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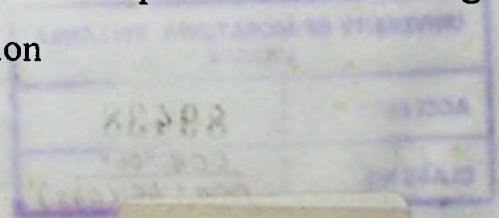
DEVELOPING BROADBAND MODELS FOR COMMUNITIES

By

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This Dissertation was submitted to the Department of Computer Science & Engineering of the University of Moratuwa in partial fulfillment of the requirement for the Degree of Master of Business Administration



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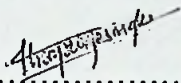
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Abstract

Today, broadband access is regarded as an essential factor for economic and competitive survival in the 21st century. The development of the importance of broadband technology can be likened to the ever-increasing importance of road or rail when they were developed. Most advanced economies went through a transition in the second half of the 20th century, of being production-driven to service-driven. Now, in the 21st century, these economies are rapidly transforming into more towards being information oriented and knowledge-driven economies. In such an environment, the skill, speed, and innovation needed to transform raw data into valuable knowledge and in turn, to use that knowledge with a profit motive is pivotal to international competitiveness [1]. By bringing the digital world literally to our doorstep, broadband would offer a tantalizing spectrum of benefits, such as, increased business productivity, improved healthcare, better education, interactive entertainment, and most importantly greater governmental efficiency.

It is a known fact that Sri Lanka has the most de-regulated telecom sector in the South Asian region [2]. However, the expected economic growth has not been achieved. Possible reasons for this could be the lack of an adequate backbone infrastructure, lack of willingness to share resources, wire line connectivity to the international Internet has not been de-monopolized and the other incumbent operators do not have sufficient resources to invest in under-served areas. As a result of these problems there exists a high digital divide in various parts of the country.

Therefore, it was considered worthwhile to investigate the potential causes and the long-term solutions for the above issues. The need of a research study was felt as highly necessary by the researcher. The study identifies the most potential candidates for the adoption of broadband. The provinces are considered as communities when identifying the most potential broadband candidates. The research study finally reveals that the Western Province as the chief broadband candidate. Next in line are the Southern Province and Central Province appearing consecutively. The least potential broadband candidate appears to be the Northern Province.

The researcher identifies some models which have been used in other countries and these models were analyzed in terms of local context to check the applicability of those models to our communities. Conclusively, the study suggests appropriate broadband models that should be adopted by the communities. A new model is introduced by the researcher to the Western Province named "Service Provider Model (SPM)". For the Southern and Central Provinces, "Passive Infrastructure Model (PIM)" was determined as the best model. For the North Western and Sabaragamuwa Provinces research study suggests implementation of the "Carriers Carrier Model (CCM)". These models will be useful for the introduction and use of broadband services in the identified communities.

The researcher further analyses the implementation of the PIM and suggests fiber as the most suitable backbone technology. The researcher recommends implementing fiber through the Railway line or Power Line. Also, in order to facilitate service providers to distribute broadband services to more under-served parts of the communities, the researcher suggests the usage of state lands through provincial councils. The report concludes by presenting several suggestions for the successful implementation of one of the recommended models.

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ACRONYMS

A	Affordability
ABS	Aircel Business Solutions
ADB	Asian Development Bank
ADSL	Asymmetric Digital Subscriber Line
BD	Business Density
BN	Broadband Need
BPL	Broadband over Power Line
C	Central
CBRP	Community Broadband Risk Profiling
CCM	Carrier's Carrier Model
CDMA	Code Division Multiple Access
CEA	Central Environment Authority
CEB	Ceylon Electricity Board
CONSM	Community Operated Networks and Services
DA	Defense Authority
DAM	Demand Aggregation Model
DEMP	Distance Education Modernization Project
DEPP	Distance Education Partnership Program
DSS	Department of Census & Statistics
E	Eastern
EI	Existing Infrastructure
ERISA	European Regional Information Society Association
FCM	Fiber Condominium Model
FTTH	Fiber To The Home
FWA	Fixed Wireless Access
GL	General Literacy
HOD	Head of the Department
ICTA	Information & Communication Technology Agency
IA	Infrastructure Availability
IBS	Internet Business Solutions
ICT	Information & Communication Technology
ICTA	Information & Communication Technology Agency
IP	Internet Protocol

IRF	Investment Risk Factor
ISDN	Integrated Services Digital Network
ISP	Internet Service Provider
IT	Information Technology
ITU	International Telecommunication Union
Kbits	Kilo Bits per second
Kbps	Kilo bytes per second
LA	Local Authority
Mbits	Mega bits per second
MMC	MultiMedia Centers
N	Northern
NLOS	Non Line Of Sight
NOC	Network Operating Center
NC	North Central
NGO	Non Government Organization
NW	North Western
NTT	Nippon Telegraph and Telephone
OECD	Organization for Economic Co-operation and Development
OUSL	Open University of Sri Lanka
OWSA	One World South Asia
PC	Personal Computer
PCI	Per Capita Income
PIM	Passive Infrastructure Model
PPP	Private Public Partnership
PSTN	Public Switched Telephony Network
QoS	Quality of Service
RF	Radio-Frequency
SLA	Service Level Agreement
SLR	Sri Lankan Railways
SLT	Sri Lankan Telecom
SMEs	Small & Middle Scale Enterprises
Sab	Sabaragamuwa
S	Southern
TRC	Telecommunication Regulatory Commission
TRF	Time Risk Factor

TV	Television
UDA	Urban Development Authority
UK	United Kingdom
US	United States
U	Uva
VPN	Virtual Private Network
VSAT	Very Small Aperture Terminal
W	Western
WLAN	Wireless Local Area Network
WiMAX	Worldwide Interoperability for Microwave Access

