practices, lessons learned, and impacts.

A Brief Review of the CNIs

The contributors began their research with a repertoire of a dozen critical negotiation issues they judged initially to be most important in their case study countries. As depicted in Figure 1.1 (see p. 7), the CNIs involve four major categories: policy reform issues (privatization, liberalization, regulation), access issues (access to facilities, monopoly pricing, access legality), national information communication technology (ICT) policy issues (information society, universal access and services, policymaking capacity, implementation capacity), and technical issues (Internet exchange point [IXP], voice over Internet protocol [VOIP]).

Of these twelve, the contributors discovered through their two years of research that some CNIs were more important than others in the value-added “second market” of the Internet service providers (ISPs), which was our main focus. The first two CNIs (privatization and liberalization) were enormously important for the overall performance of the ISPs in their environment, yet the contributors concluded they were best analyzed as key upstream factors in the “first market” of the telecoms, not in the second market of the ISPs. The contributors had to refer to these two, but one step removed from the ISP market. The last two CNIs proved peripheral to most countries’ overall CNI repertoire, because they were not as contentious as others, although they were judged rhetorically, in principle at least by the key players, to be “important” (Ghana was an exception where they were contentious).

Unquestionably, the most thorny and difficult issues proved to be the core four CNIs: access to facilities, anticompetitive behavior, monopoly pricing, and regulation. Table 1.1 (see p. 9) indicates how the several CNIs were ranked by the country contributors.

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Conclusions About Policy Design and Implementation

A great deal of international scholarly and institutional attention has been devoted to whether, and how much, governments of less-developed countries (LDCs) articulate broad principles of liberal ICT diffusion, and whether they elaborate explicit policy frameworks and publicly commit themselves to common rhetorical positions about the value of ICT services and their potential contributions to national development. Analysts focus on statements by presidents and ministers, new legislation, and newly created or reformed institutions, and the whole juridical package designed, in principle, to promote beneficial outcomes like universal access and democratic growth. Examples of this approach are codified in national-level e-assessment documents of groups like McConnell International or the Center for International Development at Harvard (McConnell International, 2000).

No one would deny that the proper framing of broad principles and targeted ICT incentives is an essential element of successful ICT diffusion, whether in China or Botswana. Yet restricting the focus to rhetoric, intentions, and principles is insufficient. Perhaps the major contribution of these CNI studies is the determinative influence of other essential factors in successful Internet diffusion in Africa that tend to be overlooked: implementation, collective action, and political sustainability (Grindle and Thomas, 1991).

Studying how critical, contentious issues are resolved on the ground reveals that the relationship between rhetoric and reality can be distant or close. Policies can be pronounced and not implemented; and they can be implemented and not announced (through the slow accretion of small steps taken by various actors in response to facts on the ground). Being announced and implemented is only one option among several, and as indicated below, it is perhaps not the most prevalent. Whether an ICT policy is implemented in Africa is largely an empirical issue.

Internet diffusion policy is not just what governments do, but also results from many decisions made and actions taken by other stakeholders, including *private* ISP owners, individual members of the community of *university* experts, and the engagements of nongovernmental organization (NGO) leaders, often in reaction to government strictures. At some point in all countries where the Internet expands successfully and quickly, there emerges a small group of ICT collaborators drawn from different sectors of society who come together to advance their vision of the networked society.

Since action demands that stakeholders' interests must be aligned, moving from sharing a vision to actually implementing policies is difficult. "Implementing" requires that leaders must commit themselves, shifting from rhetoric to action and mobilizing scarce material and other political resources, resources that could be applied to other development challenges. These scarce

resources will then be used to facilitate and reward the groups and individuals that promote liberal Internet diffusion, and punish those who oppose it. Different CNIs vary in their "implementation intensiveness" and susceptibility to political interference. Implementation has several distinct, if related, elements: sequence, intensity, duration, and stakeholders interests. Other issues concerning collective action and sustainability come into play as well, and are addressed later in the chapter.

Sequence

In politics and policy, the order and pace in which issues appear on the radar screen of decisionmakers has important consequences for outcomes. The adage that "timing is everything" certainly proved true in these African cases. Policymakers in Africa, as in other regions, discovered that issues of Internet diffusion came in waves, with some more likely to appear early in the process and others invariably later. Two interesting sequence patterns emerged in the cases, one tied directly to the CNIs as initially defined, the other somewhat more general.

In every case-study country, for example, the challenges of voice over Internet protocol and interconnecting national points of presence (POPs) into a national backbone appeared late in the process. By contrast, "access" terms arose early as one of the most contentious issues of all. Other issues like licensing and pricing were more spread out over the life of the diffusion process, likely to arise at different times in different nations. Succinctly put, the sequence of greatest consequence for ISPs runs from "access to facilities" through pricing, anticompetitive behavior, and regulation, and then to IXPs and VOIP.

For most countries, the sequence of issues strictly within the Internet service provision market was preceded by distinct but related policy sequences that arose in the broader telecommunications market. Commercialization and liberalization, for example, arose earlier in telecom reform, and their resolution shaped the national policy environment for the subsequent growth of ISPs. Where competition was permitted in the upstream telecoms market, Internet diffusion seemed to be facilitated.

The reasons for these differences in policy issue sequence are rather straightforward for the earliest and latest arrivals. Successfully interconnecting points of presence around the country to save money could only arise as a practical problem when there were in fact POPs already established and serving customers. Indeed, there is probably a minimal level of customers below which the financial and technical challenges of interconnection are much less pressing than others. The same holds true for VOIP. The technology to send voice over Internet protocol had to be invented and locally available. There

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had to be a threshold level of basic connectivity and customers, which is not insignificant. VOIP, therefore, was never the first negotiating issue confronting decisionmakers.

By contrast, an Internet service provider simply could not open for business without reliable, regular, and reasonably priced basic access to telephone lines. And because the owner of the lines—the incumbent telephone company—was unfamiliar with the Internet, and because the staff typically felt threatened by an innovation whose impact on their long-standing business model, on national security, on universal access, and on their own professional and personal prerogatives was possibly damaging, then in most countries it always began by hampering ISP access to its lines. Not surprisingly then, access became an early critical negotiation issue in Africa, as it did in Europe and North America.

In between the latecomers of IXPs and VOIP, and the early arrivals like access, we find issues of pricing, licensing, universal access, and institutional capacity drawing the interests of the different stakeholders in the developing ISP markets. These issues have greater leeway, and other nontechnical issues played a wider role.

Other temporal continuities emerged that were not as fully developed in the individual cases. Taken together, the African countries studied here experienced at least four phases of Internet expansion: precommercial, commercial, competitive, and consolidation. The first phase begins with the initial commissioning of the first Internet link in a country, always done in Africa as elsewhere by researchers and computer “geeks” usually housed at universities (compare Wilson, 2004, for similar processes in Asia and Latin America). A second commercial phase occurs a few years later with the entry of the first nonresearch, commercial ISP. Rapidly on the heels of the commercial stage comes the third competitive phase, when the first market maker is challenged by other entrants and the field becomes more competitive, prices fall, and service improves. After 2001 and 2002, the market begins to experience the fourth phase: more consolidation even as competition remains. Each of these phases has a different mix of CNIs, and a typical kind of politics, expanding out in concentric circles from mostly cooperative relations among a small group of Internet enthusiasts and champions who operate below the government’s radar screen, to the commercial and competitive period when the challenges posed by the grassroots-oriented champions come to be recognized by the incumbents, who strike back in ways described below. In the fourth phase, the CNIs become slightly more technical again and less contentious, and the acrimony of the debates decreases somewhat. This is a kind of political turning point in the diffusion process.

An interesting common political point across all countries is when the Internet access issue appears on the “radar screen” of the telecom managers and senior ministry officials. The contributors to this volume have repeatedly

drawn attention to this "Aha!" moment of recognition by the information conservatives, when they suddenly recognize the threat (and less frequently, the potential opportunities) they face from the information revolutionaries.

Intensity

The intensity of the CNIs appears to grow from the interaction of a number of separate factors: the number of stakeholders involved, their knowledge about how the technology works, their initial attitudes toward other actors, and their expectations about the outcomes of the interaction.

In a nutshell, the number of core stakeholders (ministry and telephone company) starts out small, and because their knowledge of the commercial and political implications of the Internet is very limited, they err on the side of caution and conservatism and view the new entrants as potentially threatening to their "turf" and intensely resist innovation. They expect that the results of interactions at best will be uncertain, and at worst will always be zero-sum—if the new ISPs and their backers win, then their own conservative coalition will lose. The ISP coalition takes note, also expects a win-lose situation, and negotiation intensity spikes. As the negotiations proceed over access, pricing, and other critical policies, the players in this new game invent the rules as they go along, and through an iterative process of hostility, conflict, and cooperation, come to learn more about the key elements than they knew originally—all parties learn more about the technology, the market, the other players, and themselves. One lesson they learn is that their core assumption about the future as a zero-sum, win-lose situation is wrong; it is in fact more like a positive-sum, win-win game. The evidence from most telecom reform campaigns is that, contrary to initial expectations, the telecoms can actually increase their revenues and other performance indicators when they reform their pricing, services, and other aspects of doing business, including providing leasing and other access to ISP resellers.

Heuristically, we can imagine a three-step process in this "market making." The first step is marked by few actors, low knowledge, low levels of trust, high uncertainty, perceptions of high risk, and expectations of zero-sum outcomes. After multiple negotiations comes a threshold point marked by new knowledge, new awareness, and new actors (including multilateral actors), all of which combine to occasion strategic recalculations by all parties. ISP owners, for example, gain self-confidence and create business self-help organizations. Finally, in the third step, the emerging market achieves quantitative and qualitative changes in all key components—the numbers, experience, knowledge, and expectations lead to greater awareness of the potential win-win nature of the arrangements, producing lower levels of conflict than occurred in the first cycle. Intensity of interaction starts low, climbs in a middle phase, then declines somewhat.¹ Still, market evolution certainly does not eliminate

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Duration

As there were some issues that arose early and others that emerged late, some CNIs were more likely to persist through time once they did emerge, and to resist easy or quick resolution. By contrast, others were more susceptible to expeditious resolution through negotiations. The former notably included regulation, access to facilities, and pricing, three tough, persistent issues that were themselves tightly bound together through the exercise of power by key ministries, large companies, and several other well-entrenched agencies, as well as the growing influence of rising smaller challengers. Issues like universal access, universal service, and the digital divide are especially long-lasting, given the extreme poverty and underdevelopment of the region. And because threshold levels of what is judged to be “universal” change along with technological innovation and increases in living standards, these issues remain critical even in developed countries. These CNIs were not susceptible to easy fixes, because in fact they were mainly reflections of the constantly shifting market conditions of demand and supply and the equally variable influences of consumers, producers, and other organized interests within and beyond government who spoke and acted on their behalf. This reflects technical changes that do not lend themselves to onetime resolution; it also reflects growing sophistication among the stakeholders about how to define and pursue their own interests and to calculate interests of others as well as greater facility in negotiating.

A few of the later CNIs, like IXPs and VOIP, are likely to be more neatly resolved than some of the earlier, continually contentious issues. Some negotiation issues were more akin to on-or-off switches—a company was privatized, or changed into a nonstate company, or it was not. Governments permitted more than one ISP to make the market more competitive, or they did not.

Other ICT-related issues have not yet been placed on the negotiating tables of most African countries, including electronic commerce or electronic government. This is hardly surprising given the low levels of penetration and commercial development. Yet we know that such new issues, along with continuing CNIs, will bedevil the negotiations for years to come among the different actors and stakeholders.

Stakeholders

For most of the CNIs, the range of actors was fairly consistent and surprisingly narrow. The telecommunications ministry, the incumbent telephone company, the regulator, the new ISPs, and some of the largest multilateral and bilateral

aid organizations were the main interests engaged in virtually each of the CNIs. Indeed, one of the most interesting findings is the narrow range of players involved in the CNIs. The continuity of the key players before and after the telecom reforms was high—the ministry, the telecom, and the foreign donors. To this core group were added a few new players—ISPs, the regulator, and a few large consumers like universities.

The traditional closed policy system in place since the 1960s, if not before, was a duopoly of one state monopoly supplier company and one supervising ministry. In some countries, the ministry *was* the operator. In the middle to late 1990s, this duopoly began to expand slightly to encompass a few newcomers, but only sporadically and with limited effect. Nonstate, non-governmental organization (NGO) stakeholders were allowed in to represent consumer or other interests only slowly. The closest to a real institutional and political innovation beyond government was the slow, tentative growth of the ISP associations.

Reviewing sequence, duration, and stakeholders we are reminded that policymakers and strategists among firms, government agencies, nonprofits, and education and research bodies will not resolve all the critical negotiation issues on their agenda easily or, in some cases, ever. Decisionmakers must be knowledgeable about continuing challenges and new ICT challenges not yet ripe for negotiation that remain just beyond the horizon. Being ready for the future requires knowing how critical issues were negotiated and resolved (or not) in the past. Aside from recognizing these new stakeholders and the shifts in relative power among them as individuals, an essential element of a “Negotiating the Net” (NTN) research strategy is to consider whether and how individual actors sought out and mobilized coalitions and tried to build constituencies for collective action.

Collective Action Around Internet Diffusion

Collective action refers to the challenges that arise when individuals seek to band together to pursue some (potentially) common purposes and must overcome barriers that block joint action. Because collective action issues are deeply embedded in the CNIs, conceiving of CNIs as collective action problems is illuminating (Olsen, 1965).

The Core Suppliers Coalition

One core group of stakeholders has been engaged in substantial collective action over many years, and has designed ways to institutionalize their cooperation to achieve their common ends—these are the communications ministry and the state-owned (usually) monopoly suppliers (i.e., the tele-

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com). These two huge stakeholders usually do not have major collective action problems, because organizing two stakeholders with largely common interests is not very difficult, since they have been able to create repertoires of cooperation honed over many years. This is visible in all six cases studied in this volume.

The Excluded Who Do Not Engage in Collective Action

A second grouping demonstrates the difficulties of cooperation and collective action. Indeed, they are classical exemplars: these are the actual and potential *users* of the value-added services, and they are universally *excluded* from regular, serious negotiations with the core actors. No institutions exist in Africa to formally aggregate consumer interests. In no instance did the contributors report on an Internet *user* association, nor even a telecom *user* association that could bring consumers' perspectives and preferences to the councils of policy-making or policy implementation. There is an international telecom user association, the International Telecommunications Users Group (INTUG), and there are national equivalents in other developing countries (Brazil, for example). In all countries, especially in the developing world, consumers of a product or service suffer the classic barriers of being widely distributed with relatively low interest in the unfamiliar service and having low income. The potential benefits of action are widely scattered for these stakeholders but are concentrated for the core actors (the ministry and the telecom). Thus the ministry traditionally sides with the supplier.

The New Actors

Between the conventional political weakness of the final consumers and the political strengths and privileges of the traditional dyad are located the other important actors in the CNI drama. Such actors include the ISPs and their incipient associations. Typically, individual business owners and entrepreneurs do not coalesce into a formal business association unless and until they are sharply threatened by other stakeholders—usually by unexpected, intrusive, and worrisome government interventions that threaten sales and earnings. This is especially true in LDCs; there is a rich and sophisticated literature on business interest associations in developing regions that finds similar dynamics more generally. In Ghana and South Africa, for instance, the businessmen (always small businessmen) came together to try to aggregate their individual interests into a collective effort to protect the emergent sector. There were internal barriers among the ISP owners, and not all ISPs had the exact same interests, as in Ghana, where one ISP controlled half of the market. But in most cases, eventually some collective action was achieved that altered the pace and

scope of Internet diffusion. While gaining mostly modest victories in the short term, the ISP associations will probably become more important over time.

In African countries there is not the same concentration of large industrial users of telecom services as in developed countries or even in other underdeveloped regions that might otherwise organize themselves to bargain for lower rates or improved service. The numbers of large firms (multinational corporations, for example) are few, and, relative to other costs of operating in a poor country, their Internet charges are low (Daly and Miller, 1998). Sizable firms typically internalize those ICT operations or make special arrangements to secure superior services through, for example, outsourcing.

One important exception to weak collective action by African consumers involved the steps taken by institutional leaders in some top African universities. In Kenya, Rwanda, and to some extent Tanzania, as top university administrators began to realize the importance of Internet connectivity for their faculty's research, for teaching their students, and for remaining engaged with knowledge creation and use globally, they began to lobby their governments individually and then collectively for improved access and lower prices. The country chapters point to these key examples of ICT-related collective action.

Sustainability

Another major analytic challenge for practitioners and scholars is whether the technical, institutional, and other innovations introduced in these African countries thus far are sustainable beyond the short to medium term. By "sustainable," I mean politically and institutionally sustainable, not just technically sustainable. The African landscape is littered with brilliant startups and well-intentioned first phases that failed, never making the transition to the second phase and long-term sustainability. Successful ongoing ICT initiatives require that effective collective action be launched and a stable political coalition be put in place to provide a continuous, predictable, and strategic flow of resources into the sector over the long haul—not for days and months, but for decades. It is still too early to determine whether the multiple Internet experiments in Ghana, Kenya, and Tanzania will be sustainable at the levels required to help African nations make the transition to a knowledge society genuinely rooted in the life of the people. The case studies provide ambiguous evidence.

Intimately tied to the capacity of African ICT stakeholders to aggregate their individual interests to group interests, and to achieve sustainability, will be the capacity of new and reformed institutions to facilitate progressive political interest aggregation. Central to that process will be the regulators. These new institutions must play an essential role in protecting consumers, promoting market competition, allocating licenses, and attaining other goals not achieved (or

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even pursued) by other bodies. The regulators thus regulate the access that different categories of stakeholders will have to rule-making and adjudication, shaping who gets to participate in negotiations and hence who is most likely or least likely to engage in efforts of collective action. To this extent, they are central to collective action in the ICT sector of African nations.

In turn, long-term sustainability requires that individuals, groups, and institutions heretofore quite separated from one another on these issues find ways to begin a process of enhanced, repeatable, and predictable communication built on growing trust and respect across four key sectors: public, private, NGO, and research and education. In the most successful communities and regions, like Bangalore (India), São Paulo (Brazil), Beijing (China), and Silicon Valley itself, ICT success is correlated with robust, reliable, and growing cooperation and partnerships across the four sectors (Wilson, 2003). This is a new form of social cooperation we call a "quad."

Let me further underscore the broader stakeholder issue by restating it in terms of the principal goals of the NTN/CNI project—to explain Internet diffusion in terms of its *process* elements, and in terms of visible performance *outcomes* measured through quantitative indicators like the number of dial-up subscriptions and the volume of broadband capacities in each nation.

Process Commonalities

There are certainly process commonalities across the cases studied in this volume. The contributors found that the *stakeholders* are fairly consistent across the cases—the applicants are first the small private sector ISPs, outsiders who confront an entrenched, recalcitrant telecom incumbent and its allies in the supervisory ministry. Typically, some nongovernmental actor approaches the government to request more, and better, access to Internet services. The actor may, and usually does, approach again and again, until after repeated rejections the government consents to expand bandwidth by offering more capacity. The new actor may seek more capacity on its own, usually by getting access to a very small aperture terminal (VSAT) (as in Ghana). Alternatively, the incumbent may expand its own bandwidth and then agree to sell the new capacity to wholesale customers, who then resell it retail. This new dispensation by government almost always occurs only when the individuals or groups requesting expanded access construct a political coalition of players who also want more capacity, and the pressures of the proexpansion coalition trump those of the antiexpansion group inside the government, whose members fear losing their own political and economic influence, their access to scarce resources like foreign exchange, and even their jobs if competition leads to shrinking the public sector and public employment.

Leadership in the ICT Sector

For analysts to capture Internet diffusion accurately and to explain it rigorously, they need to pay more attention to the kinds of micro-macro linkages described in this volume. This means analyzing individual women and men and their individual contributions to Internet diffusion. In much of the ICT literature, the contribution of individual “information revolutionaries” has been given short shrift, set aside in favor of highly aggregated institutional or macroeconomic factors. I expand on this notion of micro-macro linkages that affect the emergence of social architectures, which in turn undergird the technological architectures of the Internet and other ICTs in other works (Wilson, 2003). In all African countries reviewed in this volume, some identifiable individuals emerged that recognized opportunities to spread these new resources and seized them well before other individuals even understood they existed. From Rwanda to Ghana to South Africa, their challenge was to transform their individual vision and will into real-world Internet diffusion.

In this regard, Africa confronts some special, indeed unique challenges in creating positive dynamics among early individual innovators, stakeholder groups, collective action, and sustainability. There are several reasons for this, some of which have been addressed in previous chapters. In communities like those cited above—Bangalore, São Paulo, Beijing—some early champions from the stakeholder groups who advocate strongly for a bottom-up, widely distributed, and inexpensive Internet are able to create robust links among themselves that enable them to mobilize the material and nonmaterial resources necessary to create and sustain diffusion. In Brazil, these cross-sector links were especially robust among enthusiastic university ICT researchers, committed professionals in government ministries, and some civil society organizations (Wilson, 2004). The information champions forge links of trust that lead to more than an academic network—they forge a kind of political alliance or coalition in favor of Internet diffusion and its antecedent telecom reforms. The case studies document varying degrees of cross-sector cooperation in the countries under review. In Africa, these essential linkages are less robust, partly because there are fewer experts in each of the four constituent nodes, because material resources are in short supply, and because the existing bridging institutions and norms are themselves weak.

Outcome Commonalities (Quantitative)

Exploring the linkages between CNIs and precise quantitative national diffusion patterns proved to be more problematic than tracing the negotiation processes. We pursued this question originally because we felt it to be important for theoretical and practical reasons. First, it would be one test of the ex-

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tent to which politics and public policy make a difference in the diffusion of a technology. Experts in this field too often concentrate on the technical or financial aspects of promoting technological diffusion, because they lack the necessary insights into bargaining and politics that we offer in this volume. Second, exploring links between outcomes and political negotiations could identify and explicate "best practices," leading to improved policymaking as the various parties better understand the benefits of undertaking certain kinds of negotiation. Third, linking outcomes and negotiation does encourage greater conceptual and theoretical precision when scholars undertake comparisons across nations. Hence our search for causal relationships between political action and negotiation on the one hand, and identifiable aggregate outcomes on the other.

Yet as contributor Charley Lewis reminds us in Box 9.1, there are tremendous difficulties in successfully identifying such regularities. Selecting, obtaining, and using the right indicators, as well as problems of lag times and simultaneous causation, greatly muddy the analytic waters. Still, we can point to some relationships between CNIs and diffusion patterns that are highly suggestive.

Box 9.1

STATISTICS AND LIES, CAUSES AND EFFECTS

Charley Lewis

One of the intentions of the research undertaken in the country case studies collected in this volume was to explore what connection, if any, existed between the critical negotiation issues chronicled in each country case and their impact on the diffusion of the Internet. Our provisional hypothesis was that junctures in the negotiation process, where deadlock occurred, would impede that diffusion, and that a successful resolution would provide a measurable impetus toward further diffusion.

There is certainly anecdotal support suggesting such a conclusion. Interviewees repeatedly describe critical negotiation issues in terms that appear to bear out the hypothesis stated above. Several South African interviewees, for example, suggest that the establishment of the country's first fully fledged Internet exchange point, which was a direct consequence of the confrontation between the private sector ISPs and the incumbent telecommunications monopoly, had a direct and potentially measurable impact on intracountry Internet traffic.

continues

Box 9.1 continued

There are also certainly instances where the data appear to reveal some or other impact potentially traceable to a negotiated outcome—such as a dramatic increase in international bandwidth, a sharp spurt in numbers of Internet users, or a sudden change in the number of ISPs in the market. Certainly, in the case of South Africa, there was a sharp jump in the number of Internet users, particularly corporate and dial-up users, subsequent to the establishment of the first private sector ISPs, followed by a noticeable downturn in growth once the major dispute between Telkom South Africa and the Internet Service Providers Association flared up. Similarly, perhaps paradoxically, a sharp decline in the number of ISPs between 1998 and 2000 can arguably be ascribed to a belated wave of mergers and acquisitions once the dispute went into abeyance and the market stabilized again.

However, a consistent and directly traceable linkage between the kinks in graphed data and the vicissitudes of negotiations and their outcomes remains elusive. There seem to be a number of reasons for this. Fundamentally, the question of what is an appropriate marker for ICT diffusion needs to be addressed. Some of the more easily obtainable and accurate indicators, such as number of ISPs, or international bandwidth capacity, reflect more closely on the supply side of Internet diffusion. However, some of these are also prone to sudden jumps, such as the acquisition of an international circuit, which can dramatically lift the bandwidth of a country with relatively poor connectivity by an order of magnitude, but which may, initially at least, be underutilized. Numbers of Internet users may be a more accurate reflection of the demand side of diffusion, but even aside from the dubious accuracy of user statistics, the figures contain certain inherent distortions. For example, although no reliable estimates exist, it is widely recognized that the number of dial-up accounts corresponds to a considerably greater number of users—Telkom South Africa estimates an average of two users per dial-up account. But there is also a countertrend of duplication, whereby many users enjoy access via several channels that are measured separately, such as both a dial-up account at home and corporate access at work. The International Development Research Center of Canada has suggested outgoing bandwidth per capita as a more useful marker, but this still tends to reflect supply rather than usage. To gauge diffusion accurately, it would also seem important to include some more subjective indicators of the use and usefulness of the Internet for its users—the mosaic framework goes some way toward this, but arguably not enough.

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Box 9.1 continued

It therefore seems clear that further debate and additional work is required in order to secure a suitable measure for Internet diffusion. Perhaps a composite measure is required, trackable over time and incorporating a number of indicators, including possibly: number of ISPs, total outbound bandwidth per capita, number of users, number of points of presence, number of leased lines, number of domains registered, as well as some more subjective factors.

A second major difficulty of tracking the impact of negotiations on the diffusion of the Internet lies in the actual numbers themselves. This is acknowledged by both Arthur Goldstuck (the source of much of the best data) and Mike Jensen (probably Africa's leading authority). Many of their figures, particularly those with respect to users, are based on responses, which are not open to independent verification, from the various ISPs, which, for various reasons such as corporate prestige, have a vested interest in smoothing fluctuations and presenting a picture of steady growth. Further, such surveys typically enjoy a rate of return of around 60 percent, meaning that partial data have to be extrapolated to achieve numbers for the sector as a whole. In addition, estimates for numbers of corporate and academic users are just that: estimates, based on certain assumptions and extrapolations. Finally, the accuracy of the data tends to diminish the further back into the past one seeks to go. Similar problems underlie the International Telecommunications Union data, which are ultimately derived from the same sources.

Other factors beyond either the accuracy or the suitability of the various potential Internet diffusion indicators make tracing the impact of negotiations on diffusion a difficult exercise. For example, the relative "coarseness" of the data, which usually reflects the position in respect to each indicator only on an annual basis, diminishes its usefulness. Arguably, this makes it insufficiently accurate to mark the impact of the outcome of a particular set of negotiations, whose effect may well be measured in months rather than years.

In addition, there is the difficulty of demonstrating a causal relationship between a particular negotiating issue, whether it acts to restrain that diffusion or to impel it, and its impact on the diffusion indicators. Although one might intuitively expect stalled negotiations over the licensing of ISPs to make prospective users hold back on signing up for new dial-up accounts, it is hard to demonstrate that this is in fact so. Further, many of the potential indicators of Internet diffusion are subject to multicausality. Sluggish demand for new dial-up accounts may equally be restrained

continues

Box 9.1 continued

by poor or cyclical economic performance, or a price increase on local calls, or even a period of political tension.

Finally, there is likely to be a time lag between the resolution of a negotiation issue and its translation into any changes to the various diffusion indicators. The extent of the impact delay is largely indeterminate, likely to be the subject of debate, and probably varies from one negotiation issue to another.

All of this makes the demonstration of a simple linear relationship between negotiations and Internet diffusion fraught with difficulties. Nevertheless, the individual country case studies presented, described, and analyzed in this volume present a persuasive argument for the qualitative impact of negotiations, their blockages and resolutions, on the diffusion of the Internet. Further work, together with better data, is certainly required before this can be empirically demonstrated.

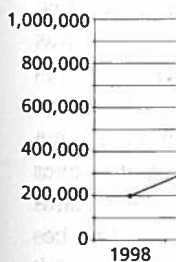
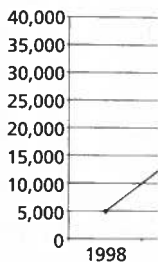
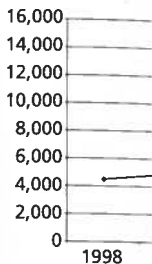
Selecting the Indicators

Before determining causal relations, we needed to agree on the most appropriate Internet diffusion indicators. As discussed in Chapter 1, we selected two main indicators, determined partly because they show complementary aspects of diffusion and partly because relevant data can be obtained more easily. The first indicator is ICT diffusion measured through the increase in dial-up subscribers (see Figure 9.1); the second is the rise in outgoing bandwidth availability (see Figure 1.2 on p. 11).

Of course, the two indicators are related—bandwidth facilitates and enables dial-up subscriptions—but they are certainly not identical in their purposes nor their growth patterns. Instead, there are noticeable and important differences, as the figures illustrate. The common question concerns *why* these trends exhibited the plateau-increase-plateau patterns when they did.

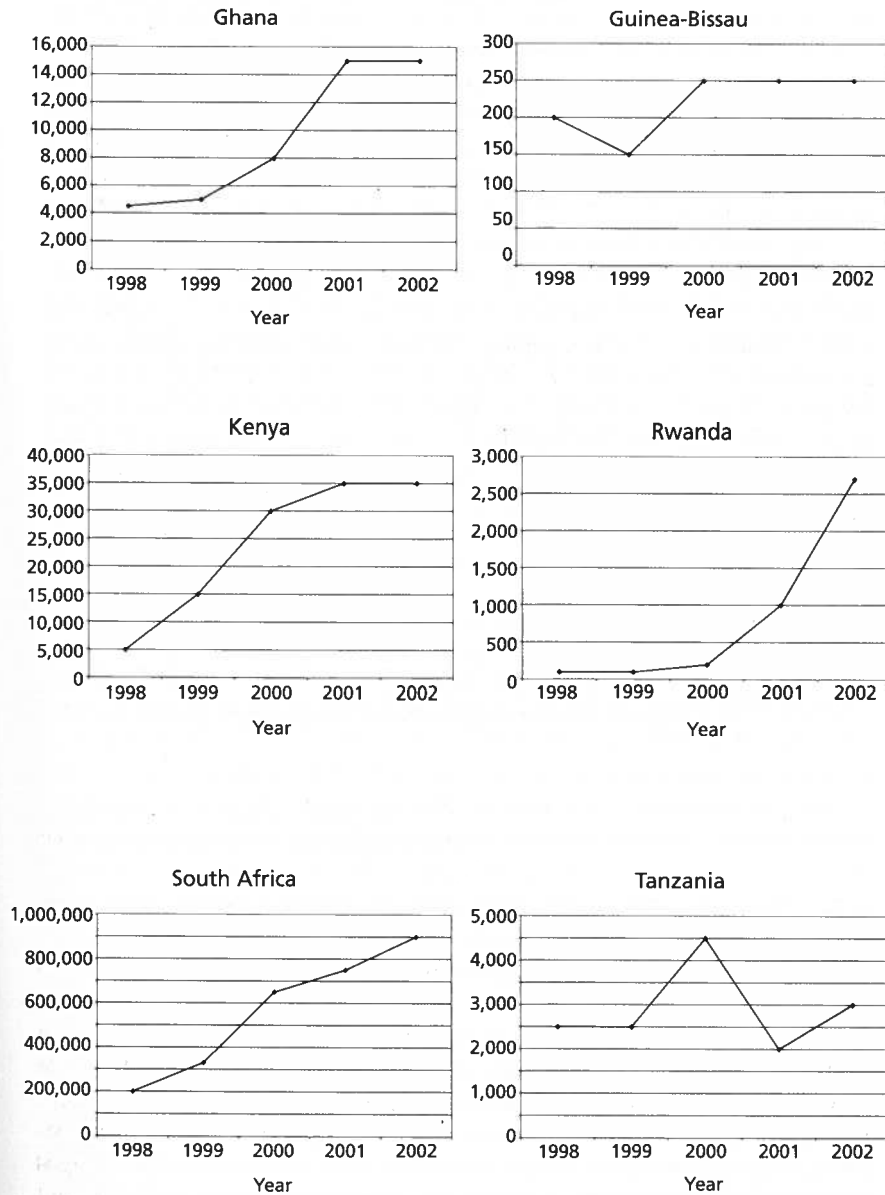
Some Broad Patterns in the Dependent Variables

Let us review several broad findings. First is the universally familiar story about the relationship between technology diffusion and its main determinant—the level of economic development—which generally holds true in the six cases at hand: the richer the country, the greater the Internet diffusion.

Figure 9.1 Di

Source: Jensen,

Figure 9.1 Dial-up Subscriptions by Country, 1998–2002



Source: Jensen, 2002.

fusion. The causal arrow from such liberalizing telecom reforms as private investment, commercialization of state-owned telephone companies, and even limited forms of competition and partial privatization accelerated the likelihood that ISPs would be able to offer cheaper, quicker, and more accessible information resources. Economywide liberalization of competition and investment helped Internet growth on the supply and demand sides. Better upstream price, access, and performance conditions in the basic telecommunications infrastructure meant that the ISPs could offer better prices, access, and performance to their own customers. Given the weak evidence, it is far too early to conclude whether, in turn, Internet and other value-added services like cell phones have begun to influence economic performance in Africa, though some evidence is available from selected sites suggesting initial positive benefits. But in Africa, claims of IT growth impacts must be treated cautiously.

The relationship between political liberalization and Internet diffusion is even more indirect and problematic. Charles Kedzie and others make a strong case that Internet diffusion is closely associated with democracy, and large cross-national surveys do find that the two are closely associated (see e.g., Kedzie, 1997). However, the work of Shanthy Kalathil and Taylor Boas (2003), using more finely grained case studies of China, Cuba, the Middle East, and other areas, finds no clear, evident, one-to-one ties between cyberspace and liberal politics. In this volume, only Mary Muiruri, in Chapter 4, has found a close analytic association: a repressive Kenyan regime blocks early access to mass communication, and then in the middle to late 1990s grassroots populist movements use Internet and other media to organize themselves and new constituencies against the regime. Activists then use the Internet to help spread the message of mass resistance, and once the old regime is voted out of office, the new more politically liberal regime then liberalizes the Internet and other media. Muiruri's message: progressive political activists can use the Internet, cell phones, and other new technologies to undermine and eliminate the old regime and bring in a new one that liberalizes the media. In Ghana and Tanzania, however, such liberalizing relationships were not so robust and direct (once in place, however, the technologies do seem to enhance public discourse). In Rwanda, a security-minded regime countenanced tight Internet controls that reflected tight political controls more broadly. In South Africa, the opposite extreme—the end of vicious political repression and racial apartheid via rapid political liberalization—did not count much on the Internet, nor did political freedom see a massive rise in political uses of the Internet. Media reform rose quickly under the new regime and then just as quickly hit a plateau, as the new African National Congress government was perhaps reluctant to further privatize state assets into foreign or nonblack hands.

Conclusions

Making an argument under these conditions is doubly difficult. The information environment is changing so rapidly that it is difficult to predict what will be possible to do in the future. The increase in the number of people who are formed, particularly in Africa, was in this regard.

To reform the Internet and to prove the benefits of the Internet close to the ground are important for the conclusions of this book. The practice of the Internet is pointing out the outcomes.

There are case studies of the Internet in *politics*. Of the public political uses of the Internet, it is difficult to distinguish between the

Political Freedom

Because of the conservative nature of the Internet, it is difficult to see the diffusion of the Internet. Typical of the Internet is the way that individuals are knit together in Tanzania. The political uses of the Internet are possible through leadership in the private, nonpublic sector in which the Internet is used. These sectoral uses of the Internet are of great depth of IC

Conclusions

Making and implementing policies in developing areas like Africa is challenging under the best circumstances, whether in healthcare, education, or trade. It is doubly difficult in fast-moving policy areas like telecommunications and information processing. Practitioners in Africa charged with making and implementing policy, whether in the public, private, or nonprofit sectors, should be able to draw on the latest analyses to help them make better decisions and help increase their likelihood of success. Yet precisely in the regions where informed, policy-relevant analysis is most needed, it is in the shortest supply. It was in this spirit that the Negotiating the Net project began.

To reflect accurately the empirical findings in our research, and to improve the chances that they will have a positive impact, we have stayed very close to the empirical evidence when drawing our conclusions. This is as important for good science and scholarship as it is for good practice. Faulty conclusions lead to misguided policies, and bad policies can produce harmful practice. Therefore we have been consistently conservative in our conclusions, pointing out, for example, the difficulty of tracing causality between CNIs and outcomes.

There are two kinds of interrelated conclusions that we draw from the case studies—those most relevant for *policy*, and those especially relevant for *politics*. Of course, the two intersect; politics is provoked and prompted by public policy, and policy is driven by politics, and together these two substantially define the pace and patterns of Internet diffusion. Still, it is helpful to distinguish among the lessons that can be learned from each distinct arena.

Political Findings

Because existing policy and institutional rules are supported by their own conservative coalition, and because policies and institutional rules largely drive diffusion, *successful Internet diffusion needs its own proreform countercoalition*. Typically, a successful countercoalition has a group of ISPs at its core.

To knit together such a countercoalition requires, at the outset, one or two individuals with exceptional vision and political skills, people like Bill Sangiwa in Tanzania, Nii Quaynor in Ghana, or Shem Ochuodho in Kenya. Such personalities possess rare skills, knowledge, and experiences, and provide unique leadership in the sector.

The importance of cooperation across the four key sectors—public, private, nonprofit, and research and education—cannot be overstated. Countries in which leaders are able quickly to mobilize expertise and legitimacy from these sectors cited above are best able to accelerate and sustain the pace and depth of ICT diffusion.

Finally, a curious and unexpected finding was the absence of ethnicity and tribalism as a salient factor in the politics of Internet diffusion in Africa. None of the contributors reported tribal favoritism in allocating scarce resources like licenses, for example. This runs counter to stereotypes about Africa. Some groups are better represented among Internet entrepreneurs, but that has not translated into ethnic politics.

Policy Findings: The Ambiguity of Best Practices

It is best to begin a search for best practices on a note of caution. Best practice recommendations are never unambiguous. Too often, "experts" use the term "best practices" but omit the essential modifier required—which is to state, "*under what circumstances* is something considered a 'best practice'?" (McNamara, 2003). African communities differ so much in size, wealth, economic organization, and technical capacity that "lessons" from one may not be applicable in another. A best practice in Rwanda may not be a best practice in South Africa. Indeed, a best practice in one village in Rwanda may not work in a neighboring village. For example, ISP activists in South Africa were able to create an association to advance their collective interests, while their counterparts in Rwanda failed to do so. In Ghana, an ISP association did not arise until later, and then mainly for market reasons.²

With this caveat in mind, there are several policy-based findings that seem to be generalizable across our cases:

- Just as there are best practices in ICT policy design, there are also best practices in policy implementation.
- Translating e-assessments and e-plans into e-action requires more attention to e-implementation.
- There is no single magic bullet, no single cause of effective diffusion, but a mix of technological, institutional, commercial, and political factors.
- To implement any policy framework requires close attention and management of stakeholder interests and dynamics.
- Implementation requires strong coalitions; policy statements and policy rhetoric do not.
- Designing and implementing effective future ICT policy in a country requires learning about that country's past ICT coalitions and constituencies.
- By far the single most important policy challenge is to design effective regulatory organizations.
- Best practices and lessons for learning should derive from careful and deliberate research that is comparative and policy-relevant.
- Teaching best practices and lessons through case studies and thematic analyses may contribute to improved performance in the ICT sectors of

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Africa (this is more of a hypothesis than an empirical finding from the cases).

The final point suggests a positive feedback loop for Africa, a necessary nexus between knowledge and practice as careful research on good and bad practices, followed by genuine learning, and back again to inform good practice. In places like Bangalore, India, Silicon Valley, or São Paulo, such knowledge networks are closely knit, robust, and sustainable. Creating robust networks stands as a real challenge and an opportunity to all four key potential knowledge partners—public, private, nonprofit, and research and education. All four sectors must recognize that good knowledge is the basis for improved performance, and then they must take the steps necessary to obtain that knowledge. In this way, the slow buildup of trust, shared knowledge, and common expectations across these sectors can help resolve future critical negotiation issues on the path toward the African knowledge society.