

**The dynamics of the adoption and use of ICT-based initiatives for  
development: results of a field study in Mozambique**

**by**

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## ABSTRACT

### **The dynamics of the adoption and use of ICT-based initiatives for development: results of a field study in Mozambique**

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**Key Words:** Adoption and use of ICT, HEM, development, globalisation, ANT, translation, ST, institutionalisation, due process model, human environment model, BPR, Telecentre, *Galatee*.

The research focused on examining the interplay between innovations in information and communication technology (ICT) in three different micro-level settings with broader development processes within the emerging global economy of Mozambique. There is a great deal of concern among different national governments, international and national agencies about the role of ICT in development. The question often asked is how we can understand the contribution of ICT initiatives to the socio-economic development of a country.

This research was conducted as follows. First of all, the nature of the problem was analysed from four points of view: globalisation, focusing on the global-local debate, discourses around development, transfer of ICT-based innovations to developing countries and the relationship between IS/ICT and organisational change in the context of

a developing country. Secondly, a literature survey was undertaken to discuss these issues. The results of the literature survey guided the empirical research undertaken in two organisations and one rural community in Mozambique. Thirdly, the results of the empirical work were analysed with regard to the four perspectives discussed earlier.

The research objective required the development of a framework for understanding the process of the adoption and use of ICT-based initiatives for development. Theories such as Actor-Network Theory, the Human Environment Model and Structuration Theory form the basis of a framework that was constructed using the results of the fieldwork.

The framework is composed of three levels of analysis: the micro-level analyses the ICT-related initiatives by using the sociology of the translation process from an ANT perspective and by applying the due process model. The meso-level examines the social context within which the ICT-related initiatives are implemented. For this purpose the human environment model (HEM) is used. Finally, the macro-level attempts to describe the interaction between the ICT-related initiatives and socio-economic development. This part of the framework is addressed by the application of the structuration theory and concepts related to sustainable development.

The proposed framework can be used as an analytical tool to guide the analysis of the process of implementation of ICT-based initiatives in organisations and communities, and can also be applied as a normative tool to support the process of introducing a new ICT-based initiative in organisations or communities, especially within the context of developing countries. The author argues that the use of this framework can enhance the likelihood of achieving institutionalisation of an ICT-based initiative within a particular organisational setting.

I declare that

**The dynamics of the adoption and use of ICT-based initiatives for development:  
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is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

Esselina Macome

## DEDICATION

To my husband *Martinho* and our children *Carmen Taila* and *Marcelino Isaac*

To the memory of my father *Marcelino Nhaelane Lucas*

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## Alphabetical List of Frequent Abbreviations

ABSA	Amalgamated Bank of South Africa
ANT	Actor-network theory
BCM	<i>Banco Comercial de Moçambique</i> (Commercial Bank of Mozambique)
BE	Beira
BM	<i>Banco de Moçambique</i> (Central Bank of Mozambique)
BPD	<i>Banco Popular do Desenvolvimento</i>
BPR	Business Process Re-engineering
CAD	Computer Aided Design
CAL	Local Advisory Committee
CFP	Primary Teacher Training Centre of Namaacha
CIUEM	Eduardo Mondlane University Informatics Centre
CM	<i>Conselho Municipal</i> (city council)
CMA	<i>Colégio Maria Auxiliadora</i>
CPI	<i>Comissão Nacional da Política de Informática</i>
CSDIPAU	Computer System Development and Implementation Project Administration UNIT
Dadm	District Administration
DCs	Developing countries
DD	Director of the Department
DE	<i>Departamento do Estrangeiro</i> (Foreign Department)
DMI	<i>Departamento de Matematica e Informatica</i>
DOI	Department of Information Technology and Organisation Methods
DP	Data processing
DT	<i>Departamento de Tesouraria</i> (Treasure Department)
EDM	<i>Elctricidade de Moçambique</i> (Electricity Company of Mozambique)
EMU	Eduardo Mondlane University
ERP	Enterprise Resources Planning

FDC	<i>Fundação para o Desenvolvimento da Comunidade</i>
FRELIMO	<i>Frente de Libertação de Moçambique</i>
GIS	Geographical Information Systems
GNP	Gross National Product
HD	Head of Department
HDI	Human development index
HEM	Human Environment Model
HO	Head Office
HRD	Human Resource Department
ICT	Information and Communication Technology
ICT/IS	Information and Communication Technology/Information Systems
IDRC	International Development Research Centre
IFIP	International Federation for Information Processing
IIASA	International Institute for Applied Systems Analysis
IMAP	<i>Instituto de Magistério Primário</i> (Primary Teacher Training Institute of Manhiça)
INE	<i>Instituto Nacional de Estatística</i>
IS	Information Systems
ISAID	Information Society Africa Development Conference
ISP	Internet service providers
IT	Information Technology
IT/IS	Information Technology/Information systems
MAAC	Mozambican Advisory Acacia Committee
MIS	Management of Information System
MT or MZM	<i>Metical</i> (Mozambique National Currency)
NHS	National Health System
OPP	Obligatory Passage Point
PARPA	<i>Programa de Redução da pobreza absoluta</i> (Poverty Alleviation Programme)
PNUD	<i>Programa das Nações Unidas para o Desenvolvimento</i>
RENAMO	<i>Resistência Nacional de Moçambique</i>

SADC	Southern African Development Community
SAF	Structural Adjustment Programme
SAP	Software Application Product
SSADM	Structured System Analysis Development Methodology
ST	Structuration Theory
TAI	Technology Achievement Index
TDM	<i>Telecomunicações de Moçambique</i>
TQM	Total Quality Management
UNDP	United Nations Development Programme