Telecommunications Technology Transfer/Diffusion Model Into Rural South Africa

by

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DISSERTATION SUMMARY

TELECOMMUNICATIONS TECHNOLOGY TRANSFER/DIFFUSION MODEL INTO RURAL SOUTH AFRICA

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Telecommunication is one of the keys to sustainable national development in South Africa. Where other kinds of public infrastructure have collapsed, mobile operators are reaching people in rural areas (without roads, rails, or a stable power supply).

Telecommunication also is a fast moving high-tech field where technology transfers occur regularly. Technology transfer however is a complex subject where governmental regulations, social and cultural aspects, needs, expectations, aspirations, financial abilities, and technological capabilities play a major role. Therefore transfer models that neglect these aspects often cause ineffective utilization of technology. Telecommunication technology transfers between two parties at different hierarchical levels of technology know-how/utilization (as between multi-national companies and less developed countries (LDCs)/South Africa) often occur with limited or no advantages to the LDC. A transfer model is therefore needed to improve the situation and make technology transfers a process from which both parties can benefit simultaneously. This research attempts to supply advice and guidelines to the telecommunication industry of South Africa on how to improve the situation and conduct action in the future.

The model was derived at through a background study and analysis, a literature study on existing transfer models, research on the current problem and a situation analysis on the basis of the model. A number of aspects present are not up to standard and should get special attention urgently. It is within the industry's power to correct these. The government also has a vital role to play to ensure sustainable growth and to allow telecommunications to play its part in national development. The situation can be improved through the use of the transfer model but also with a "simultaneous-situation-improvement-plan" which involves rural awareness, quality of education, crime reduction and a focus alignment when doing rural network expansion and/or investments

Telecommunication can no longer remain just as a luxury to the few privileged in big civilised cities and a dream to the rural citizens. If this way of thinking is continued, South Africa will certainly pay a very high price.

SAMEVATTING VAN VERHANDELING

TELECOMMUNICATIONS TECHNOLOGY TRANSFER/DIFFUSION MODEL INTO RURAL SOUTH AFRICA

deur

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Telekommunikasie is een van die sleutels tot voortdurende nasionale ontwikkeling in Suid-Afrika. Mobiele diensverskaffers bied reeds dienste aan afgeleë gebiede sonder paaie, spoornetwerke, of ‘n stabiele kragtoevoer waar ander publieke infrastrukture onderbreek.

Telekommunikasie is verder ook ‘n hoogs gesofistikeerde tegnologiese veld waar ontwikkeling spoedig plaasvind en tegnologie oordrag algemeen voorkom. Die oordrag van tegnologie is egter ‘n komplekse onderwerp was aspekte soos regulatoriese maatstawwe, sosiale en kulturele aspekte, behoeftes, verwagtinge, aspirasies, finansiële moontlikhede asook tegnologiese vaardighede insluit. Oordragsmodelle wat nie hierdie aspekte in ag neem nie lei tot oneffektiewe aanwending van die tegnologie

Telekommunikasie tegnologie oordrag tussen twee partye op verskillende vlakke van tegnologie aanwending en vaardighede (so in die geval van ontwikkelde lande en Suid-Afrika) vind meestal plaas met beperkte tot geen voordele vir die minderontwikkelde land. ‘n Tegnologie oordrag model word benodig om die situasie te verbeter en oordragte voordelig te maak vir beide partye gelyktydig. Hierdie navorsing poog om advies en riglyne aan die telekommunikasie bedryf van Suid-Afrika te lewer om die situasie te verbeter en toekomstige oordragte en handelinge te verbeter.

Die model was gevorm deur die agtergrond te ontleed, ‘n literatuurstudie uit te voer, navorsing te doen en die huidige situasie te ontleed op grond van die voorgestelde model. ‘n Aantal aspekte is huidig teenwoordig (waaroor die bedryf beheer het) wat nie na wense verloop nie. Hierdie aspekte het dringende aandag nodig. Die regering het ook ‘n belangrike rol om te vertolk wat telekommunikasie is staat sal stel om weer sy deel te doen in nasionale ontwikkeling. Die situatie kan verbeter word deur tegnologie oordrag in die vervolg aan die hand van die model te bestuur maar ook gelyktydig ‘n “toestands verbeteringsplan” te volg. Hierdie plan bevat aspekte soos bewustheid van plattelandse gemeenskap, hul onderrigstelsel, misdaadvermindering asook die rig van fokus op die regte gebiede wanneer netwerkuitbreiding en investering onderneem word.

Telekommunikasie mag nie meer beskou word as ‘n luuksheid wat alleenlik vir ‘n handjievol bevoorregtes in groot stede beskore is, en ‘n droom vir die plattelandse gemeenskap is nie. Indien hierdie tipe denkwyse gekoester word sal Suid-Afrika ‘n baie hoë prys in die toekoms moet betaal wat vermy kan word deur nou aandag daaraan te skenk.

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List of Abbreviations

AC	Alternating Current
AHI	Afrikaans Handels Intituut
AHP	Analytic Hierarchical Process
ASSA	Actuarial Society of South Africa
CFL	Centre for Learning (Telkom)
COSATU	Congress of South African Trade Unions
DA	Democratic Alliance
DC	Direct Current
DECT	Digital Enhanced Cordless Telecommunications
DIS	Dialectical inquiry system
EA	Enumeration or Enumerator Area
EMS	Environmental Management System
ESOP	Employee share ownership program
FDI	Foreign Direct Investment
FNB	First National Bank
FRD	Foundation for Research Development
GATT	General Agreement on Tariffs and Trade
Icasa	Independent Communications Authority of South Africa
LDC	Less develop country
MNC	Multi-National Corporation
MRTD	Modified Relevance Tree Diagram
MTN	Mobile Telephone Network
NAFCOC	National African Chamber of Commerce
NIC	Newly industrialized countries
OAU	Organization of African Unity
OPEC	Organization of Petroleum Exporting Countries
PIN	Personal Identification Number
PSDN	Public Switched Data Network
PSTN	Public Switched Telephone Network
PUK	Personal Unblocking Key
R&D	Research and Development
RDP	Reconstruction and Development Program
RFI	Request For Information
RFP	Request For Proposal
Rudasa	Rural Doctors' Association of Southern Africa
SA	South Africa
SAA	South African Airways
SAB	South African Breweries
SABC	South African Broadcasting Commission

SACOB	-	South African Chamber of Business
SADC	-	Southern African Development Community
SAPA	-	South African Press Association
SATRA	-	South African Telecommunications Regulatory Authority
SIM	-	Subscriber Identification Module
SJA	-	Social Judgment Analysis
SMME	-	Small, Medium and Micro Enterprise
SPII	-	Support Project for Industrial Innovation
Stats SA	-	The Statistical department of South Africa
TAH	-	Technology Acquisition Hierarchy
TDMA	-	Time Division Multiple Access
TEFSA	-	Tertiary Education Fund of South Africa
Telkom	-	South African telecommunications service provider
USA	-	Universal Service Agency
VANS	-	Value Added Networks
VAT	-	Value Added Tax
VSAT	-	Very Small Aperture Terminal
WTO	-	World Trade Organization