



PERGAMON

Telecommunications Policy 27 (2003) 155–177

TELECOMMUNICATIONS
POLICY

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African information revolution: a balance sheet

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Abstract

This paper provides a policy and institutional framework to describe and analyze the diffusion of information technology and the global information revolution (IR) in Sub-Saharan Africa and the major factors that influence this diffusion. We begin by examining regional diffusion and find substantial cross-national diffusion differences across the continent, with considerable variation in regional diffusion of telephone, internet, radio, and television. This pattern undermines technologic and economic explanations as sole determinants of variation in diffusion. Then we conduct an analysis of the IR in Sub-Saharan Africa based on a policy framework. This framework identifies four key policy balances (1. public and private initiatives, 2. monopoly and competition “markets”, 3. domestic and foreign ownership or control, and 4. centralized and de-centralized administrative controls) as important elements to a better understanding of the diffusion of the IR. We find that a necessary condition for an explanation of the diffusion of the IR is a policy and institutional framework that incorporates these four balances.

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Keywords: Africa; Broadcasting; Diffusion; Infrastructure; Internet; Policy; Telecommunications

1. Introduction

Africa, like all other regions of the developing world, stands on the doorstep of a global information revolution (IR) that presents a seeming cornucopia of opportunities. New technologies like the Internet and cellular telephones proliferate rapidly, as do traditional media like radio. In one country after another, the local press serves up lively commentaries and news reports about the latest trends in information and communications technology (ICT).

Yet the speed of these changes, their breadth and their inherent complexities make it difficult to reach unambiguous conclusions about the extent and meaning of the IR for Africa. Is Africa

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where it should be in the IR? Is it ahead or behind where one might realistically expect, given its other conditions? How does Africa compare to other developing regions?

Regrettably, there are very few available studies that provide a coherent overview of these critical ICT changes. Yet Africa's future growth and the well-being of its people will hinge in part on its capacity to make these new resources widely available. This essay provides an analytic framework to help us answer the following key questions:

- What is the global IR?
- How does Africa compare to other regions in the diffusion of ICTs?
- Does the diffusion of the technologies vary by sub-region?
- What are the major factors that explain these patterns of ICT diffusion in Africa?

2. What is the information revolution and why is it important for Africa?

The term "Information Revolution" refers to the bundle of technological, commercial and institutional changes in the information and communications sectors that have rocked the global system since the mid-1980s. Hallmarks of these changes are the tremendous global scope and speed of ICT diffusion. Accelerated technological innovation has brought new capacities to compress and store data available for transfer in new digital forms through various media to diverse users at different times. Whereas print, broadcast, telephony, video, and computing were until recently quite distinct technologies and industries, they are now rapidly converging toward a new form called 'multimedia'. Thus, the IR has come to mean the transformation of many separate appliances into local and global networks that facilitate health, education, commerce, government, leisure and other activities through cheaper, more powerful information processing and communication.

One reason for the rapid and widespread diffusion of the IR and its enthusiastic embrace by so many Africans, Asians, and South Americans is the failure of the old telecommunication systems to create a reliable, open, and widespread system for transmitting information. Most analysts insufficiently appreciate the failure of the old broken down system and its tremendous inability to meet consumer demand. In Africa during the mid-1990s there were 3.4 million customers waiting an average of 3.5 years for telephone service (ITU, 1998); in Sub-Saharan African the picture is even slower, with nearly 1.2 million customers waiting an average of 5.4 years (ITU, 1998). In other sectors such as broadcasting, it is more difficult to quantitatively measure the senility of the system. Yet, the remarkable popularity throughout Africa of the new non-government broadcasters indicates that popular dissatisfaction for state broadcasting was widespread. Poor ICT services created a mass of disgruntled citizens waiting to be mobilized in favor of new approaches.

Another reason for the spread of ICTs is the rise of economic globalization and accelerating international competition.¹ Fundamental shifts in the basic production processes and institutional structures of the world economy have made information and communication technologies more necessary and more accessible. One of the first questions a potential investor asks of African and other governments around the world is whether the country has a modern and effective

¹ See Wilson (1998) for further discussion on the information revolution, globalization, and development.

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