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AFRICA'S INFORMATION REVOLUTION

TECHNICAL REGIMES
AND PRODUCTION
NETWORKS IN
SOUTH AFRICA AND
TANZANIA

James T. Murphy
& Pádraig Carmody

WILEY Blackwell

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Technical Regimes and Production Networks in South Africa and Tanzania

James T. Murphy and Pádraig Carmody

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Abbreviations

AGOA

African Growth and Opportunity Act

B&B

bed and breakfast

CAD

computer-aided design

CNC

computer numerically controlled

DMO

destination management organization

DRC

Democratic Republic of Congo

F2F

face-to-face

FDI

foreign direct investment

GCC

global commodity chain

GDP

gross domestic product

GIE

global information(alized) economy

GPN

global production network

GVC

global value chain

HIV

human immuno-virus

ICT

information and communication technology

ICT4D

information and communication technology for development

IMF

International Monetary Fund

ITU

International Telecommunication Union

MDF

medium-density fibreboard

MLIS

market linkage and information system

MLP

multilevel perspective

NBA

National Basketball Association

NEG

New Economic Geography

NGO

non-governmental organization

NTB

non-tariff barrier

OECD

Organization for Economic Cooperation and Development

PDA

personal digital assistant

RBV

resource-based view

ROCE

return on capital expended

SEO

search engine optimization

SMME

small, medium and micro-scale enterprise

SMS

short message service

SNM

strategic niche management

SSA

sub-Saharan Africa

TINA

there is no alternative

TIS

technological innovation systems

TM

transition management

TNC

transnational corporation

TRIMS

trade related investment measures

TRIPS

trade related intellectual property rights

UNIDO

United Nations Industrial Development Organization

VOIP

voice-over-internet protocol

WTO

World Trade Organization

ZATI

Zanzibar Association of Tourism Investors

ZATO

Zanzibar Association of Tourism Operators

ZATOGA

Zanzibar Association of Tour Guides

Introduction

The rapid diffusion of mobile phones in Africa is widely held to be one of the main developmental successes on the continent in the last decade. There are now more than 700 million mobile phone subscriptions on the continent, with a penetration rate of 78% (Global Systems Mobile Association [GSMA], 2011). Most people across Africa have access to mobile telephony and the rate of computer and internet penetration has increased exponentially in the past decade. Although there remain significant gaps and challenges with regard to the diffusion of mobile phones, computers, and the internet (ICTs), the pace of adoption and the innovations (e.g., mobile applications or apps) associated with them have led many to believe that these technologies will dramatically transform livelihoods, government, financial systems, and markets throughout Africa. Moreover, many see ICT-enabled improvements in the pace, scale, and intensity of the region's connectivity to the rest of the world as creating information and communication conditions that will enable Africa to engage more evenly and progressively with the world economy; one that is increasingly driven and organized by information-intensive forms of capitalism.

There have been a variety of negative Orientalist tropes around Africa propounded in the West, such as it being the "Dark" or "Hopeless" continent, but the recent ICT-diffusion success story has accompanied a discourse around "Africa Rising" (Mahajan, 2009). In this emergent discourse, Africa is the "last" or final investment frontier for international capital, which is resulting in the continent's economic transformation or "rise" (Sizemore, 2012). Mobile phones, computers, and the internet (ICTs)

are held to play a central role in this dynamic transformation, as the authors of the *eTransform Africa* report (2012, p. 6) observed:

While the world's economy is struggling to recover from the global financial crisis, the African economy is in the midst of a long boom. Over the past decade GDP has been increasing on average at 5% a year, and over the next five years, Africa's economy will grow faster than any other continent. One contributory factor has been the take-up of information and communications technologies (ICTs) and, in particular, the spectacular growth in mobile communications. The number of mobile subscriptions in use in Africa increased from fewer than 25 million in 2001 to almost 650 million by 2012. Two-thirds of African adults now have access to ICTs. The power of ICTs is more than just putting mobile phones in the hands of poor people. By allowing people to access health information, agricultural price data or educational games, ICTs can strengthen other sectors, and possibly the whole economy.

Although the idea that Africa is in a process of rapid and structurally transformative “emergence” has been critiqued effectively (Taylor, 2014), the potential for ICTs to transform livelihoods and economies in Africa remains deeply entrenched within contemporary thinking about how to resolve pressing development challenges in the region.¹ Particularly powerful are notions about the flexibility, mobility, and reach of the information access and communications made possible through ICTs, and the subsequent contributions these can make to improvements in the material conditions of those living in poverty.

As such, new ICTs hold not only a very important place in the “Africa Rising” discourse but a particular fascination for development agencies. This fascination is most clearly

apparent in the emergence of a global community of scholars, practitioners, policymakers, entrepreneurs, corporate actors, and engineers concerned with the ways in which information and communication technologies can be used for development (ICT4D). The ICT4D community is well organized (e.g., they hold a semi-annual international conference – see <http://www.ictd2013.info/>), has significant levels of participation from stakeholders in the Global South, and is very well funded thanks in large part to investments made by transnational corporations such as Microsoft, Nokia, Google, and IBM. Although this is a diverse group of thinkers and doers, with some taking critical positions about the limitations on ICT4D strategies, much of the community maintains an optimistic and somewhat technologically deterministic perspective on the prospects for ICTs to transform development processes in regions like Africa. ICT4D notions have also been taken up by proponents of the “New Economic Geography” (NEG) (e.g., The World Bank’s *World Development Report 2009*) who suggest that African poverty is an outcome of a lack of connection to the developed world, and that new ICTs will thus help transcend this problem through their ability to facilitate socio-economic connectivity. In both cases, ICT artefacts are viewed as central to enabling development (the D) to emerge, and there is relatively limited consideration of how non-ICT-related factors and forces influence socioeconomic change, particularly in cases where they undermine the purported benefits of enhanced communications and information access.

We write this book to engage critically with both the Africa rising and ICT4D discourses through an examination of the development and economic geographies accompanying the rapid diffusion of new ICTs in sub-Saharan Africa. Our overarching argument is that studies of ICT use and impact in regions like Africa have generally lacked a sufficient

geographical contextualization, theoretical grounding, and/or inter-study comparability or transferability. Instead, much of the emphasis has been placed on individual-scale or firm-scale uptake and use of new ICTs, and/or the contribution of the telecommunications industry to government revenues and employment. Where other claims are made, such as those associated with livelihoods, governance, finance, institutions, and entrepreneurship, they are often speculative, anecdotal, vague, and/or lacking a clear grounding in empirical evidence beyond a single case study community, application, and/or program initiative. As such, crucial questions often remain unanswered regarding whether, and the explicit ways in which, ICTs are transforming multi-scalar and embedded power relations, institutions, inequalities, and other structural features that have held back African economies for decades.

For example, the *eTransform Africa* report (2012) has a case study section dedicated to the role that ICTs can play in regional trade and integration in Africa. The section is largely devoted to a lengthy, somewhat abstract discussion regarding the ways in which ICTs can make cross-border transactions and logistics more efficient and transparent. Particular emphasis is placed on the discrete applications of new ICTs for customs and border management (e.g., tracking and tracing goods) and the kinds of capabilities, infrastructure, institutions, and incentives that can facilitate ICT uptake within exporters, importers, and relevant government agencies. Unfortunately, however, the empirical case studies – on Kenya and Senegal’s customs administration – provide, at best, somewhat equivocal evidence to support the claim that ICTs can significantly facilitate cross-border trade through the implementation of a “single-window” platform for managing the flow of goods between regional trading partners. No evidence is provided

to show how the (admittedly problematic) implementation of this platform is changing the volume or quality of trade relations in either country, but the logic, evident in the post-hoc analysis, holds that if it can be implemented it *must* lead to enhanced trade performance that is “good” for development within countries like Kenya and Senegal. Although the report highlights some of the ICT and non-ICT specific institutional and infrastructural challenges that limited the success of these initiatives, the “gaze” remains firmly intact: if ICTs can be deployed effectively within the trade-management bureaucracy, performance will necessarily improve.

This sort of gaze, when coupled with a political-economic ideology manifest in the prioritization of markets, free trade, property rights, liberal democracy, and growth as the key drivers of development, helps to constitute a celebratory discourse regarding the power of ICTs to progressively modernize and globally integrate African economies into the world system. Individuals and individual firms are often key figures and actors in this neoliberal narrative, manifest principally as entrepreneurs, farmers, fisher folk, women, youth, and government workers who exploit the power of enhanced communications and information access in order to improve their livelihoods, innovate, profit, and/or maintain a more vibrant and healthy civil society. This individuation of ICT use and potential helps to empower the discourse among both the usual suspects (e.g., institutions such as the World Bank) and those who view ICTs as a potentially emancipatory and alternative means through which Africans might manoeuvre around the structures (e.g., weak states, exploitative value chains) that have institutionalized underdevelopment and injustice in the region. All told, new ICTs are encouraging strange bedfellows through what we

describe as a meta-discourse that can be adapted to a diverse range of ideological perspectives on development.

But what has the attention to ICTs and ICT4D initiatives actually done to improve the larger-scale prospects for Africa's economies in an age of informationalized forms of capitalism? This question can be answered in many different ways but our focus is on the industrial development impacts of new ICTs in Africa. Our central hypothesis is that if ICTs are to contribute significantly to the continent's "rising" onto the global economic stage, then there should be evidence that structural changes are occurring such that African manufacturers and service providers are increasingly able to engage in or contribute to industrial and social upgrading, which they may have been hitherto unable to, thereby contributing to Africa's socioeconomic transformation.

Drawing on in-depth empirical evidence from the wood products and tourism industries in South Africa and Tanzania, this book employs concepts related to intra-firm resources and capabilities, sociotechnical systems, and global production networks to analyse the uses, impacts and transformations associated with the uptake of new ICTs by small, medium, and micro-scale enterprises (SMMEs) in these sectors and countries.² The findings elucidate the challenges facing African industries in an age of informational capitalism, and help to build ties between research in economic geography, development studies, and science and technology studies. In a more applied sense, the book identifies crucial, non-ICT and ICT-specific "blockages" to achieving more deeply informationalized industries in Africa, thus raising pragmatic questions about the limits to ICT4D initiatives that focus principally on the diffusion and adoption of new technologies. Our major finding is that the nature and impacts of the "information revolution" in Africa are more constrained or delimited