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**ANALYSIS OF LEGAL AND
REGULATORY FRAMEWORK FOR
ELECTRONIC COMMERCE IN RWANDA**

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Thesis presented for the approval of Senate in part fulfilment of the requirements for the degree of Master of Laws in Information Communications Technology in the Department of Commercial Law.



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February 2011

I hereby declare that I have read and understood the regulations governing submission of the Master of Laws dissertation including those relating to length and plagiarism as contained in the rules of this University and that this dissertation conforms to those regulations

Joseph NYIRINGABO

Dedications

This dissertation is dedicated to my wife Anne,
my children: Cedrick, Sydney, Sabine and my sister
for their prayers, unending encouragement
and support for me.

Table of contents

Acknowledgments.....	vii
List of Abbreviations	ix
Statutory and other instruments	x
Abstract.....	1
Chapter I: Introduction.....	2
1. Introduction.....	2
2. Statement of the problem and importance of the study	3
3. Research Methodology	4
4. Chapter synopsis	5
Chapter II: General overview of E-commerce.....	6
1. Introduction.....	6
2. Definition of E-commerce	7
3. Benefits of E-commerce	7
3.1 Benefits of E-commerce to the merchants and customers	7
3.2 Benefits of E-commerce to the society	8
4. Challenges in implementing E-commerce in developing countries	9
4.1 Lack of skilled personnel	9
4.2 Change of technology	10
4.3 Lack of adequate infrastructure and sufficient bandwidth.....	10
4.4 Digital divide	10
4.5 Limitations related to laws and policies on E-commerce	11
5. Major types of E-commerce.....	11
5.1 Business to business E-commerce	12
5.2 Business to consumer E-commerce	13

5.3 Business to government E-commerce.....	13
5.4 Consumer to consumer E-commerce.....	14
6. The nature of E-commerce transactions	14
6.1 Exchanging of electronic information	14
6.1.1 Role of Cryptography in E-commerce.....	15
6.1.2 Authentication in E-commerce.....	16
6.2 Online contracting in E-commerce	17
6.2.1 Click wrap as an online contract.....	18
6.2.2. Shrink wrap contract.....	18
6.2.3 Browse wrap as online contract.....	19
6.3 Electronic payment	20
6.3.1 Electronic funds transfers	21
6.3.2 Payment using cards	21
Chapter III: Status of ICT penetration as a pillar of E-commerce in Rwanda	22
1. Introduction.....	22
2. The National Information Communication Infrastructure (NICI) plan	23
2.1 Scope of the NICI plan in Rwanda	23
2.2 Second national strategic plan in ICT (NICI plan 2006-2010).....	24
3. Establishment of E-commerce in Rwanda	24
3.1. Development of telecommunication sector	25
3.1.1 Liberalisation of telecommunication sector in Rwanda	25
3.1.2 Universal access and universal services in Rwanda.....	27
3.1.3 Legal instruments for Universal access and Universal services in Rwanda.....	28
3.2 Establishment of ICT institutions in the country	30
3.2.1 Rwanda Information Technology Authority (RITA)	30

3.2.2 Establishment of Rwanda Utilities Regulatory Agency	31
4. Indicators of ICT penetration in the country.....	31
4.1 Telecommunication penetration.....	32
4.2 Access to the internet connectivity in the country	32
4.3 Connecting the country to fibre optic backbone	34
5. Electronic banking in Rwanda	35
Chapter IV: The legal framework of E-commerce in Rwanda	37
1. Introduction.....	37
2. Adoption of Rwandan Law governing electronic transactions	38
3. Compliance with the UNCITRAL Model Law on E-commerce	38
3.1 Facilitating legal framework of E-commerce	39
3.2 Legal requirements and recognition for electronic messages	40
3.3 Provisions for communication of data messages	41
4. Compliance with UNCITRAL Model law on electronic signatures.....	42
5. Building trust and confidence in electronic transactions	44
5.1 Rwandan Law on electronic transactions and consumer protection.....	46
5.2 Protection of personal information in electronic transactions: International approaches.....	48
5.3 Protection of personal information in Rwandan legislation	51
5.4 Intellectual property rights in electronic transactions.....	51
5.4.1 Copyright in electronic transactions	52
5.4.2 Trademarks in electronic transactions	53
5.5 WIPO in protection of intellectual property rights in digital age	54
5.6 Rwandan Law in protecting intellectual property rights on internet	57
5.7 Legal and other related challenges to implement E-commerce in Rwanda.....	58
5.8 Management of (.rw) as Country Code Top Level Domain	60

Chapter V: Regulatory framework for sustainable E-commerce in Rwanda.....	62
1. Introduction.....	62
2. Does electronic commerce need to be regulated?.....	63
3. Regulating information security in Rwandan law on electronic transactions.....	64
3.1 Securing electronic messages and electronic signatures.....	64
3.2 Involvement of digital signature.....	65
3.3 Limitations of digital signature.....	66
4. Regulations for duties, processes and procedures.....	67
4.1 Certification service provider.....	67
4.2 Role of Controller of Certification Authority.....	68
4.3 Liability for Certification Authorities.....	70
Chapter VI: Recommendations and Conclusion	72
1. Recommendations.....	72
2. Conclusion	74
Bibliography	75

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NYIRINGABO Joseph

List of Abbreviations

AISI	: Africa Information Society Initiative
ATM	: Automated Teller Machine
ccTLD	: Country Code Top Level Domain
DMCA	: Digital Millennium Copyright Act
EDI	: Electronic Data Interchange
EFT	: Electronic Funds Transfer
EU	: European Union
GATS	: General Agreement on Trade in Services
GPRS	: General packet radio service
GSM	: Global System Mobile
IANA	: Internet Assigned Numbers Authority
ICANN	: Internet Corporation for Assigned Names and Numbers
ICT	: Information Communication Technology
ISP	: Internet Service Provider
ITU	: International Telecommunication Union
MTN	: Mobile Telecommunication Network
NICI	: National Information Communication Infrastructure
NISR	: National Institute of Statistics in Rwanda
OECD	: Organisation of Economic Co-operation and development

- PKI : Public Key Infrastructure
- RDB : Rwanda Development Board
- RITA : Rwanda Information Technology Authority
- RURA : Rwanda Utilities Regulatory Agency
- SET : Secure Electronic Transaction
- SMME : Small Medium and Macro Enterprise
- UK : United Kingdom
- UNCITRAL : United Nations Commission of International Trade Law
- UNECA : UN Economic Commission for Africa
- USA : United States of America
- VSAT : Very Small Aperture Terminal
- WCT : WIPO Copyright Treaty
- Wi Max : Worldwide Interoperability for Microwave Access
- WiFi : Wireless Fidelity
- WIPO : World Intellectual Property Organisation
- WPPT : WIPO Performances and Phonograms Treaty
- WTO : World Trade Organisation

Statutory and other instruments

I. International instruments

a. United Nations

UNCITRAL Legal Guide on Electronic Funds Transfers (1987).

UNCITRAL Model Law on International Credit Transfers (1991).

UNCITRAL Model Law on Electronic Commerce adopted in General Assembly Resolution 51/162 of 16 December 1996.

Guide to Enactment of the UNCITRAL Model Law on Electronic Commerce (1996).

UNCITRAL Model Law on electronic signature with Guide to enactment (2001).

b. World Intellectual Property Organisation

Berne Convention for Protection of Literary and Artistic works, Paris Act of 24 July 1971 as amended on 28 September 1979.

WIPO Copyright Treaty adopted in Geneva on 20 October 1996.

WIPO Performances and Phonograms Treaty adopted in Geneva 20 October 1996

Report of World Intellectual Organization WIPO/INT/02 Intellectual property on internet: Survey issue (2002).

c. Organisation Economic Cooperation Development

OECD Guidelines for consumer protection in context of electronic commerce (1999).

OECD published Guidelines Governing the Protection of Privacy and Trans-border Data Flows of Personal Data (1981).

OECD Recommendation on Authentication and Guidance on Authentication (2007).

d. European Union

Directive 2000/31/ EC of European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce in the internal market (Directive on electronic commerce).

Directive 2001/29/EC of the European Parliament and of the Council adopted EU Directive on Copyright of 22 May 2001.

EU Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data of 24 October 1995.

European Parliament and of the Council adopted Directive 2001/29/EC of the of 22 May 2001 on the harmonization of certain aspects of copyright and related rights in the information society

II. Domestic Laws

a. Rwanda

Law No 44/2001 of 30/11/2001 governing Telecommunications in Rwanda.

Law No 32/2002 of 02/10/2002 establishing Rwanda Information Technology Authority.

Law No 39/2001 of 13 /9/ 2001 establishing Rwanda Utilities Regulatory Agency.

Law No 31/2009 of 26 October 2009 on the Protection of Intellectual Property.

Law No 18/2010 of 12/05/2010 relating to Electronic messages, electronic signatures and electronic transactions.

Presidential Order No 05/01 of 15/03/2004 determining the functioning of the Universal access funds and public operators contributions.

b. South Africa

South Africa Electronic Communications Transactions Act 25 of 2002.

Department of Communications: Green paper on electronic commerce (November 2000).

c. United States

Digital Millennium Copyright Act, Public Law No. 105-304, 112 Stat. 2860 (October 28, 1998).

d. United Kingdom

UK Statutory instruments 2002 no 318 The Electronic commerce (EC) Regulations (2002).

Abstract

Information communication technology (ICT) is a significant tool and support for socio-economic development. Developing countries are following the lead of developed countries in integrating the use of technology in different sectors in order to increase their performance. Rwanda is in a process of creating an enabling environment for the population to use the information technology in their daily activities to enhance their socio-economic development.

For a country to attain sustainable development, it needs to remove the national and international barriers of doing business by establishing electronic commerce (E-commerce). The Government of Rwanda has adopted some laws that govern E-commerce in the country. Due to the complexity of the E-commerce system, the legislature must ensure that the relevant laws are harmonised and consistent. The E-commerce regime includes the domestic legislation as well as international treaties, Model laws and guidelines. This study intends to analyse in detail the way of harmonising the existing the legal and regulatory framework on E-commerce in Rwanda.

Chapter I

Introduction

1. Introduction

The use of Information Communication Technology is increasingly becoming vital to people's lives. The challenges of globalisation and the information age are currently the burning issues which developing countries are grappling with. Every country is trying to integrate technology in its routine activities to sustain its development.¹ To remove international trade barriers, there is need for the establishment of an E-commerce system. Electronic commerce is a significant component of global economic activities and gives many firms a competitive advantage.² E-commerce allows investors to electronically exchange information, advertise their goods and make online contracts and electronic payments.³

The establishment of an electronic transactions system involves the interaction of many elements such as communication infrastructure, business operation, laws and policies and public skills.⁴ In previous decades, many African countries embarked on national processes in developing and implementing ICT policies in a bid to boost development.⁵ It is in the same context that the Government of Rwanda has adopted a national strategic plan called the National Information and Communication Infrastructure (NICI). One of its main goals is 'to support the strength of the economic base, improve the economic environment to accelerate development and growth towards achieving an

¹ E Philip et al 'Towards E-commerce in Africa: A Perspective from Three Country Studies' (2001) 2 *Southern African Journal of Information and Communication* 1 at 2.

² Ibid.

³ HB Cornelius *E-Commerce for South African Managers* (2000) 36.

⁴ Z Kevin 'The complementarity of Information Technology Infrastructure and electronic commerce capability: A resource based assessment of their value' (2004) 21 *Journal of Management of Information Systems* 167 at 180.

⁵ Africa Information Society Initiative (AISII): 'An action Framework to build Africa' information communication infrastructure' (2003). Available at <http://www.uneca.org/AISII/> [Accessed 28 November 2010].

information- rich, knowledge-based society and economy'.⁶ To achieve this goal, Rwanda needs to develop the E-commerce system but the country still lacks an adequate communication infrastructure, and is yet to harmonise the relevant laws. The Government of Rwanda is developing laws that adapt to the new technologies which govern the use of ICT in the country. This legal framework is intended to keep abreast with international standards and to remove legal barriers that may hinder the use of new technology.

The laws governing electronic transactions seek to eliminate the barriers to international trade. E-commerce laws relate to electronic signatures, protection of intellectual property, protection of personal information and consumer protection. Domestic laws need to be in compliance with the principles of international instruments on E-commerce.

2. Statement of the problem and importance of the study

The Government of Rwanda has decided to quickly develop the ICT sector and agreed that ICT will be the main pillar of socio-economic development,⁷ and embraced E-commerce as a way of expanding to international market using technology. The study analyses the Rwandan legislation on E-commerce and highlights how it should be improved in order to have a sustainable E-commerce system, the expected legal system should properly allow the use of electronic transactions by providing trust, ensuring functional equivalence and protection of personal information to the beneficiaries.

The study analyses how the legal system on E-commerce should ensure the provisions protecting the consumers as well as other stakeholders in exchanging information and advertising their products. For instance, the current Law adopted in

⁶ National Information Communication Infrastructure (NICI) Plan 2006-2010 is among the four NICI plans adopted by the Government of Rwanda for the purpose of ICT development as well as accelerating the country's economy. The second NICI plan 2006-2010 is available at <http://www.rita.gov.rw/IMG/pdf/NICIfinal.pdf> [Accessed 22 September 2010].

⁷ Ibid at 8.

Rwanda to govern electronic transactions does not ensure protection of personal information which is one of the crucial elements of electronic transactions.

The protection of personal information allows the users or beneficiaries to build their trust and confidence by using electronic systems. In existing Rwandan legislation, consumers are not well protected while it is known that in electronic transactions, the consumers need more protection.

This study considers the legal framework for E-commerce. In doing so, it aims at answering the following questions: Does Rwanda need a specific legal framework for E-commerce? What are the existing national laws that govern and regulate electronic transactions in Rwanda? Are they sufficient to remove all barriers to international trade? Are they compliant with UNCITRAL Model laws? What are legal mechanisms put in place by the Government of Rwanda to ensure regulation of electronic transactions? What are the legal challenges that Rwanda is facing in setting up E-commerce system? The above mentioned questions and statements show the need for harmonised and consistent legal framework for E-commerce.

The study brings a significant contribution to the legislation system of Rwanda, especially in this information era that may allow the legal improvements for ensuring adequate assurance for electronic transactions system. The paper points out the areas on which the Government of Rwanda should focus in terms of improving and adopting the legislation.

3. Research Methodology

This thesis is a legal analysis based on written sources such as textbooks and journals for historical backgrounds. The internet sources have been consulted for current developments and analysis. International conventions and guidelines on E-commerce and other related fields were also consulted.

4. Chapter synopsis

The study comprises of six chapters. Chapter one is basically an introduction of the study which states the statement of the problem, the objects and purposes of the research and methodology employed were outlined. Chapter two gives a general overview and concepts related to E-commerce.

Chapter three examines the status of ICT as a pillar of E-commerce in Rwanda and describes the role of the legal system to establish a sustainable ICT sector. Chapter four highlights the legal framework for E-commerce in Rwanda, and discusses legal challenges to implement an E-commerce system. Chapter five discusses the regulatory framework for a sustainable E-commerce in Rwanda, while chapter six summarises recommendations and conclusion of the study.

Chapter II

General overview of E-commerce

1. Introduction

E-commerce is a way and an engine to enhance domestic economy and it ensures a rapid integration of globalisation, and in most cases it is enabled by the internet.⁸ E-commerce integrates domestic and global markets. It is a method of trading that replaces paper-based documentation by a mutually binding electronic protocol between buyers and sellers.⁹ This will benefit large numbers of consumers and businesses, including smallholder farmers, tourism operators, and services providers in almost any business sector.¹⁰

The trend of replacing paper-based transactions with electronic ones started in the first world countries in late 1990s. UNCITRAL came up with a Model Law on E-commerce that is to guide the legislation of national members for having oriented legislation on electronic transactions.¹¹ This chapter sets out to examine the background of E-commerce, its benefits as well as its limitations. It shows the beneficiaries in electronic transactions, and types of E-commerce. It also discusses the nature of electronic transactions including exchanging of information and electronic contracting.

⁸ Y Zhao *Dispute resolution in E-commerce* 9 (2005) 1.

⁹ *Ibid.*

¹⁰ *Ibid.*

¹¹ UNCITRAL Model law on E-commerce adopted in General Assembly Resolution 51/162 of 16 December 1996.

2. Definition of E-commerce

Vladimir Zwass¹² defines E-commerce as 'sharing business information, maintaining business relationships and conducting business transactions by means of telecommunications networks'.¹³ E-commerce involves buying and selling the goods or services through internet network. Electronic transactions usually involve Electronic Data Interchange (EDI) which refers to a standardised format of transferring business information like bills, orders and confirmations between different organisations through a private network.¹⁴ The E-commerce system is aimed at simplifying and speeding-up the commercial services whereby some business procedures are omitted or quickened.

3. Benefits of E-commerce

E-commerce enables online business between merchants and customers.¹⁵ E-commerce enables a consistent and stable communication network that may allow them to benefit from other sectors. It may lead to many opportunities and of course to few challenges.

3.1 Benefits of E-commerce to the merchants and customers

E-commerce opens national and international markets so that the stakeholders may access expanded markets, with a variety of goods and services.¹⁶ E-commerce gives customers a wide range of choices in order to get good quality of products. It also enables them to compare prices as well as find relevant companies selling the desired products.¹⁷ It allows merchants to locate potential customers, and to identify new products and manufacturers.¹⁸

¹² Vladimir Zwass is a PhD holder in Computer science from Columbia University, and he is Editor in Chief of International journal of E-commerce, the leading scholarly E-commerce journal.

¹³ Z Vladimir 'E-commerce: Structures and Issues' (1996) 1 *International Journal of E-commerce* 3 at 5.

¹⁴ H Paul and S Carol 'Power and Trust: Critical factors in the adoption and use of Electronic Data Interchange' (1997) 8 *Organisation science* 23 at 24.

¹⁵ J Botha et al *Managing E-commerce in business* 2ed (2008) 410.

¹⁶ Ibid at 409.

¹⁷ Ibid.

¹⁸ R Tassabehji *Applying Electronic-commerce in business* (2003) 8.

The passing and exchanging of information is very fast in E-commerce, and it does not require a long time to get a reply.¹⁹ E-commerce allows 24-hour shopping from anywhere.²⁰ Business in E-commerce has no limits, it removes geographical boundaries.

E-commerce saves time and personnel. The delivery of service is very fast and a cheap means of doing business.²¹ While in traditional commerce, after-sale services are usually more expensive than in E-commerce, online support may be more effective and economic.²² For instance, doing business over the internet gives access to 'Frequently Asked Questions', a regular mechanism of sorting out or answering the customer queries.²³

In E-commerce, the transaction payments are electronically done over the internet. They are very easy to audit, monitor and retrieve if a certain payment has been done.²⁴ Also, E-commerce can prevent fraudulent behaviours and different types of losses. Undoubtedly, it has been proven that E-commerce is beneficial to both merchants and customers since it improves a good relationship and collaboration between them.²⁵

3.2 Benefits of E-commerce to the society

Members of society can benefit from E-commerce in different ways. For instance, the success of E-commerce depends on accessibility and affordability of communication infrastructure that normally allow everyone to access internet.²⁶ In this way, E-commerce contributes to the expansion of internet to rural areas,²⁷ which allows people in these areas to get connected at a low cost.

¹⁹ Botha et al (note 15) 410.

²⁰ Tassabehji (note 18) 9.

²¹ Ibid. at 8.

²² S Ghandi 'E-commerce and information technology' (2006) 11 *Vidyasagar University journal* 82 at 85.

²³ Ibid.

²⁴ Ibid at 86.

²⁵ Ibid.

²⁶ A Whinston et al *Handbook on E-commerce* (2000) 50.

²⁷ W Jiapei and H Feng *The Management of E-commerce* (2001) Available at <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan001213.pdf> [Accessed 6 Aug 2010]

It is in this framework, that in some advanced countries like United States of America (USA), United Kingdom (UK) and China, it has been proven that E-commerce contributes to the transformation of the society and the restructuring of the economy. People could now access distance education, e-health and e-governance.²⁸ E-commerce therefore played a significant role in the socio-economic development of the country. Interestingly, there is a two-way influence because after the introduction of the internet, the use of E-commerce increased rapidly.²⁹ It however has some limitations which vary from country to country.

4. Challenges in implementing E-commerce in developing countries

Developing countries have experienced more challenges in developing their E-commerce systems, the common challenges relate to lack of skilled personnel, technological issues, and financial means, lack of adequate telecommunication infrastructures,³⁰ and the lack of laws and policies in tune with the constantly changing technology.³¹

4.1 Lack of skilled personnel

In developing countries, computer literacy is very low and people know little about the E-commerce system let alone operating it.³² The skilled people are only found in the urban areas while there are few or no professionals in rural areas which make up the bulk of developing countries. Thus, developing countries are struggling to launch E-commerce countrywide because of a lack of skilled personnel and because people do not understand its importance.

²⁸ Tassabehji (note 18) 12.

²⁹ E Cloete *E-commerce a contemporary view* (2005) 37.

³⁰ Africa Information Society Initiative (note 5).

³¹ Ibid at 11.

³² JA Daly and R Miller *Corporations Use of the Internet in Developing countries* (1998) 4.

4.2 Change of technology

E-commerce is enabled by information technology which is always changing.³³ This constant change of technology is a challenge in developing countries which may not be able to keep up with the technological changes. Developed countries regularly update their software and infrastructure while developing countries lag behind. This is a challenge to developing countries because sometimes they are unable to update quickly their technologies and electronic infrastructure which involve a lot of money. It results in the use of an old version which may not be compatible with the new one.

4.3 Lack of adequate infrastructure and sufficient bandwidth

Developing countries have largely been unable to expand their infrastructures to reach rural areas so that the whole country has internet coverage. In some countries, some Internet Service Providers (ISPs) have tried to connect rural areas through wireless connection with a limited bandwidth. This has, however, proved very expensive. The speed of information relies on the capacity and availability of bandwidth, the limitation of bandwidth does not allow people from remote areas to benefit from E-commerce.

4.4 Digital divide

The digital divide refers to a divide between those who can access and those who cannot access ICT services in one country.³⁴ Such a gap is evident in developing countries and is a limitation to electronic transactions in a country. It becomes a problem for E-commerce when only one part of the population can access internet and make online transactions. This divide is caused by a lack of adequate infrastructure such as electricity, and telecommunications.

³³ Rwanda NICI plan 2006-2010 (note 6) at 15.

³⁴ Daly and Miller (note 32) 5.

In developed countries, there is a heavy reliance on internet, while in most parts of developing countries the daily use of internet is yet to take root.³⁵ In addition to the lack of adequate infrastructure, large numbers of people in rural areas have not received any basic education and are therefore not well trained to use computers.

4.5 Limitations related to laws and policies on E-commerce

Laws and policies play a significant role in ensuring the security of electronic information, documents and other transactions.³⁶ The legal framework is also intended to ensure the compliance to international instruments related to E-commerce and give a proper line of doing electronic transactions in the country.³⁷ The legal challenges are often caused by the change in technology. Laws are not always compatible with the new versions of the technology and sometimes they are not responsive to all issues of information security and piracy.³⁸

The United Nation Commission for International Trade Law (UNCITRAL) adopted a Model law on E-commerce which countries may use as a reference when they are making their own laws.³⁹ In coming up with a legal framework for E-commerce, due consideration must be given to the implications of every type of E-commerce as well as the beneficiaries of each type.

5. Major types of E-commerce

There are two main types of E-commerce, namely 'Business to business' and 'business to consumer'. The distinction is based on the nature of the contracts and other kinds of correspondences that may be between the parties.⁴⁰

³⁵ Daly and Miller (note 32) at 2.

³⁶ Africa Information Society Initiative (note 5).

³⁷ Ibid.

³⁸ Philip et al (note 1) at 5.

³⁹ Model law on E-commerce (note 11).

⁴⁰ Zhao (note 8) 23.

There are other two types of E-commerce which are less utilised namely 'Government to business' and 'Consumer to consumer'.⁴¹

5.1 Business to business E-commerce

Business to business is recognised as the largest category of E-commerce, where big enterprises which manufacture certain products conduct commercial activities through electronic transactions with the distributors of those products.⁴² Also, Small Medium and Macro Enterprises (SMMEs) benefit from this type of E-commerce when they are selling their products through online transactions.⁴³ In developing countries, SMMEs face some challenges in accessing E-commerce services, because sometimes those small enterprises are located in rural areas where there are no adequate facilities for E-commerce.

Another challenge is that sometimes members of SMMEs feel that they do not need to use electronic systems in their business.⁴⁴ The government should be more supportive to SMMEs to enable them to benefit from E-commerce. In doing business to business E-commerce, the transactions are electronically made but the shipment or transportation of the goods may be physically done.

In this case, the supply process requires more effort because of high volume goods and following up the supply chain.⁴⁵ The manufacturer may need a warehouse to stock his/her goods and a long process of transportation must be ensured before they reach their destination. The internet allows online tracking of the movement of the goods to the end.⁴⁶

⁴¹ Ibid.

⁴² D Lucking-Reiley and D Spulber 'Business-to-Business E-commerce' (2001) 5 *Journal of Economic Perspectives* 55 at 55.

⁴³ A survey done by UNDP and e-Asian task force in Southern Asian Countries. Available at <http://www.apdip.net/publications/iespprimers/eprimer-ecom.pdf> [Accessed 20 January 2011].

⁴⁴ Ibid at 27.

⁴⁵ J Botha in his book *Managing E-commerce* expresses that the supplier is always to follow the supply chain which refers to the process and means of transportation to supply the products, he ensures their security, insurance during the way till they reach to the destination. He closely works together with retailers and other involved people.

⁴⁶ Botha et al (note 15) 323.

5.2 Business to consumer E-commerce

'Business to consumer' refers to the commercial activities conducted between supplying companies and end users. These may be goods or services.⁴⁷ It is also applied to any entity which sells its products to consumers. All of its transactions may be done over the internet or any other kind of network such as telephone network.⁴⁸

The merchant should have his own website, for the purpose of introducing goods or services and also to attract customers, so that they may immediately buy without enduring long processes and journeys. The consumers do not need to see or know the merchants. In effect, all issues and procedures should be sorted out through the merchant's website.⁴⁹ The services like online banking, online auctions travel services and health information are among the typical services done by business straight to consumer.⁵⁰

5.3 Business to government E-commerce

The electronic transactions might be between the business organisations and government or the agencies of the government, where the manufacturer may sell and supply the goods or services to the government. Most of those supplies are the needs/equipment of the army, police, hospitals, public entities, schools.⁵¹

As all transactions should be done online, in making the contracts both parties should consider the collection of taxes and other ancillaries related to the supply of public services.⁵² This type of E-commerce may be also used when a business and government are contracted to a certain project which may allow them to work through an online

⁴⁷ Zhao (note 8) 24.

⁴⁸ Z Vladimir 'E-commerce and organizational innovations: Aspects and opportunities' (2003) 7 *International Journal of E-commerce* 7 at 9.

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Lucking and Spulber (note 42) at 56.

⁵² Ibid.

collaboration and coordination, they may have some regular online meetings and making different progress reports.

5.4 Consumer to consumer E-commerce

In this category, there is a direct interaction between consumers, they may exchange some information related to a certain product and may get different replies from different consumers. They may also exchange the goods through auction sites. A classic example of commercial marketplace is e-Bay.com which allows a consumer to deliver products or services to another.⁵³

6. The nature of E-commerce transactions

Among the operations executed through electronic transactions, some of them should be performed either by the seller or the buyer.⁵⁴ The internet enables the merchants to advertise their goods and services to prospective buyers who may make online purchase. After agreeing on the product or services, the parties may have electronic contract so that the seller could supply online in case of digital products.⁵⁵ Another step in the process of electronic transactions is doing online billing, where the buyer may make payment using credit cards.

6.1 Exchanging of electronic information

In E-commerce, the buyer cannot only use the internet for checking advertisements on sellers' websites, but he /she may also ask for information. The seller and the buyer may exchange information, make orders and sell online, deliver and receive the product, invoice and make online payments.⁵⁶ The buyers can get all relevant information they need before making a decision to purchase.

⁵³ B Hossein *E-commerce: Principles and Practices* (2002) 52.

⁵⁴ S Bomil and H Ingoo 'The impact of customer trust and perception of security control on the acceptance of E-commerce' (2003) 7 *International Journal of E-commerce* 135 at 136.

⁵⁵ Ibid.

⁵⁶ Ibid.

In this framework, the exchange of information between buyers and sellers through internet involves security concerns for the purpose of protecting personal information. The exchange of information over internet removes geographical boundaries and hosts a big number of consumers.⁵⁷

Moreover, due to the possible number of 'cyber crimes'⁵⁸ the buyers as well as the sellers are always concerned about the security and confidentiality of transactions, and legal enforceability of the contracts.⁵⁹ The legislator thus needs to emphasise on that security because the latter is a significant element of electronic transactions. In different legislation, cryptography and authentication⁶⁰ products are used to ensure security of electronic messages and ensure that the messages are received only by the intended recipient.

6.1.1 Role of Cryptography in E-commerce

Cryptography defines as a 'mathematical process using algorithms to encrypt a message, as so to mask its content, and only intended recipient of the message can decrypt and read the message after solving the algorithm with a key in their possession'.⁶¹ In E-commerce, cryptography is used to address the issues related to confidentiality and the integrity of an electronic message. In another words, cryptography is used for protecting the accuracy of information by encrypting data into an unreadable format called cipher.⁶²

⁵⁷ Ibid.

⁵⁸ The South African Green paper on E-commerce defines 'Cybercrimes' as illegal acts, the commission of which involves the use of an electronic system, networks, technologies and devices such as the telephone, microwave and satellite.

⁵⁹ CL Chai 'A Critical appraisal of customer satisfaction and E-commerce' (2002) *Management Auditing Journal* 202 at 207.

⁶⁰ In its guidance for electronic authentication, OECD defines electronic authentication as 'A function for establishing the validity and assurance of a claimed identity of a user, device or another entity in an information or communications system'. Available <http://www.oecd.org/dataoecd/32/45/38921342.pdf> [Accessed 2 September 2010]

⁶¹ Cloete (note 28) at 125.

⁶² Hossein (note 53) 207.

Cryptography for E-commerce has shown its benefits in privacy protection and may ensure crime prevention. However, it has been criticised for having the potential of hiding criminal activities that may affect the national security.⁶³ Apart from cryptography, E-commerce may need to use authentication as another mechanism of maximising the security of electronic messages.

6.1.2 Authentication in E-commerce

Authentication refers to a technology that helps in identifying one party from another. In exchanging information, the buyer needs to know the identity of the seller whom he/she is dealing with and vice versa.⁶⁴ Authentication plays a significant role in establishing trust and the relationship between the parties in E-commerce. It is considered as an essential element in protecting information systems, financial data and other personal information from unwanted access.⁶⁵

The OECD⁶⁶ set out the guidance for electronic authentication to the country members and non-members, in order to highlight the importance of authentication, to address the cross border challenges in the use of authentication and to identify the issues associated with the use of electronic authentication.⁶⁷ A known example of authentication is when a certain website asks for a password and an ID name before logging in.

⁶³ A Cryptography policy framework for E-commerce: Building Canada's Information Economy and Society. Available at [http://www.ic.gc.ca/eic/site/ecic-ceac.nsf/vwapj/cryptography.pdf/\\$file/cryptography.pdf](http://www.ic.gc.ca/eic/site/ecic-ceac.nsf/vwapj/cryptography.pdf/$file/cryptography.pdf) [Accessed 2 September 2010].

⁶⁴ Cloete (note 28) 148.

⁶⁵ OECD Recommendation on Authentication and Guidance on Authentication (2007). Available at <http://www.oecd.org/dataoecd/32/45/38921342.pdf> [Accessed 3 September 2010].

⁶⁶ OECD is an international organization helping governments to sustain their economy, advising on social and governance challenges of a globalised economy.

⁶⁷ OECD Recommendation on electronic authentication (note 65).

6.2 Online contracting in E-commerce

In E-commerce, the contract is done through internet. The parties engaging in E-commerce need to ensure that transactions conducted by electronic means are legally binding and enforceable to the same extent as traditional paper-based transactions.⁶⁸ The parties do not need to meet face to face.

This means that electronic contracting requires that the parties pay attention on the terms of conditions, on obligations of everyone in the contract and on the implementation of the contract.⁶⁹ Electronic contracting is an indispensable phase because it creates a relationship between the seller and the buyer and also specifies rights and obligations of every party in the contract.⁷⁰

Even the UNCITRAL Model Law on E-commerce recognises electronic contracts, and accepts their validity, for instance its article 11 states that 'In the context of contract formation, unless otherwise agreed by the parties, an offer and the acceptance of an offer may be expressed by means of data messages. Where a data message is used in the formation of a contract, that contract shall not be denied validity or enforceability on the sole ground that a data message was used for that purpose or stored by electronic, optical or similar means including electronic mail'.⁷¹

The common obligations of the parties are that the seller should deliver a product and the buyer should pay for it. The main elements of an electronic contract that should be indicated in every contract such as the clear identification of the parties in the contract, detailed indication of the subject of the contract, clear indication of time, and validity of the contract.

⁶⁸ C Micheal and K Alistair *E-commerce Law and practice* 2ed (2000) 61.

⁶⁹ Ibid.

⁷⁰ Ibid at 62.

⁷¹ Art11(1) of Model Law on E-commerce (note 11).

Some of electronic contracts may need electronic signatures of the involved parties certifying their acceptance of the liabilities laid down in the contract, and should be accompanied by the date indicating the start of the time period of the contract validity.⁷² There are other kinds of contracts which are presented as 'terms and conditions', they do not need signatures, to express the acceptance, the recipient is simply required to click on an indicated button. Among those online contracts 'click wrap, shrink wrap and browse wrap' are typical examples.

6.2.1 Click wrap as an online contract

Click wrap refers to an agreement which is entirely formed in online environment setting the rights and obligations of the parties. The term 'click wrap' is used because the buyer or customer is only required to click on a button to show his acceptance of the contract.⁷³ The window on the screen shows that the purchaser or the user is to click 'I agree' 'I accept' before proceeding to the next step of the transaction or to continue with the installation if it is software. It is a condition to the user or buyer that cannot get access to certain software without showing the acceptance to the contract by clicking the indicated icon.⁷⁴ Click wrap is a contract of adhesion.

The customer does not have an option on the specific terms and clauses already formed by the manufacturer or seller, the terms are not negotiated but are simply offered on a 'take it' or 'leave it' basis,⁷⁵ as terms are being pre-drafted by the merchants to protect their interests and the customers get them only on the time of purchase. Among other things, a click wrap agreement could be used in establishing terms and conditions of downloading and using software over the internet, this agreement can be also used to set up rules to access a website.⁷⁶

⁷² Micheal and Alistair (note 68) at 89.

⁷³ Ibid at 92.

⁷⁴ Ibid.

⁷⁵ MF Buono and J Friedman 'Maximizing the enforceability of Click-Wrap agreements' (1999) 4 *Journal for technology law and policy* 1 at 12.

⁷⁶ Ibid.

6.2.2. Shrink wrap contract

Another type of online contract is shrink wrap. A shrink wrap contract is like a license agreement which can only be read and accepted by the consumer after opening the product. This kind of agreement is often applied between the producers of software and its end users.⁷⁷ The agreement comes along with the purchased product as additional terms and conditions.

The shrink wrap licenses do not display their terms of the license on the outside of the box containing the product. Rather, these shrink-wrap licenses are contained inside of the box, with a message outside stating that the act of opening the package constitutes acceptance of the terms of the license.⁷⁸ Shrink wrap agreements state that once the packaging is opened by the consumer, the manufacturer is no longer liable for any damage or defects of the product.⁷⁹ Shrink wrap raises a problem that the end user is disabled from reading and accepting the terms before the purchase and payment since it is the act of opening the box which indicates the acceptance of the terms.⁸⁰

6.2.3 Browse wrap as online contract

The third type of online contracts is browse wrap. A browse wrap or web wrap refers to online terms and conditions which are usually posted on the web site directly or by hyperlink with the aim of binding the one who visits or uses the web site or any of its services.⁸¹ It appears like a click wrap contract, but the later imposes the customer to click on the icon to continue or to install the software, while browse wrap is intended to show the users the terms and conditions. Due to the way the browse wrap appears, sometimes the user or the buyer can claim that the terms were not visible or were not adequate.

⁷⁷ T Pistorius 'Click-wrap and Web-wrap agreements' (2004) 16 *Mercantile Law Journal* 568 at 569.

⁷⁸ Ibid.

⁷⁹ Ibid.

⁸⁰ X Jiao 'A comparative study of Shrink-wrap license' (2009) 2 *Journal of Politics and Law* 86 at 87.

⁸¹ LK Christina et al 'Browse-wrap agreements: Validity of implied assent in electronic form agreements' (2003) 59 *The Business Lawyer* 279 at 281.

LK Christina et al. said that 'these variables make it more difficult to show the users' assent to browse-wrap agreements than to show assent to click-through agreements, so browse-wrap agreements are less reliably enforceable'.⁸² They proposed some requirements that browse wrap contract should fulfil in order to be enforceable notably providing adequate notice to the user, the user should have meaningful time for reviewing the terms, the user is to be provided with adequate notice that taking action manifests assent to the terms.⁸³ This shows that browse wrap cannot always bind the user of the website because of lacking his/ her assent on terms and conditions. One can argue that only click wrap and browse wrap appear in electronic form while the shrink wrap could be considered to be in paper environment.

6.3 Electronic payment

Electronic-commerce involves electronic payments. The electronic payment systems refer to the various methods and instruments of effecting the payments through an electronic device.⁸⁴ The process of online payments is usually done in collaboration with banks, different credit cards companies and other financial institutions.⁸⁵ The most important element in electronic transactions is that the system of electronic payment should ensure security, trust and easy use of the beneficiaries.

Secure Electronic Transaction (SET) is a payment mechanism that provides authentication of both seller and buyer to a transaction.⁸⁶ This way of authentication relies on hiding their identities, through authenticating their personal information such as passwords, fingerprints and cryptographic keys.⁸⁷ The aim is to ensure that important information is protected against hackers and fraudulent transactions.

⁸² Ibid at 312.

⁸³ Ibid.

⁸⁴ Hossein (note 51) 194.

⁸⁵ Cloete (note 28) 112.

⁸⁶ Ibid.

⁸⁷ Ibid at 113

There are different ways that may be used in processing electronic payment such as electronic funds transfer (EFT) and payment through cards (credit cards and smart cards).⁸⁸

6.3.1 Electronic funds transfers

Electronic funds transfer is one of the oldest electronic payment systems. It refers to transferring money using one bank account directly to another bank, without taking paper money.⁸⁹ This procedure has been used for a long time, because it is considered to be reliable, safe and convenient way to perform the business.⁹⁰

In terms of legal aspects to govern electronic funds transfer, the UNCITRAL, as the core legal body in the field of international trade law, set up the 'legal guide for electronic funds transfers'.⁹¹ By adopting the guide on electronic funds transfers, UNCITRAL intended to facilitate the country members to elaborate their domestic legal system in order to have laws considering and adapting requirements of paper based funds transfers to the techniques of electronic funds transfers.⁹²

6.3.2 Payment using cards

The payment through cards also is also a type of electronic payment which refers simply to storing financial value that can be transferred from the computer of the customer to the computer of the seller, the payment using card is the most popular way of online payment.⁹³ The payment by cards includes different types of cards like credit cards, debit cards, charge cards and smart cards.⁹⁴ Those cards are electronically used to handle different kinds of payments.

⁸⁸ Botha et al (note 15) 402.

⁸⁹ Hossein (note 51) 197.

⁹⁰ Ibid.

⁹¹ UNCITRAL Legal Guide on Electronic Funds Transfers (1987) Secretariat of UNCITRAL New York.

⁹² Ibid.

⁹³ Hossein (note 51) 198.

⁹⁴ Ibid.

Chapter III

Status of ICT penetration as a pillar of E-commerce in Rwanda

1. Introduction

This chapter aims at showing how the Government of Rwanda has put in place strategies and made efforts to develop and sustain the ICT sector, and how the government believes that ICT can be an engine for accelerated development and economic growth, national prosperity and global competitiveness.⁹⁵ It is well known that E-commerce should rely on a good set up, accessibility and affordability of ICT infrastructure in the country. The ICT development in the country is now remarkable and it is supporting different sectors in the country by providing internet connectivity, and universal access to ICT infrastructure.

This chapter outlines the national strategies to set up the reliable ICT sector, and the national monitoring and implementation institutions. The UN Economic Commission for Africa (UNECA)⁹⁶ launched its African Information Society Initiative (AISII) in 1996 and since then, has been supporting several country projects to enhance the National Information and Communications Infrastructure.⁹⁷ The UNECA believes that the primary step in initiating E-commerce is to set up a telecommunication infrastructure which is the basic carrier of information.⁹⁸ Rwanda, like other African countries under the guidance and support of the African Information Society Initiative, has over the past decade embarked on the development and the implementation of their ICT policies and plans.⁹⁹

⁹⁵ Rwanda NICI plan 2006-2010 (note 6).

⁹⁶ The UN Economic Commission for Africa (UNECA) is among the UN five regional commissions, its mandate is to promote and support economic and social development of its member States, foster intra-regional integration, and promote international cooperation for Africa's development. Available at http://www.uneca.org/eca_programmes/it_for_development/default.htm [Accessed 1 October 2010].

⁹⁷ Africa Information Society Initiative (note 5).

⁹⁸ Ibid.

⁹⁹ A Country ICT Survey for Rwanda conducted by Miller Esselaar and Associates (November 2001) done for Swedish International Development Cooperation Agency. Available at <http://www.trigrammic.com/downloads/Sida%20Report%20-%20Rwanda.pdf> [Accessed 2 September 2010].

The mission of AISI is not related to the technical component of technology. It is only dealing with the means of improving the quality and lives and setting the mechanisms of fighting against poverty in African citizens.¹⁰⁰ In past 10 years, the Government of Rwanda started to set up strategic plans in different sectors to drive the national development for the next 20 years. In the ICT sector, the Government has come up with four strategic plans, all to be implemented in every five years from 2000 up to 2020. The plans are contained in a document called the 'National Information Communication Infrastructure (NICI)'.

2. The National Information Communication Infrastructure (NICI) plan

2.1 Scope of the NICI plan in Rwanda

In principle, every strategic plan intends, to enhance the national development, in elaborating its NICI plans. Rwanda was targeting a number of key areas such as human resource development, e-government, ICT infrastructure development, e-health, e-education, E-commerce, establishment of ICT institutions, development of legal sector and other areas to reduce poverty.¹⁰¹

Every NICI five year plan has its global goal; the goal of the first one 2001-2005 was 'An integrated-led socio-economic development policy and plan for Rwanda'.¹⁰² According to the goal of the second NICI plan (2006-2010), which is 'to support the strengthening of the economic base and improve the economic environment to accelerate development and growth towards achieving an information- rich, knowledge-based society and economy'.¹⁰³ It guides the adoption and exploitation of modern

¹⁰⁰ About AISI on UNECA Web site: <http://www.uneca.org/AISI/> [Accessed 2 September 2010].

¹⁰¹ Rwanda Information Technology Authority assigned to coordinate, and supervise implementation of NICI Plan and develop ICT in Rwanda. Available http://www.rita.go.rw/about/about_strategie.html [Accessed 2 September 2010].

¹⁰² Ibid.

¹⁰³ Rwanda NICI Plan 2006-2010 (note 6).

communication information for improving socio-economic development. It is the second NICI plan intended to set up the roadmap of E-commerce in Rwanda.

2.2 Second national strategic plan in ICT (NICI plan 2006-2010)

The second NICI plan that was adopted in 2006 intends to maximise the transformation of the national economy by adopting and giving a priority to the use of information technology of today with the target of making a rich and knowledge based society. There are some sub-plans set out in second NICI plan in order to facilitate the achievements. Among them, we highlight those related to the establishment of E-commerce such as enhancing telecommunication infrastructure, establishing e-government systems, ensuring ICT access to the rural community and setting laws and regulations on international standards.¹⁰⁴ The plan outlines the proposed requirements to set up E-commerce in the country.

3. Establishment of E-commerce in Rwanda

The idea of establishing the system of E-commerce stems from the second NICI plan (2006-2010) where the plans and prerequisites to have a reliable system were outlined. The NICI plan indicates various programs to be performed in establishing E-commerce, the way forward and the timeframe for implementation, it also shows national institutions to be involved in the execution of every program.¹⁰⁵

The major programs related to the setting up of E-commerce have been divided into three sections which relate to the facilitation of rapid development of the telecommunication sector, the initiative of electronic banking, and the development of a legal framework for information communication technology matters.

¹⁰⁴ Ibid.

¹⁰⁵ Ibid at 258.

3.1 Development of telecommunication sector

The issue of developing the telecommunication sector started in the first NICI 2001-2005 plan, as a long plan project. The second NICI plan is a continuation of the first one in terms of setting up adequate ICT infrastructure reaching the rural community. The Government of Rwanda acknowledges that the vision of having ICT as an engine of speeding up socio-economic development cannot be achieved without the necessary modern physical telecommunications infrastructure.

The Government is therefore committed to the rapid development and deployment of the necessary infrastructure in all key areas such as telecommunication sector and launching a fibre optic project. In this regard, the Government liberalized the telecommunication sector to private partners and telecommunications operators. The issue of creating incentives and favourable conditions to investors in telecommunications sector has been observed. In the second NICI plan, the issue of connecting the country to the submarine cable to get enough bandwidth from fibre optic was considered.¹⁰⁶ Among other factors of telecommunications sector development, the Government lays emphasis on universal access to ensure that the ICT services are expanded to the rural areas.

3.1.1 Liberalisation of telecommunication sector in Rwanda

In 1997, GATS and WTO highlighted the telecommunication sector as an important sector for liberalisation in all member countries.¹⁰⁷ In 1997, telecommunication liberalisation was discussed by WTO country members who adopted the WTO Agreement on Basic Telecommunication which aimed at liberalising a world telecommunication market.

¹⁰⁶ Rwanda is a landlocked country; the installation of the optic fibre depends on the connection from Mombasa (Kenya) via Kampala (Uganda) or the one from Dar es Salam (Tanzania).

¹⁰⁷ WH Melody *Telecom Reform: Principles Policies and Regulatory Practices* (1997) 4.

In developing countries, liberalization is a complex and relatively new process done through the privatization of state-owned telecommunications operators, introduction of competition, opening of markets to foreign investment and establishment of policies and regulations.¹⁰⁸ In 1998, the Government of Rwanda has followed other WTO country members in undertaking privatization and liberalization of telecommunications services.¹⁰⁹

The Government was convinced that the liberalisation could be one of the ways of speeding up the development in the sector. Before 1998, only one telecommunication company Rwandatel was operating for communication services and was 100 percent owned by the Government. Rwandatel was only providing fixed telephone communication services.¹¹⁰

In 1998, the process of privatising Rwandatel started and a new telecommunication operator (MTN Rwanda) was licensed.¹¹¹ MTN Rwanda is a subsidiary company of MTN South Africa. It was the first telecom operator that introduced communication services based on Global System for Mobile communications (GSM).¹¹²

After MTN was licensed, Rwandatel found it necessary to change the way of delivering communication services by launching communication services of mobile phones.¹¹³ The process of privatising Rwandatel continued, and was completed in 2007. The Government of Rwanda continued to encourage competition and liberalisation, where it decided to license another telecommunication operator (TIGO) in 2009.

¹⁰⁸ C Fink et al 'An assessment of telecommunications reform in developing countries' (2003) 15 *Information Economics and Policy* 443 at 444

¹⁰⁹ Information from Website of Telecommunication Regulator www.rura.gov.rw [Accessed 11 October 2010].

¹¹⁰ Information from Rwandatel website. Available <http://www.rwandatel.rw/?-Fixed-> [Accessed 11 October 2010]

¹¹¹ Information from Website of Telecommunication Regulator (note 109).

¹¹² GSM stands for Global System Mobile. It is a second generation cellular (2G) network system in its design and the services that it offers and is digital.

¹¹³ Information from Rwandatel website (note 110).

These three telecommunication operators have been licensed for providing telephone and internet services as Internet Service Providers (ISPs).¹¹⁴

3.1.2 Universal access and universal services in Rwanda

These two concepts are different but they have similar objectives: availing, expanding and maintaining affordable telecommunication services to the public.¹¹⁵ Universal access refers to the accessibility of ICT facilities by all and in public places while universal services describes a process whereby an individual accesses a certain service through ICT components from his or her home place. There are three elements that have to meet to ensure universal access and universal services such as availability, affordability and accessibility.¹¹⁶ These three concepts qualify how much and in which manner the ICT services are being delivered to the community.

This means that universal access and universal service have a relationship with liberalization and competition in the telecommunication sector, as all of them are aimed at expanding the communication services up to rural areas at a reasonable cost. In regulating the competitive market of the telecommunication sector, obligations of universal services should be taken into account as a way of enhancing and achieving socio-economic activities as benefits of ICT facilities.

The Government of Rwanda embraced universal access and universal services, as it believed that there is a need of expanding both network coverage and increasing of penetration. A number of laws and policies have been adopted by the Government to ensure access to ICT facilities especially telecommunication services in rural areas. The 2001 NICI plan highlighted that appropriate policies and programs for universal access are required, and proposed that universal access and rural connectivity obligations

¹¹⁴ 2009 Annual Report of Rwanda Utilities Regulatory Agency. Available at http://www.rura.gov.rw/docs/Report_Jan_2009_June_2010.pdf [Accessed 11 October 2010].

¹¹⁵ InfoDev/ITU ICT Regulatory Toolkit available <http://www.ictregulationtoolkit.org/en/Section.3126.html> [Accessed 22 October 2010]. The ICT Regulation toolkit is a joint production of Information Development Program under International Telecommunication Union.

¹¹⁶ Ibid.

could be developed and enforced through operator licenses.¹¹⁷ For that reason, the Government of Rwanda has adopted different policies and laws governing the implementation of universal access and to ensure its regulation and management.

3.1.3 Legal instruments for Universal access and Universal services in Rwanda

The aim of establishing adequate legal mechanisms was to set up a procedure of legally implementing, operating and protecting universal access and universal services. The Government of Rwanda firstly adopted the law No 44/2001 of 30/11/2001 governing Telecommunications (Telecommunications Law).

This Law came up with the establishment of universal access fund, and its primary objectives.¹¹⁸ It states that the universal access fund aims to ensure provision on affordable terms and with minimum subsidy, of the widest possible access to a public telephone service by the general public in all parts of the Republic.¹¹⁹ The Law also assigned the 'Regulatory Board'¹²⁰ to the management of universal access fund, and the contributions to the universal access fund should come from telecommunications operators operating in the country.¹²¹

Secondly, the Presidential Order No 05/01 of 15/03/2004 determining the functioning of the Universal access funds was adopted. The purpose of this Presidential order was to determine the functioning of universal access funds and public operators' contributions.¹²² The article 4 of the Presidential Order specifies the role of the Regulatory Board in Universal Access including ensuring the establishment of universal

¹¹⁷ Rwanda NICI plan 2006-2010 (note 6) at 133.

¹¹⁸ Art 28 of Telecommunications Law 44/2001 of 30/11/2001. Available at <http://www.rura.gov.rw/laws/TelecomLaw.pdf> [Accessed 18 November 2010].

¹¹⁹ Ibid.

¹²⁰ Telecommunication Law defines Regulatory Board as a Board of seven individual of some persons responsible for the regulation of public utilities in the Republic and for the management of the Regulatory Agency.

¹²¹ Telecommunications Law (note 118).

¹²² Art 2 of Presidential Order 05/01 of 15/03/2004 determining the functioning of the Universal access funds and public operators contributions. Available at <http://www.rura.gov.rw/laws/pl05.pdf> [Accessed 18 November 2010].

access throughout the entire national territory, within time periods compatible with the financial means that can be mobilised for this purpose.

The Regulatory Board is to take into account, among other things, of the recommendations and standardization organs of International Telecommunications Union (ITU), as well as of special constraints in the Republic and the situation of existing Public Networks.¹²³ The contribution to the universal access fund is two percent of the annual turnover of every telecommunication operator in the country.¹²⁴ In addition to that, the government sustains the universal access fund by allocating a certain percentage of the Government annual budget.

Other provisions have been put in place to ensure that the operators pay the contributions in due time and as required. Article 28 (3) of the Telecommunications Law states that the Regulatory Board may suspend or revoke a telecommunications license granted to any telecommunications operator where there is persistent failure by that operator to make properly assessed payments to the fund by the due date.

Article 28 (4) of the same Law states that failure by any public telecommunications operator to pay national telecommunication access fund contributions on the specified dates or not to pay them at all is regarded as a debt to the Regulatory Board and is recoverable by court order. The Government of Rwanda has set national institutions responsible for achieving and implementing the ICT's goals in the country.

¹²³ Ibid.

¹²⁴ Ibid Art 30.

3.2 Establishment of ICT institutions in the country

The objectives of the ICT sector in the country could not be achieved without having institutions responsible for implementing and ensuring the execution of planned activities. In 2001, key national institutions were established such as the Rwanda Information Technology Authority (RITA), and the Rwanda Utilities Regulatory Agency (RURA). On top of those two institutions, there is a Ministry in the President's office in charge of Science and Technology.

3.2.1 Rwanda Information Technology Authority (RITA)

The Rwanda Information Technology Authority is a body set up by the Rwandan Government to ensure the implementation of ICT goals in line with those of vision 2020 set by the Government. In this vision 2020, the ICT sector will guide the country to the adoption and exploitation of modern information and communications technologies to increase the pace of socio-economic development and create value for all citizens.¹²⁵ The Law No 32/2002 of 02/10/2002 establishing Rwanda Information Technology Authority (RITA) has been adopted and specified the functions of the Authority as well as determining its missions.

Article 4 specifies that RITA should: ensure the coordination of activities and programmes aimed at setting up and promoting the Government policy and strategies in matters relating to information technology and communication; monitor the implementation of national programmes in information and communication technology; initiate, coordinate and implement, in collaboration with public institutions, universities and other private institutions, research and communication technology, being the country's source of information on the prevailing situation related to information and communication technology; sensitise the Rwandan population on fully utilisation of information and communication technology. The Authority is also to coordinate, monitor

¹²⁵ Rwanda NICI plan 2006-2010 (note 6).

and evaluate the implementation of the National Information Communication Infrastructure (NICI) plan.

3.2.2 Establishment of Rwanda Utilities Regulatory Agency

Another significant institution established by the Government is the Regulatory organ known as Rwanda Utilities Regulatory Agency (RURA). The Government of Rwanda decided to go through economic reforms including the liberalization of the telecommunications sector and to make reforms in the sector which were aimed at increasing the competitiveness of the telecommunications industry and attracting foreign investment.

Among those reforms, the Regulatory Agency was established by the Law No 39/2001 of 13 September 2001 establishing Rwanda Utilities Regulatory Agency and specifying its main missions including promoting fair competition, improving quality of services, and creating an enabling environment which attracts investors with the intention of improving the provision of services to citizens through universal access obligations.¹²⁶ RURA regulates the ICT and telecommunication sectors in the country, taking into consideration the development of the country and the public interest.¹²⁷ The role of the regulator will be discussed in detail in the next chapter which discusses the regulatory framework in Rwanda.

4. Indicators of ICT penetration in the country

Rwanda is among the first African countries to use ICT as a principal tool to attain national development, and it envisioned that by 2020 its economy will be at middle income level thanks to the transformation of the economy from being predominantly agro-based to information rich and knowledge based.¹²⁸ The Government has set up various projects to extend the ICT services to rural areas, it has established different

¹²⁶ Law 39/2001 of 13 /9/ 2001 establishing Rwanda Utilities Regulatory Agency. Available at <http://www.rura.gov.rw/laws/LawAgencyforRegul.pdf> [Accessed 23 November 2010].

¹²⁷ Information from RURA' website www.rura.gov.rw [Accessed 23 November 2010].

¹²⁸ Rwanda NICI plan 2006-2010 (note 6).

incentives for foreign investors by facilitating them to come in the country and make their investments in the ICT sector.

The indicators of ICT in the country are especially justified by the use of communication devices and development of the telecommunication sector, and by the accessibility and affordability of internet connection in the country.

4.1 Telecommunication penetration

Since 1998, Rwanda liberalised telecommunication sector and a second telecommunication operator started its activities in the country. The Government, through Telecommunication regulator has continued to monitor the quality and affordability of services that were being given the citizen, and to enhance competition in the sector.

In the early 2009, the Government decided to license a third telecommunication operator in order to encourage competition and quality of services to the subscribers. The 2009 report of telecommunication regulator indicated that the subscribers who were using mobile phones (GSM) were totalling 2,429,252, which represents a penetration rate of 36% of the whole Rwandan population. Taking advantage of small size of this country which is 26,338 Km², the telecommunication operators have ensured that network coverage is available in every corner of the country.¹²⁹

4.2 Access to the internet connectivity in the country

All telecommunication operators as well as internet service providers using different technologies such as General packet radio service (GPRS), Wi Max¹³⁰, WiFi¹³¹ and VSAT have been licensed to provide internet in the country. Apart from the three telecom

¹²⁹ 2009 Annual Report of Telecommunication Regulator (note 114).

¹³⁰ WiMAX stands for Worldwide Interoperability for Microwave Access, a certification mark for products that pass conformity and interoperability tests for the IEEE 802.16 standards. WiMAX is a standards-based wireless technology that provides high throughput broadband connections over long distances.

¹³¹ WiFi a technology of wireless communication which refers to sending data, whether digital or analog as electro magnetic signals without wires.

operators which are providing the internet in capital city, the Regulator has licensed more ISPs, now there are around twelve (12) internet service providers in the country.¹³² All offices of the central government and other government institutions are connected to the internet.¹³³

The indicators of internet penetration in the country have been proven by a survey organised by UNECA in 2008, which survey was conducted by the National Institute of Statistics of Rwanda (NISR), and it was fully funded by the UNECA. The survey was aimed at measuring the ICT usage and indicating the rate of ICT penetration including internet connectivity in the country.¹³⁴

After the survey, the National Institute for Statistics came up with a report indicating that there was an estimate of 800 cyber cafes which are operational in the country, most of which are based in the capital city.¹³⁵ The report showed that in the country, there are different tele-centres established in every District under the supervision of RITA. The centres are helping the respective communities to access public telephones as well as internet. The country comprises of thirty (30) Districts, and their administrative offices have been connected to the internet using VSAT technology.¹³⁶

The New Artel is an internet service provider which has signed a contract with the Government to provide internet connectivity to the Government institutions in remote areas.¹³⁷ The same ISP signed an agreement with the Telecommunication Regulator to provide internet connectivity to all Universities in the country, all police stations at Province and the District levels, military barracks and schools and hospitals.

¹³² 2009 Annual Report of Telecommunication Regulator (note 114).

¹³³ Ibid.

¹³⁴ A report of survey done by UNECA on ICT penetration in Rwanda (2008). Available at http://www.uneca.org/aisi/docs/RWANDA_SCAN_ICT_REPORT.pdf [Accessed 22 November 2010].

¹³⁵ Ibid.

¹³⁶ Ibid.

¹³⁷ Ibid.

This was done in the framework of using and managing the universal access fund, and fulfilling its primary mission.¹³⁸ Taking advantage of its small size and thanks to the above mentioned progress, Rwanda is dreaming to be a hub of ICT in the region. According to the current pace, the trend shows that by 2020 Rwanda will have integrated the use of ICT in all sectors. Under the government support, the penetration of ICT in the country is growing very fast.¹³⁹

Legal procedures and mechanisms of supervision and monitoring, national institutions have been put in place for implementation in order to reach the set objectives. It is argued that there is no doubt that the E-commerce can now smoothly operate in the country, and it will work better when the country is connected to the submarine cable. The existing internet connections are only for satellite and wireless broadband. Rwanda is not yet connected to the submarine cable.

4.3 Connecting the country to fibre optic backbone

Rwanda is a landlocked country. It can therefore only be connected to a submarine cable from Kenya via Uganda or from Tanzania. The Government of Rwanda represented by the Rwanda Development Board (RDB)¹⁴⁰ encouraged investors as well as telecom operators to invest in the country, in view of the hastening connection to the submarine cable. The RDB understands that it is a challenging work but it is possible to connect the country to the cable in order to gain enough bandwidth on a cheaper price than the one of satellite broadband.

¹³⁸ 2009 Annual Report of Telecommunication Regulator (note 114).

¹³⁹ Information from Rwanda Development Board <http://www.rdb.rw/> [Accessed 22 November 2010].

¹⁴⁰ Rwanda Development Board is a government institution that fast tracks Rwanda development, Rwanda progress towards building a mature, knowledge based economy. One of the missions of RDB is 'Building a Hub of Information and Communication Technology': RDB will lead the efforts to establish Rwanda as a regional hub for information and communication technology (ICT) with a robust ICT industry, including E-commerce, e-services, applications development, and automation. ICT will be harnessed to generate wealth and be a key economic driver. Available at <http://www.rdb.rw/> [Accessed 22 November 2010].

It could be difficult because Rwanda will depend on the willingness and cooperation of the countries which will give it a gateway. It is in the same context that two of the telecom operators in the country (MTN Rwanda and Rwandatel) have started the process of preparations by internally laying cables up to the borders between Rwanda, Uganda and Tanzania. The RDB has come up with the idea of setting up the government fibre optic cable that will serve as an independent network for government institutions.

The concept of connecting the country to the fibre optic backbone was that the cable from Mombasa (Kenya) via Kampala (Uganda) will be the main connection while the one from Dar Es salaam (Tanzania) will be used as back up in case of mechanical interruption to the main one.

The fibre optic for the Government intends to connect the national institutions. It should reach every District in the country, and eight national borders, its estimated length is around 1800 km.¹⁴¹ The two networks of telecom operators have been rolled out up to big cities of the country. Rwanda Development Board has recently announced that all preparations had been made, that Rwanda is waiting for the connections from the other countries to reach Rwandan borders, so that the country can be connected to the fibre optic backbone.¹⁴²

5. Electronic banking in Rwanda

Among other prerequisites to establish E-commerce in the country, the 2006-2010 NICI plan also highlighted the element of electronic banking. The aim of electronic banking was to encourage the provisions of online services by the commercial Banks and other financial institutions to deliver their services using electronic methods.¹⁴³

¹⁴¹ 2009 Annual Report of Telecommunication Regulator (note 114).

¹⁴² Ibid.

¹⁴³ Rwanda NICI plan 2006-2010 (note 6) at 260.

The Government has assigned some institutions like the Ministry of Finance, the Ministry of commerce and trade and the National Bank to ensure that the country becomes a hub in terms of electronic banking and provision of online services.¹⁴⁴

The Government has decided to put in place the necessary regulations to support on-line and internet banking, facilitating the development and provision of on-line financial services, promoting the development of Rwanda as a regional hub for on-line financial and banking services and promoting the development of on-line inter-banking services within the Banking System of Rwanda.¹⁴⁵

The Government believes that this will facilitate the speeding up of online banking and the provision of financial services using the internet. The process is still underway as some commercial banks are installing ATM systems to facilitate deposit as well as withdrawal of money without having to go to the bank. In 2006-2010 NICI plan, the Government of Rwanda is committed to the enactment of the necessary laws and legislation in the area to govern and regulate the activities of the telecommunication sector and other necessary legislation to facilitate E-commerce and other internet-related activities in the country.

¹⁴⁴ Ibid.

¹⁴⁵ Ibid.

Chapter IV

The legal framework of E-commerce in Rwanda

1. Introduction

It has been proven that internet and related technologies have made irreversible changes to the world today, which has forced it to move towards the information society and knowledge-economy based, it is essential that the law must come and play its role of governing and regulating the matter.¹⁴⁶ E-commerce operates by integrating other elements in the country such as technologies, business operations, infrastructure and public policy.

All of these elements need to work together in order to maximise their benefits to the public. It is known that E-commerce has created the need for consistent and effective legal and regulatory mechanisms which are very crucial to the success to E-commerce.¹⁴⁷ The most important element in the legal framework of E-commerce is that the law should ensure and build confidence as well as trust between the buyer and seller.

Doing online business, the parties do not need to meet face to face for discussing and negotiating the terms. However, E-commerce law will reach its full potential when the parties in the business do not know each other; they are able to perform their business with mutual protection under the law. This chapter examines the law that has been recently adopted by the Government of Rwanda to govern electronic messages, electronic signature and electronic transactions. It attempts to answer some questions of the research. It analyses the adopted Law in its main parts that usually are to be considered in legislation of electronic transactions such as facilitation of legal framework, building trust in online business which includes consumer protection, consideration and security of personal information as well as provisions of intellectual property rights.

¹⁴⁶ Africa Information Society Initiative (note 5).

¹⁴⁷ Ibid.

Analysis will be based on its compliance with UNCITRAL Model law on E-commerce¹⁴⁸, as well as with UNCITRAL Model law on electronic signatures of 2001.¹⁴⁹

2. Adoption of Rwandan Law governing electronic transactions

The Government of Rwanda has recently adopted the law No18/2010 of 12/05/2010 relating to electronic messages, electronic signatures and electronic transactions (hereinafter Rwandan Law on electronic transactions). It was to set up the legislation that may reflect the international trend of doing transactions using current technologies.

Article 1 of this Law specifies that its scope is to govern electronic transactions, electronic messages and to prevent misuse of computers in electronic transactions, electronic signature and all other applications relating to information technology.¹⁵⁰ The article does not clearly specify the element of 'all other applications relating to information technology'. This may be criticized of being ambiguous because the list of those applications would have been indicated. However, this Law came at the right time when Rwanda had decided to use ICT in all sectors and get the benefits of technologies. The investors from advanced countries are now investing in Rwanda so it could be better to have such laws in place.

¹⁴⁸ Model Law on E-commerce (note 11).

¹⁴⁹ UNCITRAL adopted Model law on electronic signature in 2001. Available at <http://www.uncitral.org/pdf/english/texts/electcom/ml-elecsig-e.pdf> [Accessed 24 November 2010]. UNCITRAL believes that the Model Law on Electronic Signatures will constitute a useful addition to the Model Law on E-commerce and significantly assist States in enhancing their legislation governing the use of modern authentication techniques and in formulating such legislation where none currently exists,

¹⁵⁰ Rwandan Law No18/2010 of 12/05/2010 relating to Electronic messages, electronic signatures and electronic transactions. Published in Rwanda Official gazette No 20 of 17/05/2010.

3. Compliance with the UNCITRAL Model Law on E-commerce

3.1 Facilitating legal framework of E-commerce

Basically, the Law which governs electronic transactions is to ensure equal treatment of the users of paper based documentation and the users of computer based information in order to be efficient in international trade.

By incorporating the procedures of Model Law on E-commerce in national legislation for those situations where the parties opt to use electronic means of communications, an enacting State would create a media-neutral environment.¹⁵¹ The Rwandan Law on electronic transactions managed to follow the UNCITRAL Model Law on E-commerce, and considered every section of the Model Law.

However, in the definitions, the Model Law defines 'data message' as 'information generated, sent, received or stored by electronic, optical or similar means including, but not limited to, electronic data interchange (EDI), electronic mail, telegram, telex or telecopy'.¹⁵² The Rwandan Law, on its side, instead of using 'data message', has come up with another term 'electronic message' and defines it as 'information received, issued, sent or stored by electronic means, or any other similar means including electronic data interchange (EDI), such as electronic mail, telegram, telex or telecopy'.¹⁵³

It shows that in electronic transactions 'data message' and 'electronic message' may have the same meaning as message which is being sent, received, stored using an electronic device. It is argued that the Model law on E-commerce and the Rwandan Law on electronic transactions did not consider the element of 'recorded voice, or 'where a voice is used in an automatic transaction' while the same element has been considered by

¹⁵¹ Guide to Enactment of the UNCITRAL Model Law on E-commerce (1996) para.6.

¹⁵² Art 2 Model Law on E-commerce (note 11).

¹⁵³ Art 2 (12) of Rwandan Law on Electronic messages, signatures and transactions (note 150).

the South Africa Electronic Communications Transactions Act in order to expand the definition of data message.¹⁵⁴

The Model Law on E-commerce is normally presented in two main parts including one dealing with E-commerce in general and another governing E-commerce in specific areas.¹⁵⁵ It is clear that the Model law on E-commerce is based on recognition that legal requirements prescribing the use of traditional paper based documentation constitute an obstacle to the development of modern means of communication.¹⁵⁶ This is the reason why the first part of the Model Law on E-commerce is related to the legal requirements to the data messages while another is governing communication of data messages.

3.2 Legal requirements and recognition for electronic messages

The Rwandan Law on electronic transactions is presented in four main parties considering the structure of the UNCITRAL Model Law on E-commerce, namely legal requirements and recognition for electronic messages, communication of electronic messages, electronic signatures and electronic transactions. The Rwandan Law recognises the importance of legal requirements of electronic (data) messages, and came up with all provisions set by the Model Law on E-commerce such as a legal recognition of electronic messages, writing, originality, and retention of electronic messages.¹⁵⁷

The Rwandan Law has detailed electronic signatures in the whole chapter while in the UNCITRAL Model law on E-commerce it is only in article 7. This has been done taking reference to the UNCITRAL Model Law on electronic signature. Also, the provisions for electronic transactions have been structured in a specific chapter while in Model Law those provisions are incorporated in part of communication of data messages.

¹⁵⁴ South African Electronic Communications Transactions Act 25 of 2002 defines 'data messages' as data generated, sent, received or stored by electronic means and includes voice, where the voice is used in an automatic transaction, and a stored record.

¹⁵⁵ Guide to Enactment of the UNCITRAL Model Law on E-commerce (note 151) para 11.

¹⁵⁶ Ibid para 15.

¹⁵⁷ Chap 2 of Rwandan Law on Electronic messages, signatures and transactions (note 150).

It is argued that the Rwandan law on electronic transactions has respected legal requirements and recognition of electronic messages considering the UNCITRAL Model law on E-commerce. Apart from the legal requirements for data messages, chapter three of the UNCITRAL Model Law on E-commerce provided other provisions governing communication of data. The chapter deals with the issues related to the formation of electronic contact, among others.

3.3 Provisions for communication of data messages

The Rwandan Law on electronic transactions provides an article on the 'Value of electronic messages among the parties' and states that a declaration of interest or any other statement between the receiver and the owner of the electronic message shall retain its legal validity and shall be enforced,¹⁵⁸ This article is not in the UNCITRAL Model Law on E-commerce.

Other provisions on the recognition of the parties for data messages, acknowledgment of receipt and time and place of dispatch and receipt of data messages have been addressed by the Law in the same way that they were provided for by the UNCITRAL Model Law on E-commerce. Article 19 of the Rwandan Law on electronic transactions provides for the way change or error can affect one of the parties and how everyone will be responsible for the change or error occurred. The issue of 'effect of change or error does not appear in the Model law on E-commerce.

The Rwandan Law addresses in details the provisions for formation and validity of contract¹⁵⁹, which is equivalent to article 11 of Model Law on E-commerce. It states that 'in the context of contract formation, unless otherwise agreed by the parties, an offer and the acceptance of an offer may be expressed by means of data messages. Where a data message is used in the formation of a contract, that contract shall not be denied

¹⁵⁸ Art 15 of Rwandan Law on Electronic messages, signatures and transactions (note 150).

¹⁵⁹ Art 72 of Rwandan Law on Electronic messages, signatures and transactions states that in the context of contract formation, unless otherwise agreed by the parties, an offer and the acceptance of an offer may be expressed by means of electronic messages. Where an electronic message is used in the formation of a contract shall be valid regardless its use of electronic means for that purpose.

validity or enforceability on the sole ground that a data message was used for that purpose'.¹⁶⁰

The Model Law on E-commerce was aiming at clarifying the issue related to the formation of and validity of contract made through electronic means. The Rwandan Law came up with other provisions for more clarifications on agreement for instance the article 74 states that 'unless otherwise provided in the agreement, the provision of this Law relating to the time and place of dispatch applicable to electronic messages shall also apply in connection with electronic transactions'.

The Rwandan Law specifies that the provisions on electronic messages shall also apply to payment orders when executed by electronic messages, in case of electronic funds transfers, through banks of other electronic funds transfer institutions each party shall be considered sender of a separate electronic message.¹⁶¹ Considering the above mentioned main elements of the Model law on E-commerce, it is argued that the Rwandan Law on electronic transactions is compliant with the Model law.

4. Compliance with UNCITRAL Model law on electronic signatures

The UNCITRAL defines electronic signature¹⁶² and adopted the Model Law on electronic signatures in 2001. The Model Law recommends that all States give favorable consideration to the Model Law on Electronic Signatures, together with the Model Law on E-commerce adopted in 1996, when they enact or revise their laws, in view of the need for uniformity of the law applicable to alternatives to paper-based forms of communication, storage and authentication of information.¹⁶³

¹⁶⁰ Art 11 of Model Law on E-commerce (note 11).

¹⁶¹ Art 75 of Rwandan Law on Electronic messages, signatures and transactions (note 150)

¹⁶² Guide to enactment of the UNCITRAL Model Law on electronic signatures (2001) defines electronic signature as means data in electronic form in, affixed to or logically associated with, a data message, which may be used to identify the signatory in relation to the data message and to indicate the signatory's approval of the information contained in the data message;

¹⁶³ Model law on electronic signature (note 149) para 2.

The Model Law on electronic signatures provides different provisions as guidelines for States that are setting up their national legislation on electronic signatures. In terms of chapter V of the Rwandan Law on electronic transactions, the legislator followed the articles given by the UNCITRAL Model law on electronic signatures and came up with the provisions governing electronic signatures.

It has been noted that the Rwandan Law on electronic transactions is compliant with the Model Law on electronic signature, the Law provides equal treatment of signature technologies where the Law specifies that without prejudice to conventions and technology used, all electronic signatures are valid as long as they conform to the provisions of that Law.¹⁶⁴

It governs the conduct of the 'signatory'¹⁶⁵ who must: take reasonable care to avoid unauthorised use of his/her signature creation data or device; inform all concerned parties of any problem that arises, or any change occurred in the device or message while creating the electronic signature; exercises reasonable care to ensure the accuracy and completeness of all material representations made by the signatory to the certificate throughout its life cycle.¹⁶⁶

The Rwandan Law on electronic transactions also provides for the signatory to the certificate throughout its life cycle.¹⁶⁷ It also provides the provisions for conduct of the Certification Authority, that Controller' specific instructions shall determine the conduct of the Certification Authority by providing services to support an electronic signature.¹⁶⁸ The Rwandan Law on electronic transactions specifies the factors of the trustworthiness for the systems and the human resources utilised by Certification Authority.¹⁶⁹

¹⁶⁴ Art 21 of Rwandan Law on Electronic messages, signatures and transactions (note 150).

¹⁶⁵ Art 2 (29) of Rwandan Law on Electronic messages, signatures and transactions defines 'signatory' as a person who holds signature creation data and who acts either on his/her own behalf of the person he or she represents.

¹⁶⁶ Ibid Art 22.

¹⁶⁷ Ibid Art.22.

¹⁶⁸ Ibid Art.23.

¹⁶⁹ Ibid Art.24.

Article 25 of this Law provides for the conduct of the 'relying party'¹⁷⁰ where it specifies in which circumstances where a relying party shall bear the legal consequences. Article 26 of the Rwandan Law recognises foreign certificates and electronic signatures where it states that a certificate or electronic signature issued outside Rwanda shall have the same legal effect in Rwanda as a certificate issued in Rwanda, after checking legal requirements for digital certificates and electronic signature in Rwanda.

In determining whether or to what extent, foreign certificate or an electronic signature is legally effective, no regard shall be had to the geographic location where the certificate or electronic signature have been sent or to the geographic location of business of the issuer.¹⁷¹ Where parties agree on the use of a certain type of electronic signatures or certificates, that agreement shall be recognised as sufficient between the parties.¹⁷²

Article 26 of the Rwandan Law is the one that removes some barriers to international trade. The article eliminates the limitations on the electronic signatures and certificates from any other countries. The Rwandan Law came up with another element which is not in the UNCITRAL Model Law on electronic signatures, 'notarisation and acknowledgment', it states that if an electronic signature or message needs to be verified, acknowledged, or made under oath, the requirement is satisfied if it bears an electronic signature of the notary or any other competent Authority.¹⁷³ The Rwandan Law on electronic transactions can also be analysed in the context of seeing whether the Law ensures trust and confidence of doing online business in the country, if it protects consumers, personal information and intellectual property rights.

¹⁷⁰ Art 2 (f) of Model Law on electronic signatures defines 'relying party' as a person that may act on the basis of a certificate or an electronic signature, the law does not define relying party.

¹⁷¹ Art 26 of Rwandan Law on Electronic messages, signatures and transactions (note 150).

¹⁷² Ibid.

¹⁷³ Ibid Art 27.

5. Building trust and confidence in electronic transactions

The trust plays a crucial role in E-commerce. It is defined as a 'willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party'.¹⁷⁴

The trust is based on the willingness of someone to behave in a manner that assumes another party will be behaving in accordance with the expectations on the situation than may be exposed to some risks.¹⁷⁵

The techniques of E-commerce are normally intended to improve the interchange of information between partners and customers by breaking down all barriers that may limit their interactions and their business.¹⁷⁶ Trying to remove the barriers, E-commerce increases the risks in process and conduct of electronic transactions. Vulnerability stems from not knowing what one partner who received information might do with the information made available by the sender, and the possibility that the information could be used to take advantage of the organization.¹⁷⁷

The confidence of doing electronic business is based on the relationship of the trust that may be between the partners, and will reduce the threat of such risks. It is the trust which increases the probability of the partner's willingness to expand the number of information sharing, explore mutually beneficial arrangements and the trust in E-commerce reinforces the prospects of continuity in a relationship and commitment to extend an inter-organization relationship.¹⁷⁸

¹⁷⁴ R Pauline 'The importance of trust in E-commerce' (1998) 8 *Electronic Networking Applications and Policy Journal* 313 at 316.

¹⁷⁵ Ibid.

¹⁷⁶ Ibid.

¹⁷⁷ Ibid at 315.

¹⁷⁸ Ibid.

In E-commerce, some of the risks are apparent in the areas such as weak laws and policies to govern the trading partners, weak procedures for controlling shortcuts in the software development process and problems inherent in managing and regulating the internet itself.¹⁷⁹ Other risks depend on how one partner can manage and process information sent by another. The most important information requiring more security is the information surrounding credit card transactions which could be easily misused.

In addition to that, the personal information like addresses, telephone numbers, email addresses may also be exposed to the risks by being disclosed to other people or to the companies where they could be used to create false identities that result in the criminal activities.¹⁸⁰ Another way that may threaten the trust in electronic transactions is related to the quality of the product that is to be supplied to the customer who did not check it before or meet the supplier face to face.

As a result, trust creates positive attitudes towards the trading partners. It reduces the fears of consumers and has an effect on behavioural intentions for online transactions.¹⁸¹ Due to those mentioned factors, the legislators preferred to set legal provisions that might help in building trust between the users of electronic transactions, the Rwandan Law on electronic transactions recognized the importance of consumer protection.

5.1 Rwandan Law on electronic transactions and consumer protection

Consumer protection faces severe challenges from the revolution of the internet with regard, *inter alia*, to commercial communications, negotiations, and concluding online contracts.¹⁸² By doing online business, the consumer relies on the level of protection. The consumer protection might be in technological form or in legal procedures.

¹⁷⁹ Ibid at 318.

¹⁸⁰ Ibid.

¹⁸¹ LD Hoffman et al. 'Building consumer trust online' (1999) 42 *Communication of the ACM* 80 at 82.

¹⁸² Zhao (note 8) 69.

In this section, the analysis focuses on the provisions provided by the Rwandan Law on electronic transactions to ensure consumer protection.

The analysis also is to consider that OECD set the guidelines for consumer protection in the context of E-commerce.¹⁸³ The OECD says that the guidelines intended to eliminate some of uncertainties that both consumers and business may encounter in doing their online transactions. Those guidelines play a role in facilitating governments, business and representatives of consumers to develop and implement mechanisms for protecting consumers without causing barriers to the trade.¹⁸⁴

Chapter 8 of the Rwandan Law on electronic transactions addresses the issue of consumer protection in performing online transactions, and the articles reflect to the guidelines of OECD. The Law highlights the issues related to the information that should be provided by the supplier to the consumer.¹⁸⁵ The article 52 specifies that the consumer may cancel an electronic transaction and any related credit agreement for the supply of goods within seven days after receiving the goods, or cancel of services within seven days after the date of conclusion of an agreement.

Article 53 states that 'a person who sends unsolicited commercial communications to consumers, shall provide the consumer with the option to cancel his/her subscription to the mailing list of that person and identify particulars of the source from which that person obtained the consumer's personal information upon the request by the consumer'. It is known that unsolicited commercial messages cause challenges to the consumers as well as to the ISPs, they overload the servers and inboxes, they affect the services from ISPs to subscriber, and they take long to delete.

¹⁸³ OECD Guidelines for consumer protection in context of E-commerce (1999). The guidelines reflect existing legal protections available in traditional commerce, and are usually to encourage fair business, advertising and marketing practices; clear information about an online business's identity, the goods or services it offers terms and conditions of any transaction; a transparent process for the confirmation of transactions and secure payment mechanisms.

¹⁸⁴ *Ibid.*

¹⁸⁵ Art 51 of Rwandan Law on Electronic messages, signatures and transactions (note 150).

The provisions of the article 53 might not be enough to stop those messages and it does not specify what will happen if the sender does not provide an option to cancel the messages sent to the consumer, equally, the Law does not provide the penalties to those who will do contrary to the article 53. The same article indicates that on the issue of unsolicited communications, the Law brings an 'opt out' option where the recipient has a choice of informing the sender of unsolicited communications that he wants or does not want to receive further communications.¹⁸⁶

Apart from the provisions protecting the consumer in terms of this Law, Rwanda has not other Law for consumer protection in other areas of business. This could be criticized that the consumer who is the main and weak stakeholder in electronic transactions is not well protected against all kind of fears to involve his business in online transactions.

The Rwandan Law on electronic transactions does not provide adequate means of dispute resolution to ensure the protection of the consumer as well as of the supplier. The only article provided by this Law is that 'consumer may lodge a complaint with the Regulatory Authority in respect of any non-compliance with the provisions of this Law by any supplier'.¹⁸⁷ It is not clear because the Law does not specify the obligations of the supplier as well as those of the consumer. Protection of personal information is another way of allowing and building confidence of the consumer in online transactions.

5.2 Protection of personal information in electronic transactions: International approaches

The protection of personal information is another crucial element in electronic transactions; the consumer is always not able to control the information that is being sent through internet after sending them. The OECD set the guidelines for 'Governing the Protection of Privacy and Transborder Data Flows of Personal Data'. The aim was to help and facilitate the states to elaborate their legislation related to the way of receiving,

¹⁸⁶ AF Roger 'Preemption of State spam laws by the Federal CAN-SPAM Act' (2005) 72 *The University of Chicago Law Review* 355 at 357.

¹⁸⁷ Art 57 of Rwandan Law on electronic messages, signatures and transactions (note 150).

storing, processing, accessing and avoiding unlawful disclosure of the protection of personal information and eliminate all obstacles of free flow of information.¹⁸⁸

The OECD put in place the guidelines taking into account the fact that the issue of handling personal information does not only affect a certain domestic policy but also affects other countries because of cross-border exchange of information. The main part of the guidelines was related to the principles that govern the handling of personal data such as collection limitation, data quality, purpose specification, use limitation, security safeguards, openness, individual participation and accountability.¹⁸⁹

Different countries refer to those principles in elaborating their particular laws governing the protection of personal data and privacy or they incorporate some provisions relating to the protection of personal information in the Law governing electronic transactions. The approach of incorporating some personal information provisions in electronic transaction Law has been used in South Africa, but the Government realised that it is necessary to adopt a specific law governing protection of personal information.

Another example of highlighting the importance of protecting personal data happened in European Union (EU) where in 1995, EU country members adopted the directive on protection of personal data and free movement of such data (EU Directive), and it came into force in October 1998. The EU Directive was asking all states members to adopt and implement the right to privacy and personal data legislation in collecting, processing, storing, accessing and transmitting them.¹⁹⁰ The EU Directive prohibits a country member of the EU to send or transfer personal data to non EU countries that do not fulfil the requirements of the EU Directive on handling personal data.¹⁹¹

¹⁸⁸ In 1981 OECD published Guidelines Governing the Protection of Privacy and Trans-border Data Flows of Personal Data.

¹⁸⁹ Ibid.

¹⁹⁰ EU Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data of 24 October 1995.

¹⁹¹ Ibid.

In addition to that, the EU Directive requires all member states to establish in their countries an independent authority that will supervise and oversee the regulation of personal data. Such supervisory authority will be having an independent power to investigate and run data processing activities, order the destruction of personal data, block data transfer to third parties, receive and hear complaints from data subjects and make a regular report to the public.¹⁹²

The legislation of handling personal information in the United States was not compliant with the EU Directive, which means that no transfer of personal data was supposed to be done to US from EU country members. This was likely to affect the US companies which were under ongoing business with the one of the EU.

Therefore, the United States has been forced to negotiate a 'safe harbour'¹⁹³ framework that could allow American Companies which were in the business with European Companies to continue, because EU was not accepting the standards of the US in protecting personal data. The US was asking for the safe harbour to have time to harmonise its legislation related to the protection of personal information.

In 2000, the EU Commission accepted the safe harbour framework and issued the decision that the framework complies with the adequacy standards.¹⁹⁴ This shows how much the developed countries pay particular attention to the handling of personal data. The Government of Rwanda, in the process of establishing its legislation for electronic transactions is to consider the issue of protecting personal data in order to ensure

¹⁹² EU Directive 95/46/EC of 24 October 1995.

¹⁹³ The US Safe Harbour is an agreement between the European Commission and the United States Department of Commerce that enables organisations to join a Safe Harbour List to demonstrate their compliance with the European Union Data Protection Directive. This allows the transfer of personal data to the US in circumstances where the transfer would otherwise not meet the European adequacy test for privacy protection. Available at http://www.export.gov/safeharbor/eg_main_018247.asp [Accessed 1 December 2010].

¹⁹⁴ EU Commission adopted the 'safe harbour' Decision of 23 October 2000 on 'Adequate protection for personal data transfer to US'. Available at http://ec.europa.eu/internal_market/smn/smn23/s23mn27.htm [Accessed 1 December 2010].

elimination of possible barriers to a free movement of personal data, and let other foreign countries feel free to do their electronic business in Rwanda.

5.3 Protection of personal information in Rwandan legislation

In building up the legislation for electronic transactions, the Government of Rwanda would have thought about the protection of personal information and privacy either by adopting a specific law governing the protection of personal information or by incorporating related provisions in the Rwandan Law on electronic transactions.

In Rwandan legislation, there is no specific law relating to the protection of personal information, and in the Rwandan Law on electronic transactions, the legislator did not consider the provisions protecting personal information.

The protection of personal information is an element which always goes with electronic transactions. The Government of Rwanda should try by all means to enact adequate legislation to protect personal privacy. The absence of legislation governing the protection of personal information cannot allow Rwanda to establish a trusted system for E-commerce. Sometimes, many people do not want to disclose their personal information when they know that there is no legal framework that can protect them in case of abuse or unlawful practices on their information.

5.4 Intellectual property rights in electronic transactions

Another area to which the legislation of electronic transactions should pay attention to is the protection of intellectual property rights. The intellectual property protection refers to a mechanism which protects the rights of ownership of original work so that no one can use the right-protected work in any way without a permission for the use, and, if necessary, paying the rights owners a royalty for the use.¹⁹⁵ In electronic transactions, the

¹⁹⁵ SH Kwok et al 'Intellectual property protection for E-commerce applications' (2004) 5 *Journal of E-commerce Research* at 1.

protection of intellectual property rights has to be considered, because through internet many and different types of infringements can occur.

The internet allows intellectual property owners to advertise or commercially exploit their works and make them available to a much broader audience in the world. However, this mechanism for making goods containing intellectual property available to consumers also brings challenges for the intellectual property owners, in the sense that the work can be illegally copied or distributed using the internet.¹⁹⁶

The most rights affected by the use of the internet in intellectual property are related to copyright and trademark rights, because the nature of using the internet allows people to send and receive multiple copies. It involves cross border transmission. Many advertisements are being done through internet to the extent that copyright or trademark infringements can easily happen.

5.4.1 Copyright in electronic transactions

The legislation is to ensure that copyright laws provide sufficient protection to encourage the dissemination and put the copyrighted works on the internet.¹⁹⁷ Copyright protection as a creature of technological progress, evolution of duplication and distribution technology has changed the way artists and authors present their creative works to the world.¹⁹⁸ Copyright law strives to keep up with technological changes.

As new means of communication and distribution technology evolve, copyright issues over the intellectual property captured and disseminated by the new technologies have increasingly become matters for dispute.¹⁹⁹ The disputes are usually based on the goods purchased on the internet like computer goods, digital products such music, computer software and books, transactions of those goods that may be subject of

¹⁹⁶ PT Timothy et al *Protecting intellectual property rights across borders* (2008) 425.

¹⁹⁷ P Albert et al *Intellectual property law in Cyberspace* (1999) 207.

¹⁹⁸ Ibid.

¹⁹⁹ Ibid.

intellectual property rights and will have an impact on the intellectual property system and to the rights of the owner.²⁰⁰

Given the capabilities and characteristics of digital network technologies, E-commerce has had a tremendous impact on the system of copyright and related rights, and the scope of copyright and related rights in turn is affecting how E-commerce evolves. It is essential that legal rules are set and applied appropriately, to ensure that digital technology does not undermine the basic tenets of copyright and related rights.²⁰¹

A survey of the World Intellectual Property Organisation (WIPO) identified that it is necessary to adjust the legal system to respond to the new technological developments in an effective and appropriate way, and to do so quickly and continuously, because technologies and markets evolve increasingly rapidly.²⁰² This legal update will ensure a continued furtherance of the fundamental guiding principles of copyright and related rights.

The aim is to give the creators incentives to produce and disseminate new creative materials, recognizing the importance of their contributions, by giving them reasonable control over the exploitation of those materials and allowing them to profit from them. The law is to ensure that the rights of the creator like reproduction and publication are always protected.

5.4.2 Trademarks in electronic transactions

Also, the trademarks' rights could be vulnerable to the infringement in online environment that may affect the advertisement and marketing of the brand of a certain companies.²⁰³ Trademarks distinguish goods or services in the marketplace and can express the goodwill or good reputation that a certain company has built up.²⁰⁴ Protection

²⁰⁰ Report of World Intellectual Organization WIPO/INT/02 Intellectual property on internet: Survey issue (2002) para 19. WIPO published this report to highlight and address the impact of digital technologies on intellectual property rights and international intellectual property system.

²⁰¹ Ibid para 43

²⁰² Ibid para 45

of trademarks serve for the purpose of protecting consumers from confusion when making purchasing decisions, and protecting producers' investments in quality that creates consumer goodwill towards them.²⁰⁵

In a digital environment, there are some trademark infringements which may be occurred, they include linking and deep linking,²⁰⁶ and framing.²⁰⁷ Sometimes, these acts may be analysed as copyright or trademark infringements. The country law is to avoid those practices as well as the one attached to the registration of trademark and domain name. One company can register its domain name that is the same or related to the name or trademark of another company, a process known as 'cyber squatters'.²⁰⁸

5.5 WIPO in protection of intellectual property rights in digital age

The WIPO realized that it is necessary to enact treaties that may update and supplement the existing international treaties on copyrights. The aim was to respond to the challenges posed by the new technology in the matter, especially on the dissemination of the protected items over the internet.²⁰⁹ In 1996, WIPO came up with two international treaties including WIPO Copyright Treaty (WCT) and WIPO Performances and Phonograms Treaty (WPPT). They are commonly known as the Internet Treaties, and they came into force in 2002.²¹⁰

WIPO believes that the basic right granted under the Convention of Berne on copyright and related rights is the right of reproduction, which covers reproduction in any manner or form.²¹¹ Reproduction is at the core of E-commerce, because any electronic transaction on a certain work or object presupposes its uploading to the memory of the

²⁰³ Albert et al (note 197).

²⁰⁴ Cloete (note 28) 129.

²⁰⁵ E Goldman 'Deregulating relevancy in internet trademark law' (2005) 54 *Emory Law Journal* 507 at 552.

²⁰⁶ Linking refers to adding a link of a website to the home page of another website, while deep linking bypasses the home page and links directly to other pages within the website.

²⁰⁷ Framing allows the internet user to view content from another website while still viewing the home page of the original site.

²⁰⁸ P Albert 'Right on the mark: Defining the nexus between Trademarks and Internet domain names' (1997) 15 *The John Marshal Journal of Computer and Information Law* 277 at 304.

²⁰⁹ WIPO/INT/02 (note 200) para 47.

²¹⁰ Ibid para 46

²¹¹ Art 9 (1) Berne Convention.

computer or any other electronic device. In addition, for the work sent through a network, which has had multiple copies of it made, the WIPO adopted the provisions relating to how reproduction rights could be applied to those kinds of copies.²¹²

Article 8 of the WCT²¹³ as well as article 14 of the WPPT²¹⁴ emphasize on the rights of the owners when the works, phonograms and performances have been made available for downloading on the internet. The internet treaties break new ground by recognising 'anti-circumvention' as technological protection measures and online management and licensing that may help to protect their works against infringement on the internet.²¹⁵

The WIPO accepts that the implementation of internet treaties in a certain country helps the development of E-commerce, both domestically and internationally, and encourages foreign investors by giving them assurance that they can safely disseminate their property in that country.²¹⁶ Therefore, the WIPO requires the country parties to adhere to the Internet Treaties and transform them into national legislation.²¹⁷ The developed countries such as United States and EU Country members started to adapt their

²¹² WIPO/INT/02 (note 200) para 50

²¹³ Art 8 of WCT provides that without prejudice to the provisions of the Berne Convention, authors of literary and artistic works shall enjoy the exclusive right of authorizing any communication to the public of their works, by wire or wireless means, including the making available to the public of their works in such a way that members of the public may access these works from a place and at a time individually chosen by them.

²¹⁴ Art 14 of WPPT states that Producers of phonograms shall enjoy the exclusive right of authorizing making available to the public of their phonograms, by wire or wireless means, in such a way that members of the public may access them from a place and at a time individually chosen by them.

²¹⁵ Art 11 of WCT and art 18 of WPPT state that 'Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.'

²¹⁶ WIPO/INT/02 (note 200) para 64.

²¹⁷ Ibid.

national legislation to the Treaties in order to protect performers and producers of phonograms in digital environment.²¹⁸

For instance, the United States Digital Millennium Copyright Act (DMCA)²¹⁹ and the EU Copyright Directive²²⁰ require the protection of digital rights management systems that protect copyright in digital form.²²¹ Specifically, in terms of article 6 of the EU Copyright Directive requires member states to provide legal protection against the practices which aim to the copyright infringement for the purposes of circumventing technological measures, including encryption, scrambling or other copy control mechanisms.²²²

In terms of chapter II of the DMCA, different provisions have been put in place for civil and criminal liability for circumvention of copyright protection technologies²²³ and for the knowing provision of false copyright management information.²²⁴ Other WIPO country members continued to embrace the internet treaties and adapt their domestic legislation to the Treaties. Rwanda became member of the WIPO and signed the

²¹⁸ The United States adopted 'Digital Millennium Copyright Act (DMCA) of 28 October 1998 while European Parliament and of the Council adopted Directive 2001/29/EC of 22 May 2001 on the harmonization of certain aspects of copyright and related rights in the information society (EU Directive on Copyright of 2001).

²¹⁹ Digital Millennium Copyright Act, Public Law No. 105-304, 112 Stat. 2860 (October 28, 1998).

²²⁰ Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001.

²²¹ WIPO/INT/02 (note 200) para 58.

²²² Art 6 (2) of EU Directive Copyright of 2001 provides that Member States shall provide adequate legal protection against the manufacture, import, distribution, sale, rental, advertisement for sale or rental, or possession for commercial purposes of devices, products or components or the provision of services which: (a) are promoted, advertised or marketed for the purpose of circumvention.

²²³ § 1201 of DMCA provides the provisions related to Circumvention of copyright protection systems (a) violations regarding circumvention of technological measures. (1) (a) no person shall circumvent a technological measure that effectively controls access to a work protected under this title.

²²⁴ § 1202 of DMCA provides the provisions for Integrity of copyright management information (a) false copyright management information. No person shall knowingly and with the intent to induce, enable, facilitate, or conceal infringement (1) provide copyright management information that is false, or (2) distribute or import for distribution copyright management information that is false.

WIPO Convention on 3 February 1984.²²⁵ Recently, the Government of Rwanda has adopted the Law No 31/2009 of 26/10/2009 protecting intellectual property.²²⁶

5.6 Rwandan Law in protecting intellectual property rights on internet

In the process of adapting its legislation to international standards, so far, Rwanda signed some WIPO Conventions and Treaties including Convention establishing the WIPO, Convention for protection of Industry Property, Berne Convention for Protection of Literary and Artistic works and Brussels Convention Relating to the Distribution of Program-Carrying Signals Transmitted by Satellite.²²⁷ Even though Rwanda has not yet signed the internet treaties (WCT and WPPT), its Law protecting intellectual property²²⁸ provides the provisions related to the rights of 'phonogram producers'²²⁹ as they have been provided by WPPT.

Article 244 of the Rwandan Law protecting intellectual property states that *a* 'producer of a phonogram shall have the exclusive right to carry out or to authorize any of the following acts: the direct or indirect reproduction of the phonogram; the distribution of the original or copies of the phonogram to the public by sale or other transfer of ownership; the rental of a copy of the phonogram to the public; availing the phonogram to the public, by wire or wireless means, in such a way that members of the public may access it from a place or at a time individually chosen by them'.

²²⁵ Website of WIPO <http://www.wipo.int/wipolex/en/profile.jsp?code=RW#a9> [Accessed 4 December 2010].

²²⁶ Rwandan Law on protection of intellectual property is available at http://www.wipo.int/wipolex/en/text.jsp?file_id=194215 [Accessed 4 December 2010].

²²⁷ WIPO website <http://www.wipo.int/wipolex/en/profile.jsp?code=RW> [Accessed 4 December 2010].

²²⁸ Rwandan Law protecting Intellectual Property No 31/2009 of 26 October 2009 published in Official Gazette No 50 bis of 14 December 2009.

²²⁹ Art 6(32) of the Rwandan Law protecting Intellectual Property defines phonogram producer as physical person or legal entity, who, at the first time, fix the sounds of a performance or of other sounds, or of a representation of sounds;

The article 269 of the same Law provides for the protection of technical measures for copyrights and related rights as legal remedies that may be applied against circumvention of technological measures used by producers as provided in article 18 of WPPT.²³⁰

In the same context of protecting the rights of producers, the Law provided for the interdictions on the use of information on copyrights and related rights in order to protect 'rights management information'²³¹ as provided in article 19 of WPPT.²³²

The Rwandan Law protecting intellectual property provides for the act of forgery and criminal penalties for act of forgery in copyrights and related rights.²³³ Those articles show that the Government of Rwanda has managed to set legal mechanisms to protect intellectual property rights that are being sent using electronic means. It seems that the Government is in a process of signing the related Treaties for the benefit of internationalisation of its legal system which is to allow the investors and other beneficiaries to trust the legal protection in doing business.

5.7 Legal and other related challenges to implement E-commerce in Rwanda

As E-commerce is still seen as a new system in developing countries, the big challenge is to adapt their legal system to the legal requirements of E-commerce. In most cases, the existing legal systems in developing countries are not sufficient to govern and protect the E-commerce. In early 2010 Rwanda adopted the Law governing electronic transactions

²³⁰ Art 269 of Rwandan Law protecting intellectual property states that 'for the purposes of protecting technical measures for copyrights and related rights, it is not permitted to: (1°) circumvent effective technical measures of work protection; or (2°) produce, import, distribute, sell, rent, advertise for sale or rental, or possess devices, products, components or services for commercial purposes that are promoted, advertised or marketed for the purpose of circumventing effective technical measures of work protection'.

²³¹ Art 20 (2) of WPPT provides that 'rights management information' means information which identifies the performer, the performance of the performer, the producer of the phonogram, the phonogram, the owner of any right in the performance or phonogram, or information about the terms and conditions of use of the performance or phonogram, and any numbers or codes that represent such information,

²³² Art 271 of Rwandan Law protecting intellectual property states that 'For the purpose of protection of information on copyrights and related rights, it is not permitted to: (1°) remove or alter any electronic information on the use of rights without the consent of the rights owner; or (2°) distribute, import for distribution, broadcast or communicate to the public of works or other subject-matter protected under this Law from which electronic copyright use of information has been removed or altered without the authorization of the rights owner.

²³³ Art 261 and 264 of the Rwandan law protecting intellectual property (note 228).

and the one protecting intellectual property in late 2009, it is now facing the challenges of conforming to the international standards.

Compliance with the international standards remains a problem as E-commerce aims to open the marketplace not only in the country but also in the international market. This is the reason why international organisations have set up the Model Laws, treaties and conventions for the purpose of legal uniformity with their member States.

It is known that one country or continent alone cannot perform E-commerce without involving others. It requires a domestic legislation to conform to the international guidelines to build the trust of E-commerce in the country like Rwanda especially the one of the OECD related to consumer protection and another one related to the handling of personal information in an electronic environment. This will allow the beneficiaries to confidently work and be sure that there is adequate legal protection.

Internally, it may be a challenge for the population to quickly understand the changes from a traditional commerce to E-commerce, because many people are still viewing internet as a source of information rather than as a tool that can be used to buy and a sell a product or service.²³⁴ The Government has to ensure that the population is aware of the benefits of internet and to make appropriate policies and to avail incentives to let them adapt to system. Domestic justice is to feel the changes with regard to admissibility of electronic messages and its weight as evidence, and to the use of electronic contracts. Another challenge is related to the management of country domain name.

²³⁴ Daly and Miller (note 32) 8.

5.8 Management of (.rw) as Country Code Top Level Domain

The country code top level domain (ccTLD) is generally an internet address to every country, but specifically in doing online business it plays a significant role where a merchant needs an address on the internet at which he/she will be able to create his/her website to advertise products and/or services and perform the transactions.²³⁵

When Internet Assigned Numbers Authority (IANA)²³⁶ was allocating the country codes, Rwanda has been allocated with its ccTLD (.rw)²³⁷, since then, the Government of Rwanda did not take its country code, and was not aware that it should collect and start using it as well as benefiting from it. In 1996, a certain individual called Frederic Gregoire from the NIC CONGO Interpoint Sarl based in Switzerland²³⁸ knew that Rwanda did not collect its domain name. He went and claimed the .rw as representative of Government of Rwanda in IANA. The latter delegated the country domain name (.rw) to NIC CONGO Interpoint Sarl and became a registrar and manager of .rw.

Till now, the Rwandan domain name is managed by Mr. Frederic Gregoire instead of being managed by the Government of Rwanda. Recently, the Government of Rwanda has realized that it is highly needed to claim re-delegation of .rw, and decided to follow the ICANN' procedures in order to claim a re-delegation of country domain name. The process of negotiation has been started and there is hope that .rw will be soon re-delegated to Rwanda.

²³⁵ B Reinhardt *The Law of the internet in South Africa* (2000) 37.

²³⁶ Before IANA was in charge of managing and allocating Internet protocols (IP), IANA also was in charge of registrations of domain names. In 1998, IANA has been replaced by ICAAN which came to be overall of the global Internet's systems including coordination, allocation and assignment of Domain names and Internet protocols.

²³⁷ ccTLD stands for Country Code Top Level Domain which represents an internet address for every country, and each country in the world has been assigned with its code, for example .rw assigned to Rwanda, .za to South Africa, .uk to United Kingdom...

²³⁸ Information on Internet Assigned Numbers Authority (IANA) Website
<http://www.iana.org/domains/root/db/rw.html> [Accessed 6 December 2010].

The fact that Rwanda is not managing its domain name is likely to be a hindrance to electronic transactions and affect the trust of doing online business in the country. All of mentioned legal procedures, security measures and other related aspects should be regulated as well in order to ensure that E-commerce is effectively operational in the country.

Chapter V

Regulatory framework for sustainable E-commerce in Rwanda

1. Introduction

Generally, E-commerce has created a need for vibrant and effective regulatory mechanisms, which would further strengthen the legal aspects that are crucial to the success of E-commerce.²³⁹ The regulatory mechanisms are very important in electronic transactions, first of all, for the purpose of ensuring the security of the system, and secondly for protecting the interest of stakeholders in E-commerce.

The regulation of E-commerce remains problematic. Only the United Kingdom has managed to adopt specific 'Electronic commerce (EC Directive) Regulations'.²⁴⁰ This has been done to adapt the UK legislation to EU Directive on E-commerce.²⁴¹ Other EU country members have used their electronic transactions and electronic signatures laws to regulate E-commerce. Apart from the UNCITRAL Model law on electronic signature,²⁴² there is no any other document enacted by International organizations to guide the regulations of E-commerce.

In this chapter, the analysis focuses on the mechanisms put in place by the Government of Rwanda to ensure that E-commerce is working effectively in the country and is protected as required. The country is to ensure that the trust and confidence of the users of E-commerce is always maintained. The Rwandan Law on electronic transactions emphasises the electronic signatures and related concepts which are to manage E-commerce in terms of regulations and ensure data security.

²³⁹ SG Wilson and I Abel 'So you want to get involved in E-commerce' (2002) 31 *Industrial Marketing Management* 85 at 86.

²⁴⁰ UK statutory instruments 2002 no 318 The E-commerce (EC) Regulations (2002).

²⁴¹ Directive 2000/31/ EC of European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular E-commerce in the internal market (Directive on E-commerce)

²⁴² Model Law on Electronic signature (note 149).

2. Does electronic commerce need to be regulated?

Due to the nature of electronic transactions, the Government needs to monitor how the involved technologies are operating. In practice, E-commerce involves a number of technologies and processes.²⁴³ The Government needs to know the technological standards which are being applied in the country, and ensure that the laws put in place in the matter are being respected.²⁴⁴

The standards that can help the users to generate the trust of the certification service providers need to be recognised, so that the system can work effectively.²⁴⁵ This involves both internal information security and the processes for verifying identities of the users and maintaining the certification verification mechanisms.²⁴⁶ For instance, the Government of Singapore²⁴⁷ believed that the growth of E-commerce requires transparent, market-favorable regulation and legislation in the area.

Regulations are necessary to the extent that they do not hamper growth of new or existing markets.²⁴⁸ New regulations should also be flexible enough to cater for technological changes and new global policy.²⁴⁹ The Government of Rwanda has realized that there is a need for regulations in E-commerce, considering the interest of stakeholders, to ensure maximum security of information, and the Law governing electronic transactions, provided specific provisions for regulations.

²⁴³ L Brazell *Electronic signatures and identities law and regulations* 2ed (2008) 372.

²⁴⁴ Ibid.

²⁴⁵ Ibid.

²⁴⁶ Ibid.

²⁴⁷ Singapore is among the first countries in the World to enforce a law that addresses the issues that arise in the context of electronic contracts and digital signatures. Singapore aims to be developed as an international E-commerce hub. It also aims to create an E-commerce services sector, and to harmonize cross-border E-commerce laws and policies. Available at <http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan002010.pdf> [Accessed 8 December 2010].

²⁴⁸ Singapore's Legal and Policy Environment for E-commerce. Available at <http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan002010.pdf>

²⁴⁹ Ibid.

Some articles are related to information security such as securing electronic messages and electronic signatures, other are for the procedure like role of 'certification authority'.²⁵⁰

3. Regulating information security in Rwandan law on electronic transactions

3.1 Securing electronic messages and electronic signatures

The security of electronic messages and electronic signatures is a concept which plays a significant role in building the confidence for the users during electronic transactions.

The Rwandan Law on electronic transactions recognised those elements of securing electronic messages and signatures. For instance, the article 28 of this Law provides that 'where a procedure to secure an electronic signature is agreed on by the parties has been properly applied to an electronic message to verify that the electronic message has not been altered, such a message shall be treated as a secure electronic message'.

The article continues that attention will be paid to the procedure and commercial circumstances prevailing at the time the procedure was used including the nature of transaction, the sophistication of the technology of the parties, the volume of similar transactions engaged in by either or all parties, and the availability of alternatives offered to be rejected by any party.²⁵¹

Article 29 states that 'where the procedure for securing is properly ordered or agreed on, attention shall be paid to the aim of the procedure and to the commercial circumstances prevailing at the time, considering whether the electronic message is: unique to the person using it, is capable of identifying such person, is created in a manner or using a means under the sole control of the person using it, or is linked to the electronic message to which it relates in a manner that if the message was changed the electronic signature would be invalidated, such signature shall be treated as a secure

²⁵⁰ Art 2 (4) of Rwandan Law on Electronic messages, signatures and transactions defines 'certification authority' as a natural person or legal entity that issues a certificate.

²⁵¹ Ibid Art 28.

electronic signature. These two articles specify the circumstances that may qualify electronic message and electronic signature that are secure. This could be taken as a mechanism of regulation, because the legislator wanted to limit and clearly indicate those circumstances. In addition, the Law provides that if it requires the issuance of a 'certificate',²⁵² article 30 of the same law outlines the requirements for qualified certificate.

The Rwanda Law on electronic transactions emphasizes the security of electronic messages to ensure the principles of confidentiality, integrity and non repudiation of electronic message. To maximise the security of electronic data, the legislator believes that 'digital signature'²⁵³ can reduce the risk of repudiation.

3.2 Involvement of digital signature

An electronic message can be secured using the way digital signature, the Law states in which circumstances an electronic message can be protected by digital signature.²⁵⁴

Digital signature involves an element of digital signature certificate which refers to an electronic message issued for the purpose of supporting digital signatures which purports to confirm the identity of the person or other significant characteristics certifying that the person holds private key (symmetric)²⁵⁵ and the public key (asymmetric).²⁵⁶

²⁵² Art 2 (3) of Rwandan Law on Electronic messages, signatures and transactions defines a 'certificate' as electronic message or any other message confirming the link between a signatory and the contents of the document.

²⁵³ In terms of Art 2 of Rwandan Law on Electronic messages, signatures and transactions states that 'digital signature' means an electronic signature consisting of a transformation of an electronic message using an asymmetric cryptosystem and a hash function such that a person having the initial untransformed electronic message and the signer's public key can accurately determine: (a) whether the determination was created using the private key that corresponds to the signer's public key, (b) whether the initial electronic message is as it is after the transformation was made.

²⁵⁴ Ibid Art 32.

²⁵⁵ Art 2 (23) of Rwandan Law on Electronic messages, signatures and transactions defines 'private key' as the key pair used to create a digital signature while on (24) the law defines public key as a key to verify a digital signature.

²⁵⁶ Ibid Art 2 (11).

In practice, to understand how the digital signature works, if someone (sender) wants to sign and send a secured message to another (recipient), he or she would use her private key to encrypt data known as 'message digest'.

In this case, the recipient will decrypt the message using the public key of the sender.²⁵⁷ A message digest is like a fingerprint of the message. It is calculated from message text treating the message as a single long string of data at the binary level, a single number.²⁵⁸ The digital signatures are widely seen as the most effective and workable means of establishing the level of trust required between the parties in business transactions.²⁵⁹ However, the digital signature may have its limitations.

3.3 Limitations of digital signature

In course of using keys, it is necessary that the parties need to agree on the key in advance, because there has to be a key exchange before sending encrypted message.²⁶⁰ The parties are required to keep the keys secret. In that process, the keys could be intercepted by a third party, which may result in reading of others' encrypted messages. As preventive measures, the parties could opt for a method of using secrecy keys only for one message exchange, which could reduce the risk of loss of key secrecy.²⁶¹

But, the obvious disadvantage of using that method is that the parties will constantly need to generate or to find new secret keys, which may be confusing. The Government of Rwanda should think about regulations of interception. In the same context of building confidence for the users of electronic transactions, the Rwandan Law on electronic transactions set the circumstances where someone can commit unlawful or unauthorised activity that may result in an offence or a crime in the use of computer, and provided the penalties.²⁶²

²⁵⁷ Brazell (note 243) at 77.

²⁵⁸ Ibid.

²⁵⁹ Ibid at 74.

²⁶⁰ Ibid at 75.

²⁶¹ Ibid.

²⁶² Chap 9 of Rwandan Law on electronic messages, signatures and transactions (note 150).

Among those unlawful activities, the law highlights those related to unauthorised access to computer data,²⁶³ damaging or denying access to computer system,²⁶⁴ unauthorised modification of data,²⁶⁵ unauthorised disclosure of password,²⁶⁶ and unauthorised access to and interception of computer service.²⁶⁷

The Rwandan law on electronic transactions does not provide any provisions and penalty for breach of confidentiality and privacy which could eventually happen. Apart from provisions of regulations for securing electronic messages and electronic signatures, the Rwandan Law on electronic transactions provides the regulations related to the duties, processes and procedures in electronic transactions.

4. Regulations for duties, processes and procedures

4.1 Certification service provider

In terms of the UNCITRAL Model law on electronic signatures, the term 'certification service provider' refers to a person that issues certificates and may provide other services related to electronic signatures.²⁶⁸ In the process of using digital signatures, an intervention of a third party is necessary to issue the keys to the parties as well as verifying whether the keys are linked to the identity of the holders (users).²⁶⁹ In some legislation, that third party is known as Certification Authority which is a subset of Certification of Service Provider.²⁷⁰

²⁶³ Ibid Art 58.

²⁶⁴ Ibid Art 62.

²⁶⁵ Ibid Art 61.

²⁶⁶ Ibid Art 64.

²⁶⁷ Ibid Art 60.

²⁶⁸ Art 2 (e) of Model Law on electronic signatures (note 149).

²⁶⁹ Brazell (note 243) 5.

²⁷⁰ Ibid at 626.

The Rwandan Law on electronic transactions provides that issuance of digital signature certificate is to be performed by 'Certification Authority',²⁷¹ and specifies other responsibilities of the Certification Authority. Principally, it states that the Certification Authority should utilise trustworthy systems.²⁷² Among other duties, the Certification Authority is to suspend the digital signature certificate after getting a request from the subscriber.²⁷³ The Authority can revoke the certificate either by request of the subscriber²⁷⁴ or without consent of the latter.²⁷⁵

In terms of regulation, the Rwandan Law on electronic transactions provides another person known as 'Controller of Certification Authority'²⁷⁶ who is usually a Regulatory Authority for regulating information and communication technologies sector in the country.²⁷⁷ The aim of establishing a Controller is to regulate the power of Certification Authorities, because the Controller is a government institution.

4.2 Role of Controller of Certification Authority

Article 66 of the Rwandan Law governing electronic transactions stipulates that the Regulatory Authority²⁷⁸ shall be the Controller of the Certification Authority. The existing Regulatory Authority in the country is normally responsible for regulating information communication and technology.²⁷⁹ It seems that the Regulatory Authority has been designated to regulate electronic transactions because of an experience in regulating information systems.

²⁷¹ Art 2 (4) of Rwandan Law on Electronic messages, signatures and transactions defines certification authority as a natural person or legal entity that issues a certificate.

²⁷² Ibid Art 37.

²⁷³ Ibid (note 150).

²⁷⁴ Ibid Art 42.

²⁷⁵ Ibid Art 43.

²⁷⁶ Ibid Art 2 (8).

²⁷⁷ Law establishing Rwanda Utilities Regulatory Agency (note 123).

²⁷⁸ Ibid.

²⁷⁹ Information on Website RURA www.rura.gov.rw [Accessed 12 December 2010]

The Regulator is to develop general and special instructions for Certification Authorities,²⁸⁰ and has the power to make regulations of electronic transactions.²⁸¹ In addition, it will be competent to recognise the certification issued outside Rwanda, and it will certify that the requirements are satisfied.²⁸² The Rwandan Law on electronic transactions specifies the circumstances, in which the Certification Authority could be liable for qualified certificates.²⁸³

The article 71 states that the Regulatory Authority shall make regulations for the purpose of ensuring the establishment of certified 'repositories'²⁸⁴, the required regulations should specify the nature and procedures for their approval and use. The Rwandan Law on electronic transactions regulates the behaviours of the 'subscriber'²⁸⁵ of a digital signature, specifies what he /she should respect when using digital signature. The Law provides the provisions for the duties of the subscriber including generating a key pair.²⁸⁶ The subscriber should obtain a certification for a digital signature containing accurate and complete information.²⁸⁷

Among other duties of the subscriber, the Rwandan Law governing electronic transactions clearly states that the subscriber should ensure the control of private keys.²⁸⁸ The subscriber has a right to request suspension or revocation of his/her certificate.²⁸⁹ The Law does not specify the complaint procedure by a subscriber when unfair decisions regarding revocation, suspension of certificate have been made.

²⁸⁰ Art 66 of Rwandan Law on Electronic messages, signatures and transactions (note 150).

²⁸¹ Ibid. Art 67

²⁸² Ibid Art 68.

²⁸³ Ibid Art 70.

²⁸⁴ Art 2 (26) of Rwandan Law on Electronic messages, signatures and transactions defines 'repository' as a system for storing and retrieving certificates or other information relating to authentic certificates

²⁸⁵ Art 2 (31) of Rwandan Law on Electronic messages, signatures and transactions states that 'subscriber' means a person who is named or identified on a certificate issued to him/ her and who holds a private key that corresponds to a public key both of which are indicated in that certificate.

²⁸⁶ Ibid Art 46.

²⁸⁷ Ibid Art 47.

²⁸⁸ Ibid Art 49.

²⁸⁹ Ibid Art 50.

In the context of regulating, the Rwandan Law on electronic transactions provides the provisions limiting the liability for Certification Authorities and communication network providers. This has been provided to exempt the Certification Authorities from unlawful activities that may happen by the negligence of the subscribers or any loss caused by forged digital signature.

4.3 Liability for Certification Authorities

The Model law on electronic signatures does not deal extensively with the issue of liability of the parties that may be involved in the operation of digital signature. However, the Model law sets out the conduct and duties of everyone.²⁹⁰ Therefore, national legislation should set up and adopt the limits of liability of the parties involved in electronic signatures.

The Rwandan Law on electronic transactions has managed to specify the limits of liability for the Certification Authority. In terms of the article 9, the Certification Authority is not liable for any loss caused by reliance on a forged digital signature whose forgery is attributable to the subscriber. Also, the Certification Authority is not liable for the payment of the amount exceeding the one specified in the certificate of the person, who applied for the certificate and who deliberately provided false information.²⁹¹

The Certification Authority shall not be liable for providing access to information, its transmission or retention as long as it does not initiate transmission, or it is not the one who selected the addressee.²⁹² A Certification Authority shall not liable for the automatic, intermediate and temporary storage of electronic record.²⁹³ Article 12 states that a Certification Authority that provides a service comprising the storage of electronic messages, will not be liable for the damages arising from information stored as long as it is not aware of the fact that the message infringes any person.

²⁹⁰ Model Law on Electronic signatures (note 149) para 70

²⁹¹ Art 9 Rwandan Law on Electronic messages, signatures and transactions (note 150).

²⁹² Ibid Art 10.

²⁹³ Ibid Art 11.

Article 14 allows taking down notification as a way of raising complaints when unlawful activities have happened, and indicates the procedure and what should be the contents of take down notification. The Rwandan Law on electronic transactions remains silent on the loss or damage that may be caused by the negligence of the Certification Authority.

Chapter VI

Recommendations and Conclusion

1. Recommendations

It has been observed that at the turn of the century, the Government of Rwanda embraced the use of technology in different sectors to ensure the socio-economic development based on information knowledge. Specifically in E-commerce, the Government is in the process of building the prerequisites including an adequate legal system in the matter. As E-commerce is not only focusing on the internal market, Rwanda needs to standardize its legal system with international guidelines for protecting personal information and consumers in a digital environment.

For that reason, Rwanda has to keep its membership active in different international organizations such as the WTO, the WIPO, the OECD and the UNCITRAL as well as ratifying E-commerce Treaties especially those related to the protection of copyright in digital-age like the WCT and the WPPT. In the process of establishing E-commerce, it is necessary to put emphasis on the protection of personal information and consumer protection which will allow the users to trust the system. This is one of the crucial aspects of removing barriers in internal and international trade.

The possible approach as a remedy to the protection of personal information in Rwanda is that the Government can amend the existing Rwandan Law on electronic transactions in order to insert some provisions that may govern protection of personal information. This could be a temporary solution to let E-commerce operates in the country since the Law governing electronic transactions has been already published in gazette. It will allow the legislators to get enough time for consultation and preparation of a specific law protecting personal information.

The Government of Rwanda has to ensure that stakeholders are aware of the importance of E-commerce as an international trend, sensitize them to switch to electronic transactions from traditional business of paper-based. The Government should

continue to provide telecommunication facilities in rural areas, and ensure that they are affordable so that the citizens can benefit from E-commerce.

It is necessary to consider the new electronic crimes which are being committed on the internet, which are also affecting intellectual property rights. The concerned institutions in the country should set appropriate guidelines to manage the workable environment of E-commerce, and ensure its effectiveness. They (institutions) should make sure that the follow up of electronic transactions systems are always maintained and they should be ready to fight against both the technological and legal hindrance of the system. The emphasis should be put on legal enforcement.

In setting up the E-commerce law, the law-makers must involve the population who are main beneficiaries of the system, to make them aware of the changes from traditional to E-commerce. The stakeholders may raise their views on the new system. These consultations will enable them to build or have confidence and trust in the new system. Due to the fact that E-commerce is based on technological aspects, the legislator is to remember the concept of technology neutrality that allows the law to remain the same even when the technology changes.

In E-commerce, the method of taxation must always be observed by the law-makers and partners in the business because the change from traditional to online business can affect the usual taxation procedure. Therefore, the legislator should take it into consideration, by setting up the appropriate legal mechanisms.

The Government should ensure that the regulation is harmonised and empowered by setting the required policies and ensuring its enforcement to avoid misuse or other kind of mismanagement for public information and transactions. The Government should educate and provide enough skills to the citizens so that they can use of E-commerce and enjoy the benefits of technology. The Government of Rwanda has to ensure re-delegation of its country code (.rw) in order to allow the citizens to easily open their websites and do their business, and to manage and solve the disputes of domain names.

2. Conclusion

This dissertation has highlighted the importance of Law governing and regulating E-commerce specifically in the Rwandan legal system. The research has shown the willingness of the Government of Rwanda in the process of developing country through information technology. The Government has put emphasis on technological infrastructure as well as on setting up the legal framework to govern electronic transactions and intellectual property rights in a digital age.

The Rwandan Law on electronic transactions is compliant with the UNCITRAL Model Law on E-commerce (1996) as well as with the Model Law on electronic signatures (2001). There is a need to adopt the laws which protect personal information to ensure the process, storage, access and treatment of information. It will legally attract the foreign investors to come and set their business in the country. Rwanda can take the EU Directive on personal data as a reference to set its legislation on protection of personal information.

This could let the European business partners feel free by doing electronic business in Rwanda. Even if Rwanda is on right track in establishing E-commerce, the consumer protection in Rwanda is still inadequate. The provisions for protection of consumer provided by the Rwandan Law on electronic transactions are not enough to ensure protection to both the consumer and the supplier, and there is no appropriate way of handling disputes. Given that it is the core of electronic transactions, the protection of personal data and consumer remains as an obstacle to the opening to the international market or to E-commerce operations in Rwanda.

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