A MACRO-ECONOMIC PERSPECTIVE ON ELECTRONIC COMMERCE POLICY AND STRATEGY IN GOVERNMENT, CORPORATE, SMALL, MEDIUM AND MICRO ENTERPRISES SECTORS: AN EXPLORATORY ANALYSIS

by

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CBO	Community-Based Organisation
CISA	Consumer Institute of South Africa
COSATU	Congress of South African Trade Unions
DOC	Department of Communications
E-COMMERCE	Electronic commerce
GDP	Gross Domestic Product
NAFCOC	National African Federation of the Chamber of Commerce
NGO	Non Governmental Organisation
OECD	Organization for Economic Co-operation and Development
SABS	South African Bureau of Standards
SACOB	South African Camber of Business
SARB	South African Reserve Bank
SMME	Small Medium and Micro Enterprises
UNCITRAL	United Nations Commission on Trade Law
UNCTAD	United Nations Conference on Trade and Development
UNISA	University of South Africa

SUMMARY

This study aims to provide information on the macroeconomic impact of electronic commerce and its effects on business, consumer and government sectors. Electronic commerce as a new phenomenon has the potential to bring substantial benefits to government, businesses and consumers. Developed countries such as the United States, Canada and the United Kingdom have had an experience of electronic commerce for the last ten years.

Electronic commerce is the catchall phrase for many advances in technology centred on the Internet, and heralds fundamental changes for the world economy. The expansion of the Internet globally has made it an ideal means to conduct commercial transactions. The Internet is being used more and more to advertise and sell goods and service globally. Electronic commerce is an instrument that is handy to globalise trade among countries and nations. It has become highly possible to conduct business transactions with all parts of the world that have access to Internet, without being physically there. The transactions take place technologically.

The use of Internet and the World Wide Web is creating a revolution in the manner in which business transactions are conducted. The increase in the number of users is taking place at a rapid pace, especially in the developed economies. It is estimated that there are now more than 150 million users, and the figure increases by more than 50 000 on a daily basis (UNCTAD, 1999:55). More than half of the current user population is located in the United States of America, but the geographical spread is fast diversifying. Even developing countries are now having an access to the Internet.

Revenue attributed to electronic commerce is still relatively small though it is projected to grow over the years. Empirical evidence about the use of electronic commerce is largely confined to developed countries, though developing countries are now using it. It shows that in several sectors, which include financial services, tourism, books, music and entertainment industry, the digital revolution is spreading rapidly. This also shows that

many aspects of governments' dealings with communities, international project management and consultancy work are increasingly being facilitated by electronic operations.

The United States has developed the Global Information Infrastructure, which is seen as a global marketplace, to enable it to reach every corner of the globe on trade. This development is based on the following principles:-

- Private sector leadership

  The private sector is leading the development of electronic commerce and the Internet, though the government assisted with bulk financing. Innovation, expanded services, broader participation, and lower prices will arise in a market-driven arena, not in an environment that operates as a regulated industry. The American government is encouraging industry self-regulation whenever appropriate, and supports all initiatives and efforts of the private sector to develop mechanisms to facilitate the successful operation of the Internet and electronic commerce.

- Government to avoid undue restrictions on electronic commerce

  The government has not intervened when business transactions on goods and services are effected across the Internet. The government is of the view that intervention and unnecessary regulation of commercial activities will distort the development of an electronic marketplace by decreasing supply and raising the cost of goods and services for consumers globally. The United States government has further undertaken to refrain from imposing new regulations, bureaucratic procedures, or taxes and tariffs on commercial activities that take place via the Internet.

- Minimum government intervention when necessary

  The government will intervene to support and enforce a predictable, consistent and simple legal environment for commerce. In some areas it will be necessary for government to play a minimal role where consumers have to be protected.

- Government should recognize the unique qualities of the Internet

  The genius and explosive success of the Internet can be attributed to in part to its decentralized nature and its tradition of bottom-up governance (Clinton & Gore, 1998). This thus calls for minimal intervention from government on business in the electronic marketplace.

- Electronic commerce over the Internet should be facilitated on a global basis

  The Internet is emerging as a global marketplace. This calls for the legal framework supporting commercial transactions on the Internet to be governed by consistent principles across the nation and international borders that lead to predictable results regardless of the jurisdiction in which a particular buyer or seller resides.

Larger volumes of electronic commerce transactions are between businesses, which trade among themselves, followed by trade between business and consumers, and lastly between government and consumers. Business to business electronic commerce is growing rapidly, and is estimated to consume approximately $1.3 trillion by 2003, which is 70 to 85% of the total share of e-commerce (OECD, 1999). It is also expected to have a major impact on firms, markets, employment and growth, due to the effects on the organization of business flows and processes, transaction costs, creation of new business models, and changes in the boundaries of firms across sectors.

Electronic commerce is hoped to contribute significantly to economic development and the social upliftment of South African citizens. Initiatives to develop multi-purpose community centres in disadvantaged communities and in rural areas have been made by the private sector and government, this being one way of accessing information and services to them. These efforts have been hampered by the required large technological infrastructural investment and costs of such investment. The presence of technology widens the gap that exists between the rich and poor.

Electronic commerce is applied in the arts industry to sell pieces of traditional and modern African art through the Internet. Various art groups have developed Websites,

which open access of on-line art to international buyers, for this purpose. Another widely used facility is on-line banking. The four major banks in South Africa; ABSA, First National Bank, Nedbank and Standard Bank have developed Websites to enable their customers to have easy access to facilities they offer. The number of customers who use on-line facilities is increasing rapidly.

It is important to establish the benefits derived from electronic commerce and its use by South African economic entities. For this, interviews were conducted with nine major institutions in electronic commerce. These are government sector, private sector, Pretoria Metropolitan Council, South African Agricultural Union, South African Reserve Bank, Consumer Institute of South Africa (a Non Governmental Organisation), University of South Africa, Congress of South African Trade Unions and the SMME sector. These organizations' views differed on the effects of electronic commerce in the South African economy and the society. Their views did not diverge much more than it would have been envisaged given their different levels of understanding and size. More than half of them agreed that electronic commerce would bring opportunities if resources were put into training in technological skills.

The government and business sectors started an electronic commerce policy process, whose aim was to draft a legal framework that would result to law that would guide electronic commerce application, and provide protection to participants. A much wider range of stakeholders was invited to participate in the policy process to give their inputs for drafting a discussion paper on electronic commerce. This discussion paper would lay ground for drafting a Green Paper and subsequently a White Paper on electronic commerce policy. When the discussion paper was drafted, the Government E-commerce Task Group had already been formed as well as a Steering Committee, which comprised not only government officials but also members from other institutions. Task Teams were also formed to look at other crucial themes that could be influenced by electronic commerce, which are; security and privacy; customs and taxation; intellectual property; infrastructure, access and convergence; electronic payment system; Internet governance and domain naming; education, awareness and enablement; technical standards; and

finally contracting and trade laws. These are the issues that were identified as crucial for the policy.

Electronic commerce has social, economical, legal and political effects. It will take a high level of commitment from government, business sector, consumers and other institutions (statutory, NGOs or private) for electronic commerce to contribute towards social upliftment and economic growth. Once it is fully implemented, consumers will benefit from e-commerce because the value added to transactions of goods and services will drop. Electronic commerce will 'cut the middleman'; there will be a direct purchase of goods and services. Cutting the middleman has its disadvantages though, in that other entities will be out of business and the unemployment pool might be added. This calls for diversification, competitiveness and redirection of unutilized production factors. A wedge between urban and rural areas will widen, as the latter do not have much access to modern technology than their urban counterparts. All stakeholders will need to channel more resources to educate and open access to rural dwellers. Established businesses will have an advantage over emerging and small businesses in using electronic commerce because of the amount of resources they have. With their strong research and development, they will be able to respond quickly and efficiently to demands of customers.

Electronic commerce is most likely to benefit consumers who have access to the Internet. Queues and long waiting time in supermarkets and restaurants are likely shorten the more local buyers get used to buying on-line. Consumers will experience a reduction in traveling cost, time consumed in queues, the opportunity cost and inconvenience of waiting in queues, and re-allocation of the economic resources for better use, which will satisfy their needs. Traditional businesses may be adversely affected by dwindling numbers of their regular customers once electronic commerce takes full swing. This instance is a long–term phenomenon in rural and poor areas where technological investment is slow. Electronic commerce will have an impact on the way government institutions run their business. Through technology communities who have access to Internet will be able to access government information that affects their daily lives more

easily. Such technology investment will by any means come at a cost from government, hence an importance in formation of public-private sector partnership development.

When communities are able to access valuable information, they will use it to better themselves economically and socially. One of major challenges that are faced is poverty. Electronic commerce should then be used as a tool to assist in the reduction of poverty levels. Government has in turn identified Small, Micro and Medium Enterprises as one of major role-players in the development and growth of the economy. These should then be encouraged to take part in electronic commerce development like their business counterparts, though with the necessary assistance from government and likewise big business.

The use of electronic commerce by the South African business community is still far less than its use in developed countries yet South Africa is technologically advanced than most other African states. It is therefore recommended that the South African government follow steps that were taken by the United States government, for instance issuing electronic commerce policy directives namely, to allocate a budget which would ensure that a large number of consumers have access to Internet at a possible lower cost.

It is recommended that a necessary policy that would encourage multinational corporations to invest locally be implemented. The policy would entail a relaxation in labour regulations that would allow such corporates to allocate production resources more efficiently and minimise costs where possible with minimum disruption by the labour force, and a relaxation of taxes for foreign corporates and providing them with the opportunity to expatriate profits without having to impose restrictions. An arrangement with foreign companies to assist in growing the local economy will have to be made though. Multinational corporations would thus bring high technology and electronic commerce skills. The government will have to move faster with its electronic commerce process that it initiated in July 1998 and enact electronic commerce into law.

CHAPTER 1: THE AIM AND METHOD OF RESEARCH

1. THE AIM OF THE RESEARCH

The aim of the research is to provide an exploratory analysis about the possible impact of electronic commerce in the South African economy. The study focuses on the South African economy and the impact electronic commerce has on major economic entities. These entities are the South African Reserve Bank, the Department of Communications, Consumer Institution of South Africa, Congress of South African Trade Unions, the Small, Medium and Micro Enterprise sector, Dimension Data, the South African Chamber of Business, Greater Pretoria Metropolitan Council, South African Agricultural Union and the University of South Africa. The above institutions were identified and selected for the purpose of the research because they represent a broader spectrum of institutions which play a significant role in the economy, and are largely affected by electronic commerce. They represent the corporate sector, public sector, labour, academic institutions and the households. The manner in which they conduct their daily business is shifting from being manual to being electronic. This shift has been seen to contribute to efficiency and access to wider geographic distances.

This study has been motivated by a need to explore and understand electronic commerce as a concept, and the contribution of economic sectors, specifically the small business sector, in the economy having embarked on all forms of electronic commerce. There is a major macroeconomic shift in the global market away from traditional industrialised economy to a knowledge-based economy. This shift is posing challenges to businesses in developing economies such as South Africa. A question that has been asked is whether South Africa has the necessary infrastructure and know-how to cope with the demands of electronic commerce. This question can best be answered by the level of understanding and readiness of all major economic entities, which have been mentioned above, and the technological investment necessary to enable the economy to meet challenges of electronic commerce.

The government has started a process to develop a legal framework on which to base electronic commerce. A legal framework has been introduced, and is said to assist in giving protection to institutions and individuals which do business electronically.

2. RESEARCH METHODOLOGY

This section describes the techniques that have been used to collect and analyze data, which forms the basis of the research.

This study is qualitative because of a combination of research techniques applied to collect data. Qualitative research can be regarded as a 'particular mode of gathering data that leads towards non-numeric research results'. This mode is focused on dialogue, which allows flexibility. Its use is being aimed at gaining access to important data that would otherwise provide an in-depth understanding of the complexity of electronic commerce. In this study, purposive sampling has been used because certain types of organisations were identified and interviewed.

Two main methods for collection of data have been used, namely:

- Interviews
- Literature research that involves a search on the Internet and literature surveys

3. THE STRUCTURE OF THE RESEARCH

Chapter 2 provides a theoretical background and different views of economists and their arguments on trade and its requirements. In this chapter various types of trade theories are discussed. The comparative advantage theory which was formulated by David Ricardo (1772 – 1823) provides a somewhat clear explanation of how trade takes place between countries. The advancement of technology plays an important role in the determination of trade patterns. Such an advancement has influenced the development of the 'new economy' which requires the adjustment in trade theories. Shortcomings of some of the theories are discussed.

Chapter 3 provides an overview of an information economy, the role of information technology in trade, the influences of electronic commerce on comparative advantage and how it has evolved over time. Chapter 4 provides a comparative study on how developed countries dealt with electronic commerce. A cross-sectoral influence of electronic commerce is discussed. These are commercial relationships between businesses, consumers and government. Views of different sectors of the economy on electronic commerce are discussed. A South African legal framework that ought to control electronic commerce and its application is discussed. Few issues are identified for consideration. These are issues which require an existence of an effective legal framework when electronic commerce is applied. The impact of electronic commerce politically, socially and economically is discussed. Chapter 5 is a summary and recommendations on electronic commerce. A bibliography is provided.

CHAPTER 2: THEORY OF TRADE

1. INTRODUCTION

The aim of this chapter is to give a theoretical background on the theory of trade. Theories that are discussed in this chapter highlight the economic interdependence of countries. Two most important concepts in the trade theory namely, absolute and comparative advantage are discussed. Trade patterns have recently been affected by modern technology, which is advancing and trade in non-physical goods such as services. It should therefore be established whether trade theories incorporate trade in non-physical goods as this is the basis of electronic commerce.

2. THE BASIS OF TRADE

Theories of trade and comparative advantage are discussed below. Economists of earlier times realised the importance of comparative advantage as a rationale for trade. These theories have been developed overtime by subsequent economic writers.

2.1 ABSOLUTE ADVANTAGE

The theory of international trade has always tried to find the rationale for trade between countries. One of the pioneers in economics who introduced the theory of absolute advantage was Adam Smith (1723 – 1790). He elaborated on shortfalls as a result of mercantilist restrictions on trade, and laid the groundwork for free trade in his argument that trade between nations enables all of them to increase their welfare in the form of real income by taking advantage of the principle underlying all wealth, the division of labour (Ellsworth, 1958:59). In this case, countries could gain in trade. Smith (1723 – 1790) also recognised that cost differentials between countries determined the movement of commodities between them. Production costs, which determine trade, differ between countries as a result of productivity of factor utilisation. The phenomenon of productivity is based on natural and acquired advantages (Carbaugh, 1995:18). These natural advantages include factors relating to mineral wealth, soil and climate. Given a natural or acquired advantages in the production process, Smith (1723 – 1790) was of the view that

a country would produce a good at a lower cost, becoming more competitive than its trading partner (Carbaugh, 1995:18). He showed how total production and wealth would increase in the trading countries which specialise in the production and export of those goods that they produce more efficiently (Nielsen, Madsen and Petersen, 1995:8).

Carbaugh (1995) notes that Smith's view of cost was based on his labour theory of value, which asserted that within each country labour is firstly, the only factor of production and that it is homogeneous, and secondly, that the cost of a commodity depends exclusively on the amount of labour required to produce it.

According to the theory of absolute advantage, trade would result in a profit so long as prices between two countries differed by more than the transport costs they incurred. This theory highlights the importance and relevance of specialisation when countries produce similar goods using various quantities of inputs. Trade between countries with an absolute advantage over certain goods would enable them to utilise some of their resources to produce other goods as well. International trade would therefore only take place if a country had at least one absolute advantage, for instance one industry in which labour productivity was better than in any other country (Nielsen, Madsen and Petersen, 1995:9). Smith was of the opinion that unfettered trade between countries would automatically result in specialisation, for instance goods would be produced where productivity was the highest and costs consequently the lowest country (Nielsen, Madsen and Petersen, 1995:9). Freedom of competition between countries therefore ensures that goods are produced at the lowest cost in the same way as competition in individual countries does (Delport, 1999:15).

Absolute advantage is however, not a pre-requisite for international trade (Mohr, Fourie and associates, 2000:458). Other economists who followed subsequently realised that trade did not take place solely as a result of absolute advantage, and introduced other trade theories.

2.2 COMPARATIVE ADVANTAGE PRINCIPLE

David Ricardo (1772 – 1823), an English economist formulated the principle of comparative advantage by expressing the view that despite countries having produced all goods efficiently, and having an absolute advantage over such production, there was basis for those countries to trade.

When countries concentrate on goods that they produce more, they tend to increase world output. The reason that trade produces this increase in world output is, it allows each country to specialize in producing the good in which it has a comparative advantage. A country has a comparative advantage in producing a good if the opportunity cost of producing that good in terms of other goods is lower in that country than it is in other countries (Krugman and Obstfeld, 1997:14). Thus, comparative advantage would exist when a country produces goods and services at a possible lower cost than another country would.

2.2.1 COMPARATIVE ADVANTAGE IN A CLOSED ECONOMY

In this economy a single country X_1 is assumed to exist, two commodities P and T are produced by utilising labour L as a single factor. L is homogeneous and the wage rate w is the same in the production of both commodities. A Ricardian comparative advantage in a closed economy can be expressed in a diagram below,

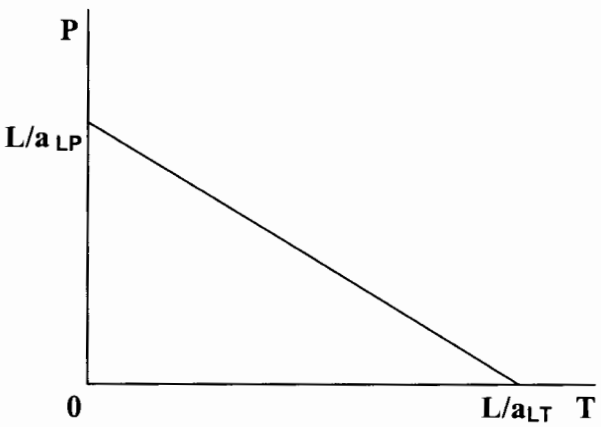

Figure 2.1: Ricardian Possibilities Schedule

(Source: Caves and Jones, 1977:75)

L/a $_{LP}$ and **L/a$_{LT}$** are real labour cost per unit of output. The Ricardian model of comparative advantage requires a difference between comparative costs of producing both commodities. Given fixed labour requirements per unit of output, the production possibilities curve exhibits a linear shape. Since it is a linear curve, it means that one cannot increase production of one commodity without having to reduce that of the other (Bhagwati and Srinivasan, 1984:10). When only one factor of production (L) is given, the production possibilities curve will be linear. Thus, the limits on production are given by the inequality,

$$a_{LP}Q_P + a_{LT}Q_T \leq L \qquad (2.1)$$

When the PP curve is linear, the opportunity cost of commodity P in terms of commodity T is constant (Krugman and Obstfeld, 1997:16). Production of the two commodities takes place along the PP curve.

2.2.2 COMPARATIVE ADVANTAGE WHERE TWO COUNTRIES EXIST

Ricardo's theory of comparative is based on the following assumptions:

1. Two countries X_1 and X_2,
2. Two commodities P and T,
3. A single factor labour (L),
4. Unit labour requirements in producing P and T for country X_1 are a_{LP} and a_{LT},
5. Unit labour requirements in producing P and T for country X_2 are a^*_{LP} and a^*_{LT} and
6. X_1 is more productive in P than X_2, but less productive in T.

This can be expressed mathematically as follows,

$$a_{LP}/a_{LT} < a^*_{LP}/a^*_{LT} \qquad (2.2)$$

The ratio of labour L required to the production of commodity P to that of T is lower in country X_1 than it is in country X_2 (Krugman and Obstfeld, 1997:18).

Trade between X_1 and X_2 can be depicted by a diagram below,

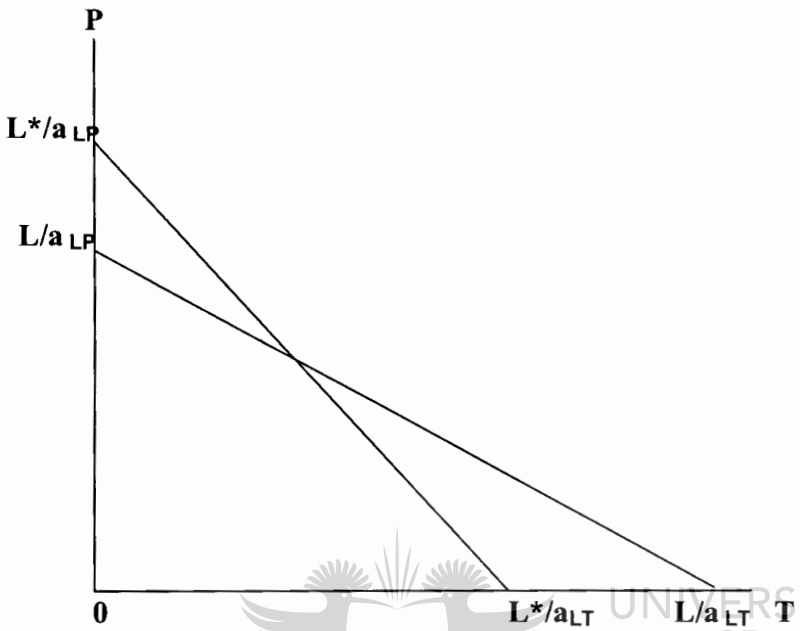

Figure 2.2: Ricardian Trade Between Two Countries

(Krugman and Obstfeld, 1997:18)

X_1 will export commodity P to X_2 if the relative price of P is higher in X_2 while it imports commodity T. Trade will take place between these two countries if a difference between comparative costs of producing commodities P and T exist. When this condition is met, it will be beneficial for each country to specialise in the production of a commodity in which it has a relatively greater advantage (Gandolfo, 1998:11). The comparative advantage theory affirms that the crucial variable explaining the existence and patterns of trade is technology (Gandolfo, 1998:9). Technology has advanced to the extent that it is beginning to alter the traditional trade pattern through electronic commerce.

This theory is static and assumes a single factor of production whereas as in the real world commodities are produced by a combination of factors.

2.3 THE HECKSCHER – OHLIN THEORY OF TRADE

The Heckscher – Ohlin theory emphasizes on the notion that comparative advantage is influenced by the relative abundance of production factors, while the Ricardian theory focuses on international differences in labour productivity.

The Heckscher – Ohlin theory assumes that there are two production factors namely labour L and capital K. Second, it assumes identical production functions in the trading nations (Markusen, Melvin, Kaempfer and Maskus, 1995:98). This theory is based on Ricardo's comparative advantage, which assumes different technologies in trading countries. Countries that have abundant supplies of either factor of production tend to be net exporters of commodities produced by that factor, and import commodities that are produced by factors that are not in abundance to them. In this case, assuming that the two commodities produced are P and T, each of them will be factor intensive. Furthermore, commodity P is relatively capital intensive and T labour intensive. This relationship is expressed mathematically below,

$$K_P/L_P > K_T/L_T \qquad (2.3)$$

It should be noted that factor intensity plays a significant part in the Heckscher – Ohlin theory.

2.3.1 HECKSCHER – OHLIN MODEL IN AN OPEN ECONOMY

When trade is permitted between countries X_1 and X_2 it can be observed that the price of commodity P is relatively cheaper in country X_1 than it is in country X_2. At the same time, the price of commodity T is relatively cheaper in country X_1 than in X_2. Trade under the Heckscher – Ohlin model will take place when national differences in factor endowments exist (Markusen, Melvin, Kaempfer and Maskus, 1995:99). The model also demonstrates non-linear production possibilities curves. This is shown by means of a diagram below,

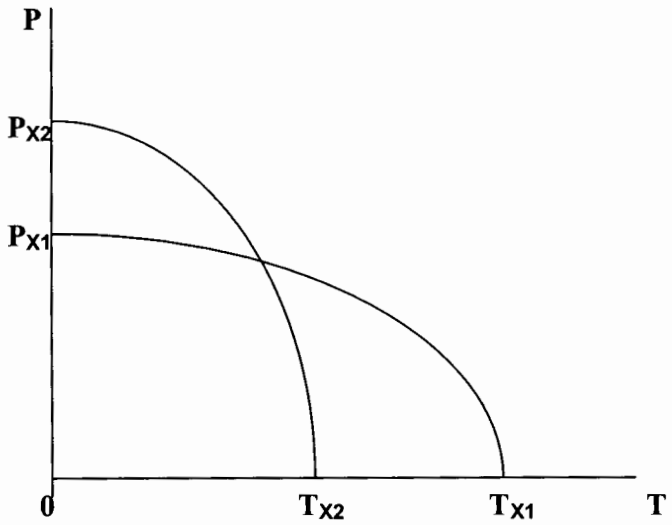

Figure 2.3: Heckscher – Ohlin non-linear PP curves

(Source: Markusen, Melvin, Kaempfer and Maskus, 1995:99)

The PP curves are non-linear as a result of the assumption of different factor intensities between the two commodities in the simple model (Greenaway, 1983:14).

The Heckscher – Ohlin theory concludes that trade will result in the equalisation of commodity prices in the two countries (Markusen, Melvin, Kaempfer and Maskus, 1995:105).

Bhagwati (1964) notes that shortcomings of the Heckscher – Ohlin model are both empirical and theoretical. On empirical level, the model does not adequately explain actual trade patterns. On a theoretical level, Bhagwati (1964:19) lists a set of sufficient conditions that would make the model true. These conditions are as follows:

1. Identical international production functions,
2. Non-reversible factor-intensity, that is, a given commodity will either be capital or labour intensive at all price ratios,
3. Constant and diminishing returns to scale in each production function, and
4. Identical consumption patterns between trading countries at all price ratios.

The Heckscher – Ohlin model applies only to static conditions, and it does not provide for dynamic change. Leontief (1956), in his paradox, proved that the United States of America, with its abundance in capital relative to all its trading partners, imported capital intensive goods and exported labour intensive goods, contrary to the Heckscher – Ohlin theory that a country exports goods produced by the abundant factor of production.

2.4 THE STOLPER – SAMUELSON THEORY

The Stolper - Samuelson theorem states that the increase in the relative price of a good increases the real reward of a factor used in the production of that good. The main purpose of this theorem is to show that changes in goods prices have determinate effects on real factor rewards (Markusen, Melvin, Kaempfer and Maskus, 1995:114). Two goods x and y are assumed, x is labour-intensive and y is capital-intensive. Production is assumed to take place in a single industry Z. If the price of x (P_x) increases, the real income of labour will increase such that the relative price ratio P_x/P_y and the relative factor price ratio P_L/P_K increase. The increase in relative factor price causes an increase in the capital-labour ratio for production of both goods (x and y). Given homogeneous production functions for both goods, the marginal productivity of labour will increase while that of capital decreases.

The implication of the Stolper-Samuelson theorem is the so-called magnification effect, which states that the increase in the nominal price of the factor whose commodity price has increased, is proportionally greater than the increase in the commodity price. Jones (1965) notes that the relevance of this theorem for international trade lies in its use for the examination of the distributive effects of tariffs.

2.5 THE RYBCZYNSKI THEOREM

The Rybczynski theorem is mainly concerned with the relationship between changes in factor endowments and changes in the outputs of the two goods when their prices are given. It thus states that an increase in the endowment of just one factor of production must cause the industry which uses the other factor, capital, to decline (Caves and Jones, 1973:154). The theorem assumes capital as a factor to be constant and labour to vary.

When labour is increased while holding capital constant, the quantity of a good produced by using labour increases if capital is obtained from the sector which produces a capital-intensive good. Production in the capital-intensive sector will thus decline.

2.6 THE SPECIFIC – FACTOR THEORY

The Specific-factors model assumes two goods x and y, whose production functions exhibit constant returns. Capital K and labour L are used in the production process, and consumer tastes are homogeneous, allowing a representation of preferences by a set of community indifference curves (Markusen, Melvin, Kaempfer and Maskus, 1995:129). Capital is fixed in the short-run. The theory assumes that capital is useful for producing good x only, thus ruling out capital mobility in the short-run. Labour can be used in the production of both goods. The production functions of the two goods are mathematically expressed below:

$$x = F_x (R_x, L_x) \text{ and} \qquad (2.4)$$
$$y = F_y (S_y, L_y)$$

where R_x and S_y represent types of capital that are used in the production of goods x and y respectively (Markusen, Melvin, Kaempfer and Maskus, 1995:129). The above equations point out that in the short-run the two capital stocks are different inputs whose mobility is fixed. The theory assumes presence of perfect competition, which implies that in the equilibrium position the value of marginal product of a factor equals the price of that factor. The equilibrium position is expressed mathematically as follows:

$$MPL_x = p_L \qquad (2.5)$$
$$MPL_y = p_L$$

The price of labour L is the wage rate w, which implies that:

$$MPL_x = w \qquad (2.6)$$
$$MPL_y = w$$

hence $$MPL_x = MPL_y \qquad (2.7)$$

Equation 2.7 can be expressed graphically below, when a short-run general equilibrium framework is assumed when sectors X and Y are linked together. Labour mobility has to generate an equal value of marginal product of labour in the equilibrium.

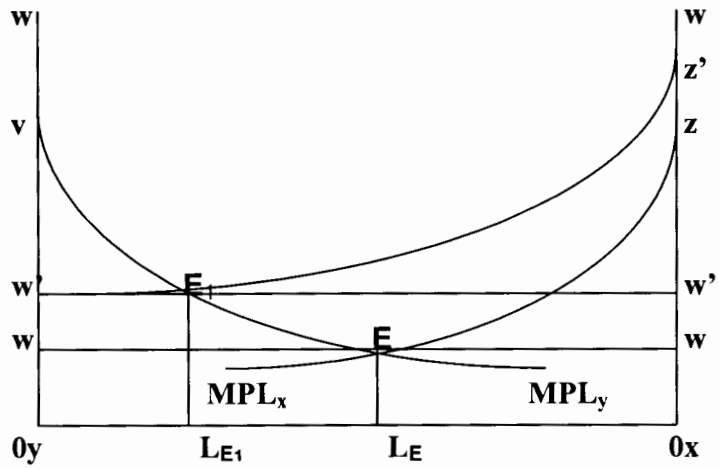

Figure 2.4: The specific factors model

(Source: Gandolfo, 1998:103)

The specific factors theory shows that when more of labour in sector X is employed, marginal product of labour in sector X (MPL_x) declines, causing curve MPL_x to slope downwards.

3. ECONOMIES OF SCALE

Trade theories discussed thus far assume implicitly or explicitly constant returns to scale. A possible reason for this state of affairs is that it is difficult to incorporate the effects of increasing returns into theoretical models (Krugman, 1979:469).

Krugman (1979) however, is able to develop a fairly simple one-factor model that shows the effects of increasing returns to scale in international trade. The model assumes two countries B and P, with factor endowments, identical tastes and technologies. These economies experience increasing returns to scale, but initially do not trade with each other. However, the assumption of increasing returns makes trade inevitable between the

two countries. Both countries trade in good x. Krugman's model is illustrated graphically below:

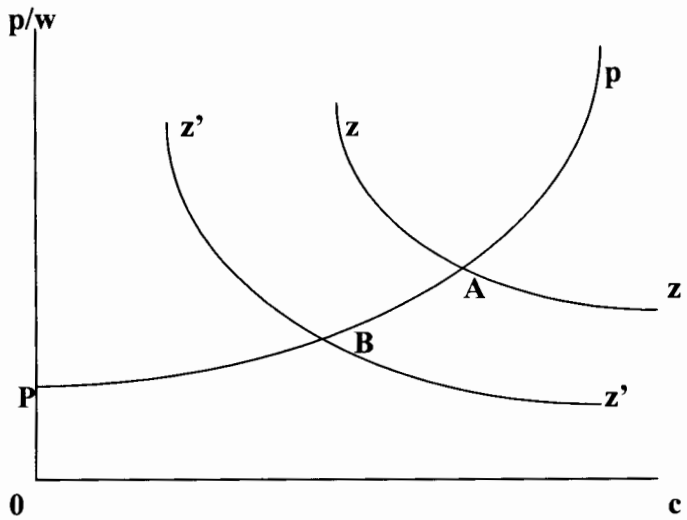

Figure 2.5: Trade with increasing returns

(Source: Krugman, 1979:475)

The vertical axis shows the price of a representative good x in wage units p/w, while the horizontal axis shows per capita consumption of a representative good x. PP curve is the relationship between consumption c and p/w. The ZZ curve, when intersecting with the PP curve shows zero profits equilibrium position. When there is no trade the intersection of PP and ZZ curves determines consumption of each good and its price at point A. When there is trade the ZZ curve shifts downward to the left, resulting to a fall in wage rates p/w and consumption c (Krugman, 1979: 479). The model shows that even though wage rates and consumption fall, the output of each good and the number of goods produced rise. The equation for the output of good x is expressed mathematically as follows:

$$x = \alpha/(p/w - \beta) \qquad (2.8)$$

where α and β are fixed costs. The number of goods produced in each trading country will be given by:

$$\eta = L/(\alpha + \beta_c) \qquad (2.9)$$

Krugman (1990) concludes that economies of scale give rise to trade and gains from trade even when there are no international differences in tastes, technology or factor endowments.

4. IMPERFECT COMPETITION AND INTRA-INDUSTRY TRADE

Theories that have been discussed thus far assume perfect competition. In this case, imperfect competitive conditions are assumed. Monopoly as a character of imperfect competition is often used to explain a trade pattern which increasingly characterises modern international commerce. Traditional trade theory has not fully explained this developing trade pattern, which has two striking characteristics. First, countries with similar factor endowments largely trade among themselves, resulting in a two-way trade between many pairs of countries in many classes of goods. Second, firms engaged in international trade also undertake international investment, resulting in multinational production (Kenen, 1994:131). Kenen (1994) also highlights the point that firms producing in one country should compete with foreign firms, not just among themselves. Trade tends to intensify competition, with more firms in trade and thus deterring monopolistic behaviour to a relatively greater extent.

A single commodity is assumed, which is characterised by product differentiation, and consumers have different tastes. Intra-industry trade thus, is trade in similar but not identical products (Greenaway, 1996:7). Assuming two countries that produce a similar but differentiated commodity, there will still be trade between them even if they have comparative advantages in the commodities that they produce.

Kenen (1994) lists a set of factors that affect countries in trade. These are as follows:

1. Average of countries' income per capita,
2. Differences in incomes per capita,
3. Average of countries' total incomes,
4. Average trade orientation of countries,
5. Distance between countries,

6. Common border and language between countries,
7. Membership in common trade bloc,
8. Product differentiation within industries,
9. Economies of scale for firms in industries and
10. Industrial concentration.

The first four factors suggest that countries with high incomes can be expected to engage heavily in intra-industry trade, because their consumers will spend large fractions of their incomes on sophisticated manufactured goods, which tend to be sharply differentiated (Kenen, 1994:152). Distance tends to discourage intra-industry trade due to transport costs having to reduce each country's share of its trading partner's market. On the other hand, this notion is defeated by a sudden rise of a 'new economy' whose trade is effected through electronic commerce. In this new type of economy distance and high transport costs are no longer a big concern. Membership in a common trade bloc encourages intra-industry trade. Information can be expected to flow freely between countries with a common border and language, and this should promote intra-industry trade because each country's consumers should be thoroughly familiar with the range and variety of goods available from neighbouring countries (Kenen, 1994:152). Kenen (1994) also notes that industrial concentration should produce mutual penetration of national markets.

5. TECHNOLOGY ADVANCEMENT AND TRADE PATTERNS

Technological innovation plays an important role in the determination of trade patterns. Developed countries are technologically advanced when compared with developing countries. Developed countries have a superior ability to exploit new technology (Krugman, 1990:141). These countries use technology to develop new products, which they export to developing countries. Developing countries on the other hand, take time to adopt new technology. Krugman (1990) assumes that developed countries export technology-intensive goods, which he calls 'new' goods, while developing countries export less technology-intensive goods, 'old' goods. Labour costs will be higher in developed countries because of monopoly in new goods. Higher labour costs will have a slowing effect on export of new goods. With technology transfer to developing

countries, the volume of new goods exported declines. When developing countries gain technology, production of new goods shifts to them because they are lower wage countries.

Technology continues to develop in both developed and developing countries, though developing countries tread behind. Technology development continues to exert pressure on the economy and cause transformation of economic order, rules, laws and power. This technological change is typical of the dynamic pressures towards the 'new economy', which is characterised by different competitive rules among firms and different comparative advantages among spatial systems (Capello, 1994:4). One of the key factors that are changing the operation of the traditional economy is telecommunications technology. Through this technology, economic activities and transactions have been facilitated and coordinated with maximum efficiency. Telecommunications technology has also begun to shrink the spatial distance among economic actors, thus driving the economic towards a completely different spatial structure (Capello, 1994:5). Technological advancement has played a role in facilitating the use of electronic commerce.

5. SUMMARY

The aim of the chapter was to give a theoretical background on the theory of trade. Trade theories that were discussed put much emphasis on Ricardian comparative advantage. The comparative advantage theory demonstrates the importance of technology by showing that trade will take place between two countries if a difference between comparative costs of producing two given commodities exists. It then becomes beneficial for each country to specialise in the production of a commodity in which it has a relatively greater advantage, thus affirming that the crucial variable that explains the existence and patterns of trade is technology. Figure 2.2 illustrates trade between two countries where comparative costs of producing each country's respective good differ. The advancement in technology is beginning to alter traditional trade patterns and necessitates the existence and effectiveness of electronic commerce. This theory

however, has its shortcomings. It is static and assumes a single factor of production whereas in the real world commodities are produced by a combination of factors.

The Heckscher – Ohlin theory is based on Ricardo's (1772 – 1823) comparative advantage theory but assumes different technologies in trading countries. This theory also emphasizes on the notion that the comparative advantage is influenced by the relative abundance of production factors. The Heckscher – Ohlin theory highlights that trade will take place when national differences in factor endowments exist. It has both the empirical and theoretical shortcomings. Empirically it does not adequately explain actual trade patterns. This theory only applies to static conditions and does not provide for dynamic changes. The Stolper – Samuelson theory shows that changes in goods prices have determinate effects on real factor rewards. It has been noted however that this theory has more relevance in its use when distributive effects of tariffs are examined.

Theories discussed in this chapter assume implicitly or explicitly constant returns to scale. Krugman (1979) sights the reason as the difficulty to incorporate the effects of increasing returns to scale into theoretical models. He thus developed a one – factor model that shows the effects of increasing returns to scale in international trade. Krugman's model assumes that economies of scale give rise to trade and gains from trade even when there are no international differences in tastes, technology or factor endowments. This model and all others that are discussed in this chapter do not provide for conditions of imperfect condition. Imperfect competition explains a developing trade pattern which shows two phenomena. First, there is a large volume of two – way trade among countries with similar factor endowments. Second, firms engage in international investment, which has resulted in multinational production. Thus far, multinational corporations have increased in number.

This chapter shows that technology continues to play a meaningful role in trade. Krugman (1990) noted that developed countries have a superior ability to develop and exploit technology in trade, while developing countries on the other hand take long to

adopt new technology. Technology advancement will continue to exert pressure on the economy and cause transformation on the economic order. Trade theories will have to provide for technology advancement as it affects trade patterns, and transforms the 'traditional' economy to a 'new' economy. The technology, which affects trade patterns, is based more on information and telecommunications. These recent developments require the adjustment of trade theories to incorporate trade in non-physical goods, where the assumption of an economy with only two factors of production capital and labour, and two goods, one that is labour-intensive and the other being capital-intensive does not hold.

CHAPTER 3 THE NATURE AND DYNAMICS OF ELECTRONIC COMMERCE

1. INTRODUCTION

The aim of this chapter is to give a brief overview of electronic commerce and its influence on the information economy. Electronic commerce is a new concept in economics. It entails economic interaction and trade by countries without there being hindered borders. It is the catch-all phrase for many advances in technology centred on the Internet, and heralds fundamental changes for the world economy. The expansion of Internet globally has made electronic commerce an ideal means to conduct commercial transactions. The Internet is being used more and more to advertise and sell goods and service globally. Electronic commerce is an instrument that is handy to globalize trade among countries and nations. It has become highly possible to conduct business transactions with all parts of the world that have access to Internet, without being physically there. Transactions take place through technological means.

The use of the Internet and the World Wide Web is creating a revolution in the manner in which trade is conducted. The increase in the number of users is taking place at a rapid pace, especially in the developed economies such as the United States of America, the United Kingdom and Canada. UNCTAD (1999) estimated that there are now more than 150 million users, and the figure increases by more than 50 000 on a daily basis. More than half of the current user population is located in the USA, but the geographical spread is fast diversifying (UNCTAD, 1999:55). Even developing countries are now having an access to the Internet. Revenue attributed to electronic commerce is still relatively small though it is projected to grow over the years.

Empirical evidence about the use of electronic commerce is still confined to developed economies. It shows that in several sectors, which include financial services, tourism, books, music and entertainment industry, the digital revolution is spreading rapidly. This also shows that many aspects of governments' dealings with communities, international

project management and consultancy work are increasingly being facilitated by electronic operations.

Electronic commerce has begun to open up numerous opportunities for countries involved in intra-industry trade. Industries in such countries face different opportunities according to their size, activities and geographic location. There are also a number of signs indicating that smaller entities can use electronic commerce to penetrate global market places. Production location, and factors influencing it, is clearly destined to alter dramatically in the electronic commerce age. Outsourcing of operations will increasingly be shaped by the ability of subcontractors to operate in real time, collaborate with "first tier" companies and customers, and to upgrade their own skills and capabilities so that they are ever more partners and not simply suppliers (UNCTAD, 1999:56).

Many definitions of electronic commerce have been offered, while all of them say much the same thing. On the other hand, electronic commerce entails the distribution, marketing, sale or delivery of goods and services by electronic means. Electronic commerce as defined by others would include all financial and commercial transactions that take place electronically, including electronic data interchange (EDI), electronic funds transfers (EFT), and all credit or debit card activities. The Department of Communications (1999) defines electronic commerce as an activity that encompasses all business conducted by means of computer networks. It reflects a paradigm shift driven by two primary factors namely,

1. A wide range of converging technological developments and
2. Emergence of the so-called "knowledge economy".

Electronic commerce is also seen as the ability to perform business transactions involving the exchange of goods and services between two or more parties using electronic tools and techniques. It differs from traditional commerce primarily in the way that information is exchanged and processed. Traditionally, information has been exchanged through direct personal contact or through the use of phone or postal systems. In electronic commerce, information is conveyed primarily via digital communications

networks and computer systems. Often these networks are accessible to everybody and have an open character. Electronic commerce also encompasses such diverse activities as enhancing the efficiency of business processes, conducting market research, identifying opportunities and partners, cultivating relationships with customers and suppliers, document exchange, and joint product design. Electronic commerce is often not fully automated. Typically, online transactions require some level of human intervention. The overall goal, however, is to integrate it into existing business processes in such a away that a processing order moves seamlessly through existing accounting, order processing, and inventory systems no matter how a transaction originates. This integration of online sales with back-end business process and information systems introduces a variety of challenges and opportunities that span the business, technical and legal domains. Electronic commerce may involve quite diverse parties such as businesses, consumers and public administrations. Interactions between these parties often rely on the use of world-wide communication networks.

The Organization for Economic Co-operation and Development (1998) elaborates further on the 'exact' definition of electronic commerce by putting more emphasis on the Internet. The focus on networks that use non-proprietary protocols, which are a relatively new phenomenon, is central. Earlier forms of electronic commerce as has existed for decades, required pre-existing relationships, expensive and complex custom software, and dedicated communication links. In many cases, the system required strictly compatible equipment. Consequently, the main users of early electronic commerce were large businesses and their first tier suppliers. These links created two-way markets between specific parties. While such forms of electronic commerce will continue to exist, recent attention to electronic commerce is due to the Internet and its open, non-proprietary protocol (Transport Control Protocol/Internet Protocol), to the development of World Wide Web which uses a standard coding system (hypertext markup language) for representing data, and to the development and diffusion of browsers that provide a standard interface for accessing World Wide Web sites. All of these technologies use existing communication systems to create a network that is independent of any one platform. In fact, one of the drivers of Internet is the fact that it exploits all of the

existing ICT infrastructure, so that it can be used with a minimal amount of new investment (OECD, 1998:179). Electronic commerce has a large impact on trade such that trade between countries assumes a different form. Technological innovation such as the Internet facilitates this type of trade. Electronic commerce applies when trade is both local and international.

Recent years have witnessed a renewed interest in the role of technology as an engine for economic growth and development. For a long period relatively little attention was paid to technological innovation in economic theory, where technology was often seen as an exogenously determined variable in a complex set of interrelated mechanisms and factors (Capello, 1994:5). Technological advancement has given rise to a new phenomenon in economics called electronic commerce. Electronic commerce has the potential to radically alter some economic activities and the surrounding social environment.

2. THE INFORMATION ECONOMY

The general economy exhibits signs of a transition towards an information economy. The information economy is one where there is a slow but constant increase of all economic activities that are associated to the production, distribution and consumption of information (Capello, 1994:5). Significant to the transition is the rapid rise of the services sector in many economies, which tends to impact on trade patterns by way of a relative deviation from trading in physically manufactured products but knowledge and services.

Capello (1994) acknowledges that an attempt was made to explain the emergence of information economy through categorising economic activities into two classes, namely production tasks, which are associated with the manufacturing and delivery of goods and services. The other category is information tasks, which are associated with the coordination and manipulation of production tasks. The latter category of economic activities is becoming more of a strategic resource upon which the competitiveness of firms and comparative advantage of economic regions increasingly depend (Gillespie, Goddard, Hepworth and Williams, 1989:109). The emergence of information economy is

thus seen to be highly dependent upon the diffusion and adoption of the new information and telecommunications technologies, which gives rise to new innovative ways of storing, manipulating, organising and transmitting information. This development has thus given rise to electronic commerce which is integral to the information economy. Electronic commerce is highly dependent on information and telecommunications technologies, with Internet being the mainly applied technology.

2.1 KNOWLEDGE PRODUCTS AND INFORMATION TECHNOLOGIES

Knowledge is increasingly becoming a non-physical product that is required to enhance economic growth and success. The information economy in turn requires information and technology, libraries and databases, and genetic code intellectual property.

The increasing importance of information technology shortens the effective distance between consumers and knowledge producers (Quah, 1999:7). Consumption of knowledge is thus impacted by patents. Quah (1999) lists the following as knowledge products,

1. Computer software
2. New media
3. Electronic databases and libraries
4. Internet

2.2 INFORMATION AS AN ACTIVITY

Information is regarded as a type of commodity or resource, but certainly does not have the same characteristics as traditional resources and commodities (McGovern, 1999:46). McGovern (1999) argues that information behaves differently from commodities and resources. Resources tend to have a limited supply, some are renewable and can be depleted if not properly managed. Commodities tend to have definite a cost attached to their creation. McGovern (1999) further argues that information, as distinct from commodities and resources, cannot be consumed but can only be shared, and its reproduction is cost-effective. In the real world Internet enables sharing of information.

Information is thus an activity and not an object. McGovern (1999) mentions content, structure and publication as properties of information.

2.3 INFORMATION TECHNOLOGY AND THE BODERLESS SOCIETY

The application of communication networks and digital technologies has changed the constraints of time and space, shifted geographical and industrial boundaries. It has also reduced the importance of physical location. Computer technology has transformed the way business is done, it has transformed the way scientific research is conducted, and how people communicate with one another (Leer, 1996:11). Information technology has made it possible for the world countries to share information, limiting time lags in the process.

2.4 THE ROLE OF INFORMATION TECHNOLOGY IN THE INTERNATIONAL DIVISION OF LABOUR

Information innovations have had an influence in the system of production, distribution and consumption. There are important implications of information technologies for global economies in the form of strategic decisions and actions by major economic actors and institutions (Feeney and Grieves, 1994:64). The new division of international labour has marked a significant transformation of the global economy. Production of goods and services occurs in any country through the facilitation of technology. Production and global capital mobility have been decentralised.

3. THE FRAMEWORK OF ELECTRONIC COMMERCE

Traditional electronic commerce, which is conducted with the use of information technologies centering on electronic data interchange (EDI) over propriety value-added networks, is fast moving to the Internet. The Internet's World Wide Web has become the primary driver of electronic commerce, which has been vastly broadened and redefined by the use of the new medium.

Zwass (1998) sees electronic commerce as the sharing of business information maintaining business relationships, and conducting business transactions by means of

telecommunications network. In a business environment electronic commerce includes relationships and transactions between businesses, as well as corporate processes that support commerce within individual firms. Electronic commerce thus enables firms to merge interorganisational business processes with intraorganisational ones. Electronic integration, supported by electronic data interchange and other information technologies, reduces time and space for firms, and improves firms' competitive opportunities. Electronic integration has led to dramatic shifts in the definition of a firm, with the emergence of virtual companies, whose capability to deliver products to the market are defined largely by their ability to organise and maintain a network of business relationships, rather than by their ability to manufacture a product or deliver a service (Zwass, 1998:2). Extensive business networks have been formed by relying on electronic integration (Quah, 1999:9).

Electronic commerce has emerged from the convergence of several major information technologies and business practices. Among the principal technologies which have enabled electronic commerce are as follows,

1. Computer networking and telecommunications
2. Client/server computing
3. Multimedia, particularly hypermedia
4. Information retrieval systems (IRS)
5. Electronic data interchange (EDI)
6. Message handling and workflow management systems
7. GroupWise and electronic meeting systems
8. Public key cryptography
9. Internet

Given the above-mentioned tools, electronic commerce is however embodied in the Internet. The Internet offers an open platform for electronic commerce, removing long lead times, asset specificity, and bilaterality of electronic commerce based on the traditional proprietary electronic data interchange (Zwass, 1998:3).

3.1 HIERARCHICAL LEVELS OF ELECTRONIC COMMERCE

Zwass (1998) describes three levels of electronic commerce, which provide its analysis. These are as follows,

1. Infrastructure

This comprises the hardware, software, and telecommunications that are deployed to deliver functionalities such as the World Wide Web over the Internet, or to support electronic data interchange and other forms of messaging over Internet or over value-added networks.

2. Services

These are messaging and services that enable the finding and delivery of information, including a search for potential business partners, as well as the negotiation and settlement of commercial transactions.

3. Products and structures

This is a direct provision of commercial information-based goods and services to consumers and partners, intra and interorganisational information sharing and collaboration, and organisation of electronic marketplaces and supply chains.

The foundation of technological infrastructure is the network of wide-area telecommunication networks. Deploying both guided (such as fibre optic and coaxial cables) and wireless transmission media (such as the satellite microwave and radio) under computerised control, these networks span the globe (Zwass, 1998:5).

This level thus shows that electronic commerce is inherently global. However, there are major differences in national and regional development of electronic commerce infrastructure, as well as in the national policy of telecommunications. There are also government monopoly controls of telecommunications in various countries, which limit telecommunications development, and in turn impose high costs to such infrastructure. Inadequacies of telecommunications infrastructure in many developing countries make it

impossible for those countries to take part in the benefits of electronic commerce and perpetuate their underdevelopment (Dutta, 1997:79).

The Internet has become the vehicle of electronic commerce since the invention of the World Wide Web, which serves as a principal means of sharing information. It serves as a medium for presentation, distribution, and user-based sale of passive or active (in the sense of software) information objects (Zwass, 1998:6). It can be seen that Internet among other infrastructure facilities plays a significant role as a first level entity of electronic commerce.

The level of services consists of a provision to secure messaging and of enabling services for electronic commerce. Secure messaging for commercial transactions processing has to feature confidentiality, message integrity, authentication of parties involved in commercial transactions, and non-repudiation by either party (Bhimani, 1996:31). Security in transactions still remains a fundamental obstacle to electronic commerce. Principal messaging services include electronic data interchange, electronic funds transfers (EFT), and e-mail. Voice messaging and telefacsimile are also available and have high potential as business initiatives when placed on the Internet (Zwass, 1998:7). Firms have to respond rapidly to consumer demands in order for them to be competitive.

Products and structures of electronic commerce consist of consumer-oriented commerce, business to business commerce, and intraorganisational business. Electronic commerce is thus mostly applied to consumer-oriented commerce. Zwass (1998) mentions shopping, banking and stock brokerage accompanied by on-line advertising as products offered in consumer-oriented commerce. Zwass (1998) also acknowledges that the intended audience for this market has not reached critical mass, although immense potential of this segment is driving much interest in electronic commerce.

Business to business commerce is an important category of electronic commerce application. Zwass (1998) sees potential of expansion in this category as electronic commerce grows.

The fastest growing area in this level of electronic commerce is the intranet- and extranet-based information sharing and collaboration. Intranet enables accessibility of the organisational database and data warehouses, and dissemination of information on Web pages. More active uses of intranet are being developed and include on-line collaboration on common projects by working on electronic documents and communicating via videoconferencing.

Electronic commerce takes place mainly at the electronic marketplaces and where there exist electronic hierarchies that facilitate business relationships and transactions between firms. Marketplaces are created to facilitate transactions over telecommunication networks between consumers and supplies. On the other hand, Leer (1996) defines electronic hierarchies as long-lasting supplier-customer relationships and between firms. These are maintained with telecommunication networks and are coordinated largely by management rather than by market forces.

The third level of electronic hierarchies shows that the spread of electronic commerce is said to alter comparative advantage between hierarchic-based and market-based coordination, and various ways of structuring the market.

3.2 ELECTRONIC COMMERCE AND INTERNATIONAL TRADE

The direct use of electronic commerce in international trade has been limited. This is due largely to the extremely uneven distribution of access to facilities. Security of information has also contributed to the limited use of electronic commerce in international trade. This has made countries to be reluctant to take part in trade via electronic commerce.

Electronic commerce enables suppliers to spread information about their products to a far greater number of potential buyers at a reduced cost. Suppliers do not require to be physically located next to their markets, but can access them through electronic communication means. Buyers will equally have a wide choice of suppliers of products which they need. Many services can be offered without being physically present but

through electronic means. Electronic commerce has had an effect on import duties. International trade conducted through electronic commerce is duty-free. Goods and services that are sold through the media of cyberspace are not subject to trade duties (UNCTAD, 1999:51). However, this has resulted in losses on import revenue incurred by trading countries.

Electronic commerce influences not only the way in which traditional goods and services are transacted, but also raises prospects of digitalisation of a number of products. Those prospects alter the notion of comparative advantage and thus compel a rethink of economics of location, which in turn affects the direction of trade (UNCTAD, 1999:45).

3.3 EFFECTS OF ELECTRONIC COMMERCE ON INDUSTRIES

Electronic commerce is an Internet application, which runs on an infrastructure composed of computers, software and communication systems. It also uses intranet's key infrastructure applications such as the World Wide Web, the browser and e-mail. Technology advancement has made it relatively cheaper to trade using electronic commerce. This is supported by a decline in prices of different computing elements and the overall mainframe. These falling prices have enabled firms to switch to new information and communications technology, allowing them to engage in electronic commerce (OECD, 1998:57). Fibre optics technology, radio and satellite transmissions have caused significant price declines in communications costs. A decline in prices of computing elements and other technologies has had a positive effect on production costs of businesses that apply electronic commerce, though this has been extraordinary to ascertain (OECD, 1998:58).

Changes in firms' cost structure affect competitiveness of existing firms and their incentives to enter new markets. Most firms that have adopted electronic commerce tend to bypass traditional barriers to entry in various markets. In terms of stimulating competition, the impact of electronic commerce has been the emergence of new entrants in product markets where electronic commerce has dramatically changed the sector's competitive dynamics (OECD, 1998:72). The biggest competitive challenge comes

largely from new businesses that provide digital services at possible lower cost than traditional businesses. Firms' relative cost structure and the degree of domestic as well as foreign markets contestability, contribute to determining firms' business strategies and competitive behaviour.

4. SUMMARY

The aim of this chapter was to give a brief overview of electronic commerce and its influence on the information economy. Electronic commerce is now made as an ideal means to conduct economic and commercial transactions. This chapter highlighted the point that electronic commerce is made possible by the existence of the Internet. The expansion of Internet globally has made the use of electronic commerce possible. The Internet has penetrated economies at such a speed that UNCTAD (1999) estimates the number of users to increase by fifty thousand on a daily basis. This rapid increase in number is taking place largely in developed countries such as the United States of America, the United Kingdom and Canada.

Electronic commerce is defined in various ways. It is defined as an activity that encompasses all business that is conducted by means of computer network. This chapter has identified the difference between electronic commerce and traditional commerce as the exchange and processing of information. Information is conveyed primarily via digital communications networks and computer systems.

The general economy was sighted as exhibiting signs of transition towards an information based economy. Trade in non–physical goods is rising rapidly, which is a characteristic of an information based economy. Non–physical goods that are traded mostly are knowledge and services. The information economy is facilitated by the application of information and telecommunications technology, which has changed the constraint of time and space, shifted geographical and industrial borders. This type of technology has made it possible for the world countries to share information, limiting time lags in the process. On the other hand, Internet as an advanced technology is the primary driver of

the information economy through electronic commerce. Three hierarchical levels of electronic commerce were identified as infrastructure, services and products as well as structures. Infrastructure was defined as comprising telecommunications that are deployed to deliver functionalities such as the World Wide Web over the Internet, and software as well as hardware. Services are messaging services that enable the finding and delivery of information. Products and structures are a direct provision of commercial information-based goods and services to parties involved in electronic business transactions.

There has been a limited use of electronic commerce in international trade due largely to an uneven access to technological facilities. Information security has also been sighted as a factor that contributes to limited use of electronic commerce. Electronic commerce has had an impact on import duties, whereby trade through it is not affected by import duties. This situation has however resulted in losses on import revenue incurred by countries that trade through electronic commerce. Electronic commerce has had an effect on industries through falling prices of different computing devices that are used to transact electronically. OECD (1998) has noted that the falling prices have enabled firms to switch to new information and communications technology, allowing them to engage in electronic commerce. Most firms that have adopted electronic commerce tend to have the ability to bypass barriers to entry in various markets. The emergence of firms which use electronic commerce has stimulated competition in the product markets. Electronic commerce looks set to take off in many parts of the world.

CHAPTER 4: A COMPARATIVE ANALYSIS OF ELECTRONIC COMMERCE IN THE US AND OECD COUNTRIES

1. INTRODUCTION

The aim of this chapter is to do a comparative analysis of electronic commerce in the United States and the OECD countries, explore its cross-sectoral influence, its developments, the legal framework and its development in South Africa. Electronic commerce is the 'catch-all' phrase for many advances in technology centred on the Internet.

2. HISTORY AND TRENDS OF ELECTRONIC COMMERCE

A few decades ago business used (and still does) to take place electronically. The main electronic business activity was financial and commercial transactions, which included electronic data interchange, credit and debit card activities, and electronic funds transfers. This form of electronic trading required pre-existing relationships between businesses, expensive and complex custom software, and dedicated communication links. To effect transactions required strictly compatible equipment. Internet and EDI date back to the 1960s, when the Internet was largely confined to research laboratories and some educational institutes, while EDI became the medium of large corporations through Value Added Networks (VANs). The breakthrough on the Internet came when the first application e-mail was launched in 1972, with the first public demonstration of the new network technology, ARPANET. This led to the development of a new version of the protocol to meet the needs of an open architecture network environment known as Text Control Protocol/Internet Protocol (TCP/IP). The eventual widespread use of the Internet became possible by the development of the World Wide Web. This development has seen a tremendous increase in the use of electronic commerce across the globe. This then leaves a challenge to developing and under-developed countries that do not have access to the Internet.

These developments can be attributed to the concept of globalization and a process of transformation from an industrial era to a post-industrial era characterized by a

knowledge-based economy. Distances as a barrier on border influence are becoming a thing of the past, and possibly the reduction of costs affecting businesses. Globalization enhances both inter- and intra-industry trade, as well as opening markets in developing economies for developed nations. Others argue that opening global markets largely benefits already developed nations because they set the pace on innovation and new products, whilst the developing economies are trailing behind and leapfrog in a vain attempt to catch up. More work on electronic commerce has so far been done by the Organisation for Economic Co-operation and Development and the Commonwealth. The Organisation for Economic Co-operation and Development convened a major conference on electronic commerce in Ottawa, Canada in October 1998.

3. DEVELOPMENTS IN THE UNITED STATES

At present, the United States is the major player in electronic commerce, and is typically credited with about four-fifths of worldwide e-commerce activity. Studies also show that there is a bigger number of adults who access the Internet in United States than any other OECD country (OECD, 1998). The US is leading in the number of adults accessing the Internet followed by Japan and Canada. Internet viewing by adults in the US comprises 55% of adult viewing by member states of the Organisation for Economic Co-operation and Development, which shows the attitude of United States government and its citizens towards the advancement of technology, and their domination over the world states in this regard. African states, particularly South Africa are not visible at all, which means that only a tiny fraction of adults access Internet.

The United States lead in electronic commerce is expected to decline to approximately two-thirds to three quarters of the world's total e-commerce activity. This will be due to more countries advancing sharply to trading on-line. Also, Europe may see a user-led demand pull, in contrast to the technology push thought to be characterizing the United States situation.

Figure 1 below depicts the use of the Internet by adults in selected Organisation for Economic Co-operation and Development countries.

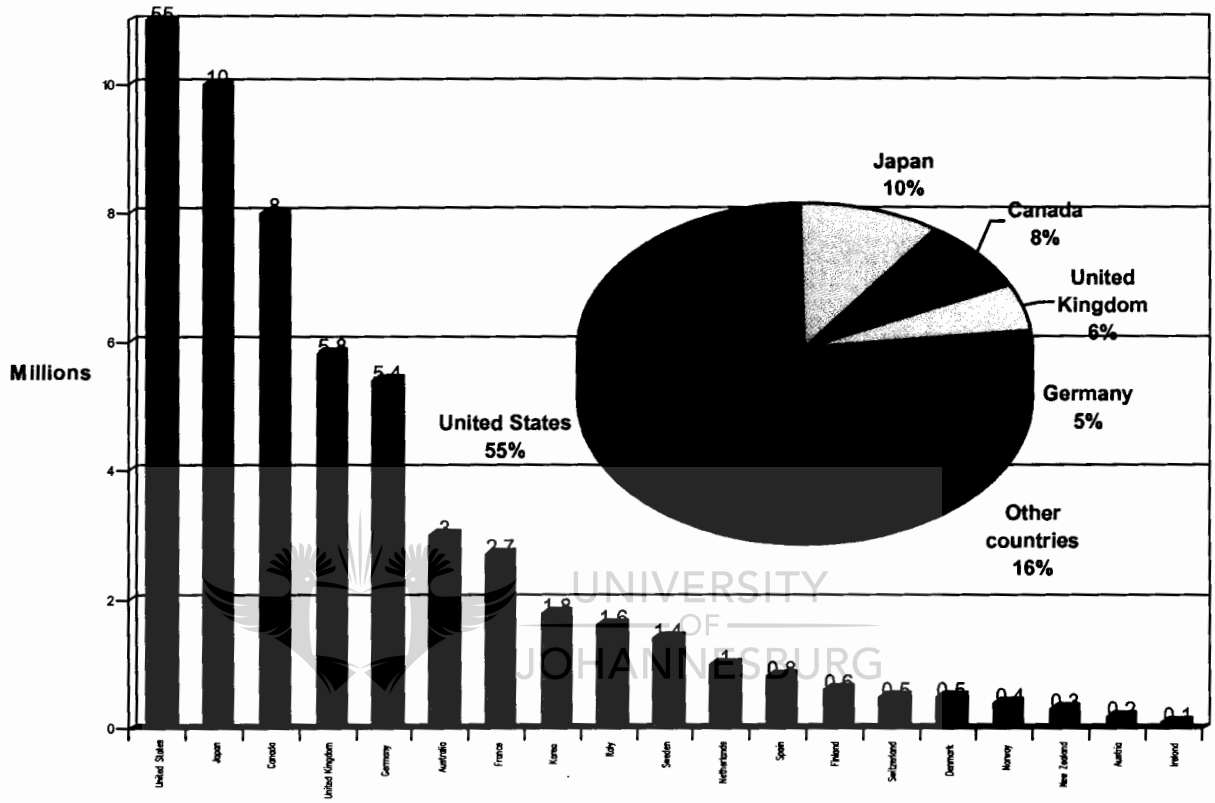

Figure 4.1: Adults accessing the Internet, selected OECD countries
(Source: OECD, 1997:78)

The United States is developing the Global Information Infrastructure which is seen as a global marketplace, to enable it to reach every corner of the globe on trade (Clinton & Gore, 1998:3). This development is based on the following principles:-

3.1 PRIVATE SECTOR LEADERSHIP

The private sector is leading the development of electronic commerce and the Internet, though the government assisted with bulk financing. Innovation, expanded services, broader participation, and lower prices will arise in a market-driven arena, not in an environment that operates as a regulated industry. The American government is

encouraging industry self-regulation whenever appropriate, and supports all initiatives and efforts of the private sector to develop mechanisms to facilitate the successful operation of the Internet and electronic commerce.

3.2 GOVERNMENT TO AVOID UNDUE RESTRICTIONS ON ELECTRONIC COMMERCE

The government has and will continue not to intervene when business transactions on goods and services are effected across the Internet. The government is of the view that intervention and unnecessary regulation of commercial activities will distort the development of an electronic marketplace by decreasing supply and raising the cost of goods and services for consumers globally. The United States government has further undertaken to refrain from imposing new regulations, bureaucratic procedures, or taxes and tariffs on commercial activities that take place via the Internet.

3.3 MINIMUM GOVERNMENT INTERVENTION

Government will intervene to support and enforce a predictable, consistent and simple legal environment for commerce. In some areas it will be necessary for government to play a minimal role where consumers have to be protected.

3.4 GOVERNMENT TO RECOGNISE INTERNET UNIQUE QUALITIES

The genius and explosive success of the Internet can be attributed to in part to its decentralized nature and its tradition of bottom-up governance (Clinton & Gore, 1998:3). This thus calls for minimal intervention from government on business in the electronic marketplace.

3.5 ELECTRONIC COMMERCE TO BE FACILITATED ON GLOBAL BASIS

The Internet is emerging as a global marketplace. This calls for the legal framework supporting commercial transactions on the Internet to be governed by consistent principles across the nation and international borders that lead to predictable results regardless of the jurisdiction in which a particular buyer or seller resides.

The use of electronic commerce in the United States keeps on rising, especially among businesses which use it to improve operating processes. Almost forty percent of United States companies do business on the Internet. For businesses in the US, e-commerce means reduced inventory loads, lower cycle times, more efficient and effective customer service, lower sales and marketing costs, and new sales opportunities (US Government 2nd Annual Report, 1999:4). The automotive industry recently took an initiative to embark on on-line sale. Ford Motor Company, in partnership with Oracle Corporation, announced plans to develop an automotive electronic business supply chain to streamline its $80 billion in annual purchasing transactions with its more than 30 000 suppliers and $300 billion extended supply chain (US Government 2nd Annual Report, 1999:4). Ford expects to reduce purchasing costs and increase its operating efficiency through an integrated Internet supply chain system. Some companies have completely re-engineered their businesses to take advantage of improvements in productivity made possible by electronic commerce.

4. ELECTRONIC COMMERCE US PRESIDENTIAL DIRECTIVES

The United States government took it upon itself to ensure rapid growth of electronic commerce by making it policy in the form certain directives or policy instructions which needed to be carried out. This resulted in new technology being developed to make the Internet faster and easy to use. The increasing availability and use of new Internet access devices is a key technological development underlying the growth of electronic commerce. The following are electronic commerce directives:

4.1 HIGH SPEED INTERNET ACCESS

The Secretary of Commerce was entrusted with the task of encouraging the deployment of advanced telecommunications capabilities for all American citizens, while on the other hand preserving a competitive free market that exists for the Internet and other interactive computer services (US Government 2nd Annual Report, 1999:13). This would be done in consultation with the Federal Communications Commission. More emphasis was put on broadband access, which is critical to high-speed services.

The government championed competition as the basic means of achieving widespread deployment of broadband services. This is also provided by the Telecommunications Act of 1996, which also provides for accelerated deployment of advanced telecommunications network in a competitive market. Monopoly telecommunications markets were opened up to allow for emergence of new competitive players. This breaking up of monopolies assisted in the investment and development of high-speed broadband networks. This has ultimately led to an increase in the use of Internet by American citizens.

4.2 CONSUMER PROTECTION

The United States has undertaken to foster consumer protection when engaging in electronic commerce. This has and still is being done through consultations with other world bodies such as the World Trade Organization and the Organisation for Economic Co-operation and Development. This is hoped to achieve global consumer protection through laws that will be binding internationally. The United States has together with the Organisation for Economic Co-operation and Development introduced guidelines, which the Organisation for Economic Co-operation and Development adopted to enforce on-line consumer protection. These were implemented in the latter part of the year 2000.

4.3 INTERNET IN DEVELOPING COUNTRIES

The United States government launched an Internet for Economic Development Initiative 1999 to spread the Internet and e-commerce in developing countries. In South Africa the IEDI co-ordinates its development function with the USAID. The goals of this initiative are to encourage the creation of a pro-competitive policy and regulatory environment where the Internet and e-commerce can flourish; ensure the deployment of advanced information infrastructure to remote and urban areas through collaboration with multilateral organizations, non-governmental organisations and the private sector; provide education and training to local entrepreneurs, knowledge workers, policy makers and regulatory bodies; foster the use of specific Internet applications such as micro-e-commerce, telemedicine, distance education; and improved access to government services (US Government 2nd Annual Report, 1999:18).

Some work has been done in South Africa. There is an Emergency Medicine training p partnership between Howard University Medical School and the University of Transkei hospital. The USAID has supplied Internet training equipment to the Transkei University Hospital.

5. SMALL BUSINESS AND THE INTERNET

The government together with the Small Business Administration has developed strategies to help small businesses overcome barriers to use the Internet and electronic commerce. Training has been provided for government employees who have regular contacts with small businesses on use of Internet. Goods and services that are regularly consumed by government have been made available on the Internet for the small businesses to access. Other measures to educate small businesses on the use of Internet have been initiated. Some of the initiatives taken to encourage small business participation in e-commerce are the development of Virtual Trade shows via the Internet. Small businesses are able to access local and international business leads. The Small Business Administration has created a number of on-line services for small businesses and is developing an e-commerce course for them. The course includes a variety of links to both government and non-governmental sources.

6. THE CROSS-SECTORAL INFLUENCE OF ELECTRONIC COMMERCE

Electronic commerce influences the key sectors of the economy, that is, business, consumers and government. Studies have shown that the volume of electronic commerce business transactions is between business and business, followed by those between business and consumers, and lastly between government and consumers.

6.1 BUSINESS-TO-BUSINESS ELECTRONIC COMMERCE

The Internet has changed the way companies do business. Companies do business with electronic commerce which improves their operating processes. For businesses, electronic commerce means reduced inventory loads, lower cycle times, more efficient and effective costumer service, lower sales and marketing costs, and new sales opportunities across the globe. Business to business electronic commerce is growing

rapidly, and is estimated to consume approximately $1.3 trillion by 2003, which is 70 to 85% of the total share of e-commerce (OECD, 1999:6). It is also expected to have a major impact on firms, markets, employment and growth, due to the effects on the organization of business flows and processes, transaction costs, creation of new business models, and changes in the boundaries of firms across sectors.

Market size is projected to double in every two years for the next several years for business-to-business electronic commerce transactions. However, the measurement of business-to-business electronic commerce is fraught with problems. Definitions and methodologies still vary widely across available studies, and there is as yet no internationally agreed definition of e-commerce (OECD, 1999:5).

Below is a figure which shows projected growth of Internet-based business-to-business electronic commerce transactions in the United State and Japan. The monetary value of transactions is in United States currency.

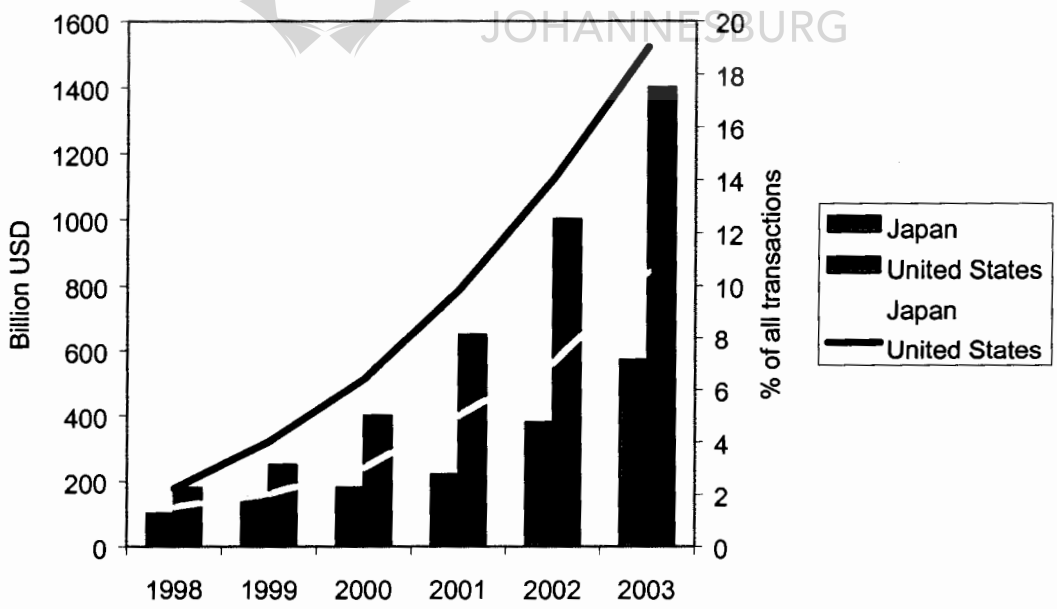

Figure 4.2: Projected growth of Internet-based business-to-business electronic commerce in the United States and Japan, 1998-2003
(Source: OECD, 1999:6)

E-commerce business-to-business transactions amounted to approximately $195 billion in 1998. A 100% increase from 1998 in revenue generated by these transactions is projected this year. In the years 2002 and 2003 respectively growth of $1000 and $1400 billion is projected in the US. Japan generated close to $100 billion from e-commerce business-to-business transactions in 1998. Growth projections in generated revenue for the years 2002 and 2003 are $400 and $600 billion respectively, far below the US (OECD, 1999:7). This shows a high level of electronic commerce conscientisation in the US business sector.

South Africa still treads far behind the two countries, though growth is projected over the years because of developments in technological infrastructure that is found in the country. New research by BMI-TechKnowledge, the South African affiliate of the Independent Development Corporation, shows that 26% of large companies, 20% of medium-sized companies and 16% of small companies in South Africa are conducting some commerce over one or more electronic networks. This promotion, as stated by BMI-T, is expected to grow to 38%, 31% and 28% respectively for the mentioned categories of companies by the year 2002.

Business-to-business electronic commerce is developing across both manufacturing and services, and is projected to grow strongly first in developed states. This segment (business-to-business) is the most important part of total electronic commerce. Media Africa (1999:1) projected expenditure of R2.7 billion in Internet-generated purchases in 1999, R4 billion being expenditure in business-to-business e-commerce. This is evident of a transition to e-commerce by South African sectors (consumer and business). There was a dramatic rise of business-to-business e-commerce sales from R15 million in 1997 to R207 million in 1998 (Media Africa, 1999:2).

Data for the Organisation for Economic Co-operation and Development member states show that business-to-business Websites represent only a fifth of total sites whose majority is computer-related, with professional services accounting for a sixth of business-to-business sites. A bulk of business-to-business e-commerce transactions

comprises hardware and electronic equipment. These transactions also dominate other sector transactions such as business-to-consumer and government-to-consumer electronic commerce transactions.

Business-to-business electronic commerce is not new in developed countries. Business links have existed in the form of EDI supplied by VAN operated over telephone lines. There are two other forms of business-to-business e-commerce, which are; deployment of Intranets, which streamline the firm's internal business functions and extension of a firm's Intranet to select business partners (extranets). The effect of these electronic commerce forms is on transaction costs, organizational structure, employment and quality of product. Further more, there are factors which act as an incentive for industries to adopt electronic commerce. These are; a reduction in transaction costs and an improvement of the quality of products, firms' defensive reaction to competitors engaging in electronic commerce, and insistence by large businesses that all their suppliers link into their e-commerce system as a condition of doing business with them (OECD, 1998:10).

6.2 BUSINESS-TO-CONSUMER ELECTRONIC COMMERCE

Within the business-to-consumer segment, the leading activity or transaction is entertainment. This category is led by adult entertainment (including pornography), online games which are frequently of a violent nature, and gambling. The products sold through electronic commerce are further divided into tangible and intangible products. Entertainment is classified under intangible products which make the bulk of electronic commerce sales. Tangible products that are popularly sold through electronic commerce are books (mainly from Amazon.com), wine, flowers and computer equipment. Other most common intangible electronic commerce transactions between business and consumers in South Africa are financial services and banking transactions. Sales of automobiles and other tangible goods are now frequently undertaken on-line. The known services are *www.aucor.co.za and www.bidorbuy.co.za*. Most South African companies have Websites accessible to consumers. The vehicle manufacturing company, DaimlerChrysler SA, has opened a Website for costumers to buy new cars on-line. Board

of Executives Securities (BOE) is now into the electronic commerce fast lane as the first South African financial institution to use WAP. It enables clients to access their site via cellphones and provides share prices, news about the JSE, currency rates and SA and world market information. The business-to-consumer segment of electronic commerce is very sector-specific. High growth in use of electronic commerce by this segment is predicted. Sectors such as banking, insurance and other consumer goods will become more actively involved in electronic commerce. Many of these use proprietary software or networks to provide services to selected clients.

The business-to-consumer electronic commerce segment faces barriers such as concerns about security of payment, potential fraudulent traders, privacy of personal data, difficulty and expense in accessing electronic commerce traders. Costs of obtaining the electronic commerce device (computer) and subscription to and use of Internet facilities are high for consumers. These may inhibit the use of electronic commerce by large numbers of consumers. A few percentage of the South African population has access to Internet in their households, whilst part has access to the facility at workplace. A larger section does not have access at all. For those who are Internet literate, navigation can be a challenge. On the hand, frequent use of electronic commerce can be 'boosted' by the convenience it offers, rather than waiting in long queues in supermarkets, and time that will be saved there-of.

6.3 GOVERNMENT-TO-CONSUMER ELECTRONIC COMMERCE

In general, governments have been slow in embracing electronic commerce than has the private sector. Electronic commerce has a significant role to play in the public sector; for instance, accessing much needed public information to citizens (consumers of government services). Many types of government transactions with consumers of government services are possible through electronic commerce. Governments can promote electronic commerce by implementing advanced information technologies to support and manage their official activities. This will in turn improve the quality and cost-effectiveness of their operations, and help in establishing a foundation for development of information communications technology applications in the business

sector. Electronic commerce will benefit the public sector by automating labour-intensive operations, saving money and time on data-oriented tasks, and thus freeing government officials to attend to more value-added functions. Democracy may be fostered by way of citizens participating in some government processes. Easy access to government information may lead to effective delivery of services, as government will have timesaving means to address issues affecting delivery.

Government is one of the largest consumers of goods and services. The procurement process (which government uses to obtain supplies of goods and services) is more time-consuming because it is done manually and involves a lot of paper work. The sooner procurement is done electronically, the lower the cost in rand value and time will the government incur. Another important area where government could introduce technology for the benefit of the citizens is in education.

The South African government has made certain initiatives to use information technology for most of its programmes. These include establishment of the Universal Service Agency telecentre projects; TradeNet, liaison with the Department of Trade and Industry to promote international trade opportunities via e-commerce; the Department of Labour Electronic One Stop Service Infrastructure, aimed at achieving single-window delivery of services to consumers of those services; and the Department of Welfare's effort to re-engineer its welfare payment system. These and other initiatives reflect the way in which government is responding to the challenge of using enabling technologies and new business paradigms to improve its service delivery and to create enabling environments (Department Of Communication, 1999:56).

The goals of government in taking initiatives on electronic commerce would be to increase access by allowing citizens and businesses to electronically transact government business even from remote areas; to co-ordinate, integrate, and proliferate existing and emerging electronic commerce technologies; to foster co-operative developments of electronic commerce technology between public entities and private sector (public-private partnership); and to identify and share information on new electronic commerce

technology. The Department of Communication has involved major stakeholders, including the private sector, in its process to write a Green Paper, which will subsequently produce a White Paper on electronic commerce. The challenge which the government is faced with is assisting in education and training of consumer in using modern technology to access services it provides. Vast majorities of South Africans cannot use a computer, let alone to surf on the Internet. The Department of Communications notes that Small, Micro and Medium Enterprises are one business sector which government has prioritized as an entity that has a potential to reduce unemployment in the economy. This sector has to be educated and trained in modern technology, and be resourced to ensure realization of employment reduction.

7. ELECTRONIC COMMERCE DEVELOPMENTS IN SOUTH AFRICA

A process of devising a proper legislation as a basis for effecting electronic commerce in South Africa is in place. The government has tasked the Department of Communications to lead the process, which has involved a wide range of players that will be affected by e-commerce. A recent report that was recently published by Media Africa (1999), an Internet researching group, shows that there was a high growth in the number of users since the Internet became commercially available in 1994. The year 1999 experienced a slowing down of the growth in the number of Internet users. The report further revealed that this growth fell below the 100% mark to 86%. At the same the 1 million mark which was projected for 1998 was achieved (Media Africa, 1999:56). The findings in the report do have an impact on electronic commerce through the Internet. This would serve as a pointer as to the change in the number of electronic commerce transactors, this being against the backdrop that not all Internet users are engaged in electronic commerce.

Electronic commerce is hoped to contribute significantly to economic development and the social upliftment to South African citizens. Initiatives to develop multi-purpose community centres in disadvantaged communities (and in rural areas) are being made by the private sector and government, this being one way of accessing information and services to them. These efforts are being hampered by the required large technological infrastructural investment and costs of such investment. The presence of technology

widens the gap that exists between the rich and poor, and already abnormal divide due to the previous political order.

Electronic commerce is now being applied in the arts industry to sell pieces of traditional and modern African art through the Internet. Various art groups have developed Websites, which open access of on-line art to international buyers, for this purpose. Another widely used facility is on-line banking. The four major banks in South Africa; ABSA, First National Bank, Nedbank and Standard Bank have developed Websites to enable their customers to have easy access to facilities they offer. The number of customers who use on-line facilities is increasing regularly.

7.1 VIEWS OF DIFFERENT ECONOMIC SECTORS ON ELECTRONIC COMMERCE

Interviews were conducted with nine major players in electronic commerce. These are government sector, private sector, Pretoria Metropolitan Council, South African Agricultural Union, South African Reserve Bank, Consumer Institute of South Africa (an NGO), University of South Africa, Congress of South African Trade Unions and the Small, Micro and Medium Enterprise sector. These organizations had their differing views on the effects of electronic commerce in the South African economy and the society.

The University of South Africa, and most other local universities, has begun to apply modern technology for effective learning. The university will not necessarily use or apply electronic commerce as business organizations would, but will utilize the necessary technology which will help learners to get effective education, and other individuals who would want to get information they require from the university even if they are far away from it. Such technology will help in intervarsity communication where ideas in research or any academic developments are shared without any boundary impediments or traveling costs being incurred. UNISA's understanding of electronic commerce is average and there are plans ahead to fully implement electronic means of communicating whatever information that may be required by individuals and other institutions that are

interested in what it has to offer. UNISA and some of academic institutions have introduced on-line or electronic education. The issue is then the number of students or individual who have access to Internet facilities, who would be able to access all information they want from the university, or communicate with lecturers responsible for various subjects which are of interest to students. The University of South Africa as a distance-learning institution would require an extensive use of technology to enable it to communicate and lecture its registered students who reside outside South Africa.

When asked of impending electronic commerce effects on daily business, the representative (UNISA) stated that it would be business as usual in the short-run with no major disturbances. In the long-run some of the internal processes will have to be replaced by technology instead of manual labour, which meant that some jobs would be shed when the institution started to fully implement electronic methods. The university cited a few risks in implementing electronic commerce in learning institutions. One is foreseeable job losses in industries in the long-run when electronic commerce is fully implemented. The remedy to that would be re-training workers in modern technologies that are being used for electronic commerce. Book sales will drop due to the fact that information is now obtainable on-line. The most to be affected by this situation would be academics who thrive on writing books for academic purposes. Electronic education, as another risk, does have an effect on the comprehension of the syllabi content by learners. When academic information is easily obtainable it makes learners not to read and memorize enough, thus making them to rely entirely on electronic referral and limit their understanding capabilities. The university gave its full backing and confidence on the country's legal institutions when asked on the possibility of protection being offered by law to electronic commerce participants.

Universities perceive electronic commerce and the Internet as an opportunity to access international sources of information which can be valuable to use. Academic institutions in every country can communicate with each other any-when without having to travel to those countries. Internet is seen as more effective and convenient than a telephone. Access to for instance reading material which is not available in South Africa will be

made easy and speedily through electronic commerce. Institutions and individuals that are in business will benefit a lot from electronic commerce by way of opening new markets for themselves. Even emerging enterprises will have wider markets to trade and learn innovative ways of running their businesses. This will also help businesses to reduce their fixed costs as trade takes place using a computer even in a small office. Hiring a big warehouse to run a business will be a thing of the past. What will happen is traders will link with suppliers who will supply goods and services to customers once transactions have taken place electronically, and production will be per transaction and on demand.

The University of South Africa will in the near future incorporate electronic commerce in the business curriculum as a subject to teach students but will not provide training to potential businesses for instance Small, Micro and Medium Enterprises. The university does not play a role in the provision of training to other e-commerce players, but expects to develop its academic business through using modern technological ways of educating students. The institution sees South Africa as being able to meet all challenges that are posed by electronic commerce, given the level of infrastructure that the country has. An issue seen as fundamental to electronic commerce development in South Africa is the legal framework which government is working towards putting in place. And the economic sector which will benefit a lot is the service sector. The university also foresees a short-run loss of jobs when electronic commerce starts to take a full swing, and job stability in the long-run after more resources have been channeled to a skills retraining process that will have to take place. Realization of this process will see South Africa advance like developed states to become a "service station" for the rest of Southern Africa. Electronic commerce on the other hand will exacerbate inequalities in South Africa between the rich and poor, and among nations worldwide.

The South African Chamber of Business was interviewed on its comprehensive knowledge of electronic commerce, as an overall body that represents business interests. The South African Chamber of Business as a chamber does not apply electronic commerce but members do. Though, the chamber sees a relation between electronic

commerce and unbundling by corporates to focus on their core businesses. This they say is necessary because the Internet forces corporates to be more concerned and attentive to their clients. The issue of distribution and supply forms a critical part of the chain, because electronic commerce requires that a supplier and a distributor be linked in order to complete the business transaction between a consumer and the seller. This critical part is an advantage to small business because it offers them an opportunity to benefit from the business transaction. On job losses, the South African Chamber of Business echoes the same view as other institutions that were interviewed that no maximum job loss will occur due to implementation of electronic commerce except in other sectors such as services. Emphasis is put on training and retraining to upgrade skills necessary to cope with the demands of electronic commerce. The advantage that will be derived from electronic commerce is timeous delivery of goods and services and the speeding up of the process of interaction between people. Electronic commerce will impact on communications, productivity and skills upgrade. The economy will experience growth and wealth creation. Finally, the chamber was of the view that in South Africa and all around the world, very few businesses have grasped the importance of electronic commerce, and further stressed the importance of participating in it.

Other institutions with the exception of the corporate sector, did not have all the necessary knowledge about electronic commerce, neither did they have the technology to 'play the e-commerce game'. Most of them except the Small, Micro and Medium Enterprise sector and the Congress Of South African Trade Unions agreed that electronic commerce opens up opportunities and will lead to economic growth once fully implemented. The small business sector felt that it was left behind of developments. Some of the reasons cited are, this sector severely lacks resources for training and development, and sustenance; the market is not wide for it to run a business profitably, the issue being competition with big business. On the other hand the Congress Of South African Trade Unions as an organization representing labour, is concerned about the shedding of jobs by the economy despite a relative percentage growth. Electronic commerce is perceived as deepening the wedge between rich and poor when implemented haphazardly without investing resources to upgrade skills and train workers

so that they can cope with demands of electronic commerce. Massive job losses will exacerbate poverty levels currently experienced in the economy. Electronic commerce is also seen as a new form of colonizing and policing poor countries by rich countries in order to entrench dependence on them, and in turn further plunder their resources. It is also seen as a strategy used by rich countries to dump their technology in poor countries and make them buy it with an intention of expanding their markets. The labour organization puts more responsibility on the private and government sectors for training and upgrading of skills of workers to prevent massive job losses they may occur when electronic commerce gains momentum. This may enhance growth and wealth creation despite all negativities of electronic commerce. The Congress Of South African Trade Unions further acknowledges the fact that through the process of globalization, poor countries cannot escape electronic commerce and survive in a closed economy, hence the need and importance of government and the corporate sector to invest resources in training workers on skills necessary for the modern economy. The organization echoed the government sentiment of enabling Small, Micro and Medium Enterprises to play a meaningful role in the economy and to the process of legislation of electronic commerce. This they say will absorb the jobless who are skilled run small businesses and in turn employ others. The Congress Of South African Trade Unions does not see job-creation through Small, Micro and Medium Enterprises and poverty reduction as the only objective, but more to that is South Africa being seen as one of the major players in the global arena and a representative of African interests among rich countries.

The South African Agricultural Union demonstrated its eagerness and knowledge of electronic commerce, and saw its necessity in agriculture. Also identified, were opportunities of open trade in agricultural products with other parts of the globe and sharing of vital agricultural information with farmers from other countries. The South African Agricultural Union has already established partnerships with some of the African states which have a common interest in agriculture, and has embarked on applying electronic commerce. The South African Agricultural Union has developed a Website.

More emphasis has been put on security on farms, as a result of a spate of attacks recently experienced by farmers. A partnership has been formed with DaimlerChrysler Germany which has developed an aerospace satellite for security. The South African Agricultural Union sees no loss of jobs in the short-run, as labour would still play an important part in the production process. Electronic commerce will enhance economic growth and wealth creation, though this requires strong partnerships with government and the private sector. It is through this partnership that farmers will acquire training and education on modern technology and new innovative ways of farming and get access to international markets once they have become competitive electronic commerce traders. Emerging farmers (black farmers especially) will be left behind if they do not get assistance through the partnerships. Such partnerships will ensure that the potential of the farming community if fully exploited.

The Consumer Institute of South Africa (CISA) is an organization that is looking at the interests of consumers, electronic commerce and its influence on the consumers being an issue of interest. The Consumer Institute of South Africa acknowledges that consumers do not have a full understanding of electronic commerce, given their backgrounds and historical orientations. A small percentage of consumers is well acquainted with computers and has access to the Internet at work and at home probably. A large section does not have access to the Internet, and some cannot even work through a computer at all. To the latter, electronic commerce is 'something that they do not want to try and apply'. The Consumer Institute of South Africa felt that a legal framework on which electronic commerce will based, is important, especially laws that will protect consumers when they enter into electronic commerce transactions. This requires the government and corporate business to invest resources for training and educating consumers on electronic commerce and the opportunities that it will avail. This will happen in schools where computer skills are taught at a younger age of a learner, and the introduction of electronic commerce in the curricula in universities and technikons. Currently, it said, consumers do not have confidence in electronic commerce until there is necessary training. The Consumer Institute of South Africa was asked about the future of South Africa with electronic commerce. The concern there of was the speed with which the

country was moving, leaving a majority of the population behind. This has created a wider wedge between the technologically skilled and the unskilled. Finally, the organization realized that once there was a general technological understanding and literacy, electronic commerce would benefit consumers by way of saving on time and costs, and avoid the risk of carrying large amounts of cash to do shopping.

The government sees electronic commerce playing a major role in the lives of citizens and the economy. Government's use of electronic commerce would be on effective and efficient service delivery and electronic procurement, which will be 'tailored' to be in the Small, Micro and Medium Enterprises' favour. At the same time, electronic procurement is seen as a more transparent way of utilizing taxpayers' revenue to consume goods and services by government. Electronic commerce is seen as an instrument to open a market for small businesses and creation of jobs. It will also assist government to access valuable information from governments of other countries speedily, and open access of South African markets to potential global investors. Currently, most government departments have created websites for anyone to have a view on their business. A blockage has been identified though, being lack of skills in modern technology (especially in electronic commerce) by most government officials and a lack of sense of urgency in understanding electronic commerce and the emergence of the information era. This will be addressed by training of officials and liaising with corporate business to share information on latest technologies. The government as a policy formulator, is responsible for policy frameworks which serve to protect players in electronic commerce, which is an initiative taken by one national department. The government is also a member of other international institutions whose interest is economic growth of their member states. It where issues such as electronic commerce are discussed and new ideas are deliberated upon.

The South African Reserve Bank does not participate in electronic commerce per se, but is in a process to implement electronic money. This type of money is defined as electronically stored monetary value on a technical device (either card-based or network-based) that functions as a prepaid bearer instrument, which can be widely used for

making payments or undertakings other than the issuer, with or without involving bank accounts in the transaction (SARB, 1999:5). The Bank will use its Act to protect consumers and businesses from fraudulent activities that may occur when transactions are effected. The Bank sees electronic commerce as assisting it in reducing time and risk to hold cash. This does not mean though that cash will be replaced by electronic money. The Bank has also undertaken to prevent any disruptions that may be caused by e-money on the economy, and will further ensure monetary stability and money supply to prevent inflation.

Below is figure 1 that depicts how different organizations that were interviewed understand electronic commerce, and their views about it. The diagram illustrates organizations' level of understanding of, opinions and participation in electronic commerce in the following categories:-

(1) to what extent will e-commerce play a role in poverty alleviation
(2) to what extent will e-commerce assist in SMME economic empowerment
(3) to what extent will e-commerce open global opportunities for local economic sectors will South Africa be able to meet the challenges and demands brought by electronic commerce
(4) is the legal framework which is being introduced by government going to provide sufficient protection to e-commerce players who engage in electronic business (either locally or with entities outside the country's boundaries)
(5) do participants in e-commerce have the necessary knowledge to start conducting business transactions
(6) will electronic commerce contribute positively to economic growth

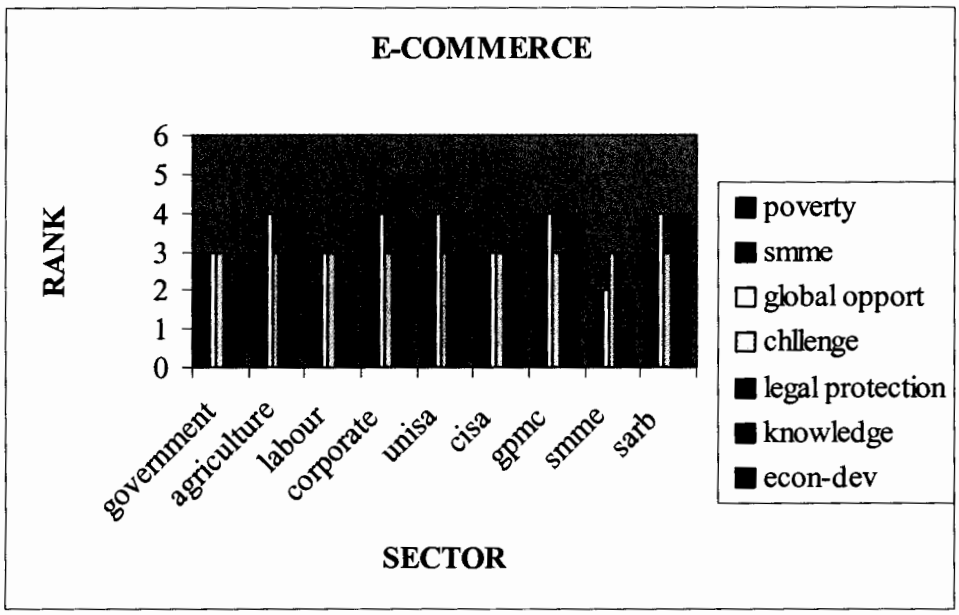

Fig. 4.3: Sector analysis based on economic and social variables

(Source: Unpublished/Own)

The vertical axis of the diagram shows the rank from a scale of 1 to 5, and horizontal axis shows all the economic sectors which are affected by electronic commerce. Poverty alleviation by electronic commerce ranked at a scale of 1 to 5 for all organizations. Organizations that showed optimism on the role of electronic commerce in poverty alleviation are the Reserve Bank, corporate sector and the Greater Pretoria Metropolitan Council, which ranked 4. These see electronic commerce as playing a significant role in this regard where information will be accessible to most communities including those in the rural and les developed areas. The information and multipurpose centres being establish in 'formally unreached' communities will ensure that such communities access vital information and opportunities, and utilize that appropriately to empower themselves economically and socially. The agricultural and consumer sectors, government and the academic institution felt that in the short and medium term electronic commerce will alleviate poverty on average, and ranked 3 on the scale. These organizations are of the view that poverty alleviation is a process which is on going, given its level which is affected by various socio-political and economic factors in South Africa. The Congress Of South African Trade Unions and the Small, Micro and Medium Enterprise sector were

not so optimistic about the issue. The Congress Of South African Trade Unions cited the constant loss of jobs and the economic imbalances that are still experienced by different classes in the society. There was a feeling that if labour-intensive jobs could be created, a reduction in retrenchments that are currently taking place, contribution of the corporate sector in skills development and a commitment to small business-corporate partnerships, and more government effort in open procurement opportunities for small businesses, electronic commerce could improve the country's poverty level because there would be opportunities for the disadvantaged communities. The Congress Of South African Trade Unions felt that significant private sector companies are not of South African origin, which makes them not to have 'a south African interest at heart' other than maximizing their profits and investing them at their countries of origin. The Small, Micro and Medium Enterprise sector felt disadvantaged and somehow left with little hope to play a meaningful role in the economy. This sector felt that electronic commerce would not reduce poverty levels especially in the disadvantaged communities because there is a low level of commitment from government and the private sector to introduce programmes to alleviate poverty. Rural communities who need help most are neglected. There are no sources or centres of information and skills development programmes. Electronic commerce is seen as a tool to empower established corporates which are not seen to be playing any meaningful role in poverty alleviation. This sector ranked 1. All sectors ranked equally on the ability of the country to meet challenges posed by electronic commerce. This is as a result of infrastructural investment in technology, the ability of the private sector in the factor endowment, and the willingness of the current government to take the electronic commerce challenge and participate in international organisations which deliberate on global economic issues. The labour organization further elaborated on the point that developing countries 'were somehow held at ransom by highly industrialized countries, which wanted to expand their market base and sell excess inventories in those markets'. This, they said, was evident in the way these countries are pushing forward for globalization and electronic commerce. All sectors raked equally as well on the legal protection of electronic commerce transactors. There seemed to be confidence in the legal process on electronic commerce that is underway. There was a 'closeness' of respondents to most issues that were raised, which implies that if all

mentioned obstacles could be removed, better results of electronic commerce could be expected in the long run.

7. THE LEGAL FRAMEWORK OF ELECTRONIC COMMERCE IN SOUTH AFRICA

Among the main differences between electronic and traditional commerce is the fact that electronic transactions are far more impersonal, anonymous, and automated than transactions made between persons face-to-face in a market, at a bank, or even telephonically. This dehumanisation of business relations is accompanied by a quantum increase in the technical means and opportunity for fraud and abuse of consumers and large corporate institutions alike. This causes some distrust in electronic commerce. Ultimately, for these new, globally impersonal technologies to advance to a more universal level of acceptance, business and government institutions have to develop a set of policies that build greater trust in these new forms of doing business. Trust implies confidence that electronically-based purchases, funds transfers, and business deals will be as valid as traditional activities; that personal information and finances will be secure; that consumers will be protected from fraud and mistreatment; and that the world of on-line information and communication will be at least as accountable for the quality, reliability, and legality of products and services as in the in-person world (World Communications Forum, 1999). The law is seen as a slow-evolving and tradition-bound process. On the one side, technology evolves at a rapid pace, and will change before the law catches up to it.

The Organisation for Economic Co-operation and Development made some recommendations on the global legal framework which would affect the operation of electronic commerce. Recommendations were based largely on the United Nations Commission on Trade Law Model Law, which gives a legal effect to a data message, or information generated by electronic means. This is due to the fact that the traditional law of contracts deals mainly with agreements concluded either face to face or in written documentation, which should bear signatures of parties, bound by the contract. An emphasis was put on some aspects that affect electronic commerce, that is, authentication

and certification provision. Confidence in electronic transactions can be built having developed and applied authentication and certification technologies to such transactions (OECD, 1998:19). Authentication can be used in the electronic environment to establish identity or privileges, or as part of a payment mechanism, by using a password or smart card, or a cryptographic, shared secret or biometric technique (OECD, 1998:19). Another method to be used to restore confidence and trust among participants in e-commerce transactions is the digital signature. This method is there to ensure privacy and security of electronic transactions. It has the ability to confirm authorship of the message and prove whether the message was altered after the signature.

8.1 THE POLICY PROCESS IN SOUTH AFRICA

The discussions on electronic commerce in South Africa had already begun when the 'Telecoms 98' exhibition took place in Midrand in 1998. At the same time other countries, which are members to the World Trade Organisation, were already involved in discussions on the concept. Member countries were requested to discuss the developments on electronic commerce and give their responses to the World Trade Organisation by June 1998. In 1998 the Departments of Trade and Industry and Communications were tasked with forming an adhoc committee, which had to look into drafting an electronic commerce policy discussion paper, as a response to the World Trade Organisation request for input on electronic commerce from member states. The discussion paper would lay ground for drafting a Green Paper and subsequently a White Paper on electronic commerce policy (Department of Communications, 1999). It would seem as if the Department of Communications, from the government side, was the only major participant and driver of the process. Crucial departments such as Finance and the Reserve Bank did not feature prominently. When the discussion paper was drafted, the Government E-commerce Task Group was already formed as well as a Steering Committee, which comprised not only government officials but also members from other institutions. Task Teams were also formed to look at other crucial themes, which could be influenced by electronic commerce (for instance, privacy protection and digital signatures as well as electronic contracts).

8.1.1 THE POLICY PROCESS

The economy recently experienced an unexpected growth in the GDP largely because of the primary sectors and a sudden improvement in the agricultural sector. But, there are still few highly resourced participants in the mainstream economy given the history of South Africa. These are 'high tech' entities that easily access modern modes of communication. Because of their access, they have greater opportunities and potential to participate in electronic commercial transactions, unlike the small business sector and the household. This would then imply that electronic commerce is not yet fully 'practised' by all economic entities; it is practised in some instances due to the accessibility and 'popularity' of the Internet. South Africa cannot escape the full might of global effects and market liberalization which have developed knowledge-based economy. The country has therefore to abide by the above phenomena in order to be globally competitive so that external markets and opportunities can be accessed. Steps that had been taken were to draft and enact a policy (at government level) that would regulate electronic commerce in South Africa. Formulation of such a policy has yet to be finalised. All working groups that were appointed to make a policy research made their presentations (findings), and submitted their input which was used to compile the first draft of the Green Paper on Electronic Commerce sometime in March 2000, which was followed by a final draft in June 2000. A draft of the White Paper was issued at the end of January 2001.

8.1.2 ISSUES FOR CONSIDERATION

When the process of drafting a discussion paper on electronic commerce started, nine working groups were subsequently formed and tasked with a responsibility to look into nine important themes, which are as follows;

(a) Security and privacy
(b) Customs and taxation
(c) Intellectual property
(d) Infrastructure, access and convergence
(e) Electronic payment systems
(f) Internet governance and domain naming

(g) Education, awareness and enablement

(h) Technical standards

(i) Contracting and trade laws (Department of Communications, 1999:13)

All working groups made recommendations on issues that they had to investigate. Work group 1 that investigated issues of security and privacy made the following recommendations below.

- Legislation on consumer rights is reviewed to ensure that electronic commerce is adequately covered.
- Where necessary, the relevant definitions should be widened.
- A Code of Practice is encouraged.
- Industry needs should be cognisant of generally accepted principles such as those of the European Union directive.
- The industry should be encouraged to institute Seal of Approval programmes.
- Government and the industry should collaborate in educating consumers on their rights and the meaning if these Seals of Approval.
- Additional legislation should be considered if these recommendations fail to have the desired effect (Sunday Times, 28 November 1999:30).

Consumer laws and policies are there to limit fraudulent acts, misleading and unfair business practice meted to consumers. Such protection is necessary to build confidence and establish a more balanced relation between business entities and consumers in commercial transactions. Laws that are established to protect consumers when conducting electronic transactions should be effective and transparent. Laws that address liability for improper or fraudulent business practices in this environment need to be clear about the role of each participant along the chain of on-line services and transactions (Department of Communications, 1999:27).

The legislation should be passed to compel any party under judicial warrant to provide communications or data in intelligible format to law enforcement or national intelligent agencies when necessary. No legislation incorporating key escrow or key recovery should be adopted. The question of whether the use of encryption for unlawful purposes should be criminalized must be investigated (Sunday Times, 28 November 1999:30).

Encryption protects the confidentiality of stored data and electronic communications by making them not readable without a decryption key. Individuals can use strong encryption to protect their trade secrets and personal records. These could be lost forever if the decrypt key gets lost. Encryption can also be used by criminals to reduce law enforcement capabilities to gain access to their communications. It is thus vital in a globally connected marketplace that national policies for certification be harmonised as far as possible with those of trading partners, so that trust can be reinforced for international trade as well as domestic transactions. This implies both technical interoperability of cryptographic and key access technologies, and common standards as well as policies for certification and disclosure of information (Department of Communications, 1999:24).

Digital signatures have to satisfy the requirements of a signature relating to data in electronic form and should be admissible as evidence in legal proceedings. The development of Certification Authorities should be left to market forces. Government should set a good example by publishing one or more public sector PKIs, conforming to internationally acceptable standards (Sunday Times, 28 November 1999:30).

A government/industry database should be established, and should enable local business to establish practices in any European Union member country. Privacy legislation, incorporating the OECD principles should be adopted (Sunday Times, 28 November 1999:30).

There is great concern regarding individuals' rights to privacy in the electronic business, which is regarded as the main barrier for electronic commerce. The advancement of

technology facilitates obtaining detailed and personal information without the knowledge of the consumer. This requires introduction of legislation and self-regulatory measures to enforce observation of fair personal information principles and practices.

The South African Law Commission should investigate how existing definitions in criminal law may be suitably widened to cover offences in cyberspace. Increased technical guidance for investigative purposes must be provided to law enforcers. Anyone physically within the jurisdiction of a South African court who is responsible for an offence punishable under the South African law may be prosecuted in that South African court (Sunday Times, 28 November 1999:30).

Recently the Internet has been under attack by hackers, who access websites of their targeted companies and destroys them (Websites). Few institutions have been attacked in South Africa recently, and these are Edgars Stores and the Johannesburg Stock Exchange, to name a few. This caused financial losses for these institutions. There is no doubt that this can happen globally, where hackers disrupt electronic commerce across borders. It is therefore important for provision to be made for cyber crime, and it be declared a punishable offence by the courts of law.

Work group 2 observed that electronic commerce is being practised well at the South African Revenue Services, particularly at Customs office. This group further observed that in 1998, the first phase of the Electronic Data Interchange was implemented at the office of the Controller of Customs and Excise at Johannesburg International Airport. It has since been rolled out to eighteen district offices. This includes the receipt of electronic import declaration with Customs returning an electronic response, which indicates the progress of that declaration. The group further observed that the Rates of Exchange project was successfully implemented in August 1999 allowing agents to receive this information electronically from the Revenue Services. They further stated that the possibility of supplying electronic release information to airlines has shown much progress. They reported that the next project to be implemented is Import Permits, which entails receipt of electronic permit information from various state departments, to be

marked off automatically as goods are cleared against it. They (group) stated that most state departments are involved in the project. The group also observed that Customs envisages the use of Internet for transferring data, Internet kiosk as well as web-enabled technologies (Department of Communications, 1999:29).

Taxation on electronic commerce is still an issue, which countries will battle with for some time. The Minister of Finance expressed concerns that the tax base would narrow if the source principle of taxation were to be applied on electronic commerce. Electronic commerce is seen as providing taxpayers with the ability to move transactions outside a country's jurisdiction and thus avoiding paying tax (Department of Communications, 1999:29).

The OECD (1999) conducted a study on tax as it affects electronic commerce. The study lists certain principles with which the tax policy has to comply to ensure tax benefits of e-commerce. These are; neutrality of tax. Tax imposed on electronic transaction should be neutral and equitable. Business decisions should be motivated by economic rather than tax considerations. An incentive has to be there for businesses to pay tax. Efficiency in terms of compliance costs for taxpayers, and administrative costs for tax authorities should be emphasized, implying a minimization in these costs. The tax rules should be made clear and simple to understand so that taxpayers can anticipate the consequences before conducting electronic transactions. The system should be flexible and be able to keep pace with technological and commercial developments.

Work group 3 also gave its input on intellectual property. This group realized that electronic commerce has an impact on intellectual property rights. They did not come with a specific set of solutions to protect intellectual property though. They only emphasized the importance of protecting intellectual property when electronic commerce is practised. The Department of Communications (1999) acknowledged that the future development of electronic commerce rests largely on two major intellectual property rights issues, namely:-

1. The protection of copyrights and related rights, and
2. The protection and equitable allocation of trademarks and domain names.

These issues have been a primary focus of international deliberations in recent years. The deliberations have taken place through the World Trade Organisation, which has negotiated an Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), making intellectual property rights an integral part of the multilateral trading system since January 1995 (Department of Communications, 1999:31).

Working group 4 investigated access, infrastructure and convergence. This work group argued in favour of disadvantaged communities having a share in the opportunities available through electronic commerce in infrastructure. They viewed infrastructure for electronic commerce as being capable of handling many services and applications such as data transmission, telephony, video conferencing, multimedia, multicasting and broadcasting. They identified the physical components of the infrastructure, which needed to be addressed, to be wireline networking, optic fibre network, wireless networks, satellite networks, automated teller machines and PITs among others. The group identified the following issues as important;

(i) Market structure, which has to do with international obligations and commitments, international and regional co-operation, local manufacture of infrastructure equipment, use of general competition laws and self-regulation, state-mandated monopolies, exclusivity access, infrastructure and service control.

(ii) Service delivery, which has to do with the ability of a carrier company to provide services to different users, universal access, lack of infrastructure in poor and rural areas, affordability of carrier infrastructure, infrastructure capacity and demand, service level agreements, mobility and easy initial access.

(iii) Technology, as convergence, Internet technology, facility sharing, compatibility of infrastructure with new and emerging technologies, transmission security, access cards and regionalization of rural co-operatives (Sunday Times, 28 November 1999:30).

Working group 5 dealt with electronic payment systems. They acknowledged that there has to be a clear framework of governance for electronic money to ensure the following: macro economic stability, a solid framework for ensuring the validity of business contracts, developed trust in the new form of electronic money and that digital money does represent central bank money. In line with the above, the group proposed a framework for the following issues: a value creation in respect of control of supply of money in the economy, safety that has to be 'enjoyed' by users of digital money (Sunday Times, 28 November 1999:31). The group also felt that the proposed payment system should be 'filtered' to all forms of business sectors found in South Africa, such as the Small, Micro and Medium Enterprises, corporate business and consumers. Government is also affected by the proposed system as well.

The South African Reserve Bank is the custodian of money production and is the monetary authority in South Africa. It is its responsibility to ensure a smooth, non-destabilizing and non-inflationary electronic money supply into the economy. Electronic money has to fulfill certain legal requirements in which the rights and obligations of the respective participants must be defined and disclosed (SARB, 1999:3). The Bank has the Banks Act, the South African Reserve Bank Act and the National Payment System Act in place to ensure that entities that will manufacture electronic money are registered and permitted by law to do so. These entities will be obliged to redeem electronic money value in the Bank money, at upon request. The Bank has also given the assurance that electronic money is not there to replace physical and nominal money but to 'contain' value of money instead.

Working group 6 dealt with building trust. The group put much emphasis on encryption and its consistency with an overall approach to governance and regulation issue (Sunday Times, 28 November 1999:30). The group raised the issue of licensing authorities

(certification authorities) but did not come with any particular view or recommendation as to whether all existing certification regimes should get directives from the Department of Communications. On protection of privacy, the group recommended that South Africa adheres to constitutional protection and maximize individual rights to privacy. The group further recommended that consumer protection and cyberfraud be considered under the governance issue (Sunday Times, 28 November 1999:30). The group suggested no formal position. A recommendation was made that trademark protection with regard to domain naming should be treated separately and excluded except when the allocation has implications for governance. A recommendation on information and communication technology infrastructure was made. The group recommended that the exclusivity and the regulatory framework for ISPs/VAN be reviewed. This is in light of the overall objectives of the Discussion Document. The group closed by proposing that some consideration be given to establish an E-commerce agency to promote widespread access to and use of E-commerce technologies issue (Sunday Times, 28 November 1999:30).

Working group 7 gave input on education, awareness and enablement. The group discussion centred around four themes, which are; education and training, enablement and awareness, labour market and market development. The group identified major players who have to participate in education and training using electronic commerce. These are; the government, other government agencies, policy makers, business sector, corporate users, micro lenders, ordinary citizens, SMMEs and labour (Group 7, 1999:16). Concerns were raised one of them being the possible exclusion of the previously disadvantaged individuals in the process. The group recommended that when approaching this issue, reference be made on international education programmes, which use electronic commerce. The group further recommended that government departments be front-runners in electronic commerce implementation when development programmes are introduced. A concern on the shortage of electronic business skills and emigration of IT skilled people was raised as a challenge. Here, the role of the private sector was seen as to leverage existing resources and embark on computer literacy programme (training). The group identified government as the key institution in initiating awareness and enablement programmes. Government also has to fund such programmes.

When labour issue was discussed, Group 7 (1999) was of the view that labour sees electronic commerce as a threat to jobs. Lack of research and development in information, communications and technology was also identified as a concern. A recommendation was then made that government should develop a human resource development strategy for e-commerce and encourage global competitiveness. Group 7 (1999) also highlighted the important role Small, Micro and Medium Enterprises can play in developing the economy. However, there are blockages faced by SMMEs such lack of access to finance and infrastructure (Group 7, 1999:13). This is so because of lack of practical and organized commitment from government and private sector in helping them. There was a call from the group to help develop Small, Micro and Medium Enterprises so that they can participate effectively in electronic commerce to develop the economy.

Working group 8 discussed technical standards. This group tried to categorize electronic commerce technical standards into operational, legal, security of information and environmental, health and safety standards. The group made a set of recommendations for national EDI standards. The recommendations are listed below;

- The SABS should accept responsibility to co-ordinate and maintain national EDI standards through a working committee that is representative of all market sectors.
- All standards that emanate from this endeavour could be published by the SABS and made available via the Internet at no charge.
- Costs incurred in this regard could be funded by way of government subsidy (Sunday Times, 28 November 1999:31).
- The South African Bureau of Standards (SABS) could make only the General Information section and Invoice Message format available via the Internet.
- SABS could once again adopt the EANCOM EDI Standards as the SA standards, with the standards being made available via EAN South Africa rather than the SABS.
- The South African Bureau of Standards could be given the responsibility for developing simplified EDI Standard message formats based on the EDIFACT

Standards that could be used through a forms-based Web Browser (Sunday Times, 28 November 1999:31).

Working group 9 was responsible for contracting and trade laws. The group was of the view that an effective South African legislative mechanism on e-commerce contracting and trade law issues be used as a marketing tool to attract foreign trade (Sunday Times, 28 November 1999:30). However, traders should not spend more money on local legal advice each time they want to buy or sell goods and services in or outside South Africa. There is still uncertainty on how the law would treat various contractual and trade issues presented by electronic commerce.

The working groups gave their input and recommendations to various issues that they were allocated to deliver. Some of the groups posed questions and did not recommend possible solutions though. It was thus clear that more input and deliberations needed to done so that recommendations could be made and be fed into the Green Paper, which would result to the White Paper.

Working group 7 raised an important issue of a general shortage of information technology skills and the different educational backgrounds that South Africans come from. The country is new in the global arena after years of isolation that compelled it to compete on its own. The international economic trend is affected by both intra- and inter-industry trade, which tends to widen the wedge between industrialized and emerging economies. This is largely due to an increase in intra-industry trade that has taken place for some time (Group 7, 1999:23). Because industrialized economies are 'saturating', globalization and market liberalization have been introduced to ensure maximum export of goods and services by these economies. There will therefore be an increase in inter-industry trade as soon as emerging markets 'leapfrog' to new innovation (Group 7, 1999:23). The aim of highly industrialized economies is to open trade opportunities and 'dispose' of their inventions to emerging markets, which South Africa is one. South Africa has yet to cope with this situation, where the economy and production are labour-intensive and marginally capital intensive. The transition from

labour to capital – intensive production is not nearer as far as tech skills are given in the local economy. This is against the background of high unemployment experienced and the endless job losses that are taking place despite the marginal growth rate in the gross domestic product (Group 7, 1999:21). It also has to do with the lack of commitment to embark on full-scale development programmes by the private sector and some government departments. Now of lately the global economy has developed into a knowledge-based economy, which has its demands. From a socio-political point of view, social development and the equitable income distribution will be hampered in the medium term as the economy sheds jobs in industries that are moving towards capital–intensive modes of production. Once development is hampered, political unrest as a demonstration of dissatisfaction may occur (Group 7, 1999:21). It is unfortunate that the process is inevitable, therefore there is no way that debates such as electronic commerce, globalization, international competitiveness and liberalization cannot be seriously entertained by government and institutions (private, Small, Micro and Medium Enterprises, academic or statutory and/or parastatals).

The electronic commerce policy process suffered a setback by a non-visible role played by other important national stakeholders, which are the Finance Department and the South African Reserve Bank. The public and other economic players did not feature in the process, nor have they initiated discussions on e-commerce. Discussions on this subject would be expected from organizations such as the National African Federation of the Chamber of Commerce (NAFCOC), community-based organisations (CBO's) and existing non-governmental organisations (NGOs) that represent consumer interests. Electronic commerce is not yet a subject that has drawn national attention. On the other hand, an understanding on the subject is minimal, as it is a new thing in South Africa. A wide reference has to be made from both highly industrialized and emerging markets that are already in the process of implementing it.

9. IMPACT OF ELECTRONIC COMMERCE

The process is inevitable and a necessary exercise to embark on as it will take South Africa to the information society and introduce her to the knowledge-based economy. The country is at an advantaged position in that infrastructure and know-how do exist.

Electronic commerce has social, economical, legal and political effects. It will take a high level of commitment from government, business sector, consumers and other institutions (statutory, NGOs or private) for electronic commerce to contribute towards social upliftment and economic growth. Once it is fully implemented, consumers will benefit from electronic commerce because the value added to transactions of goods and services will drop. Electronic commerce will 'cut the middleman', there will be a direct purchase of goods and services. Cutting the middleman has its disadvantages though, in that other entities will be out of business and the unemployment pool will be added. This calls for diversification, competitiveness and redirection of production factors. A wedge between urban and rural areas will widen, as the latter do not have much access to modern technology than their urban counterparts. All stakeholders will need to channel more resources to educate and open access to rural dwellers.

Already established businesses will compete with up-coming and traditional businesses, which have not considered electronic commerce as an option. The former will reduce sunk costs, avoiding to travel distances to search for available opportunities abroad, and at times avoiding to build or rent business premises and in turn operate with no inventories at all. Businesses provide goods and services according to the needs of consumers rather than developing inventories without considering the demand in the market. Electronic commerce enables businesses to afford large discounts as a result of a wider consumer base and better economies of scale. Production resources are an important element for businesses, such that with electronic commerce they are afforded the opportunity to situate themselves next to where such resources are easily obtainable and at a possible least cost. This enhances better economies of scale. Businesses are able to respond quickly or rapidly to changes in the market, through price adjustment, and changes in product mix and market approach. Businesses that operate on-line have an

advantage of easily capturing and effectively using market relevant data obtained through regular interactions with costumers, which are used to maximize returns. Electronic commerce fosters relations between producers and suppliers of goods and services in a market, either physical or electronical.

Electronic commerce is most likely to affect consumers who have access to the Internet. Queues and long waiting time in supermarkets and restaurants are likely shorten the more local buyers get used to buying on-line. Consumers will experience a reduction in traveling cost, time consumed in queues, the opportunity cost and inconvenience of waiting in queues, and re-allocation of the economic resources for better use, which will satisfy their needs. Traditional businesses will be adversely affected by decreasing numbers of their regular customers once electronic commerce takes full swing. When a general equilibrium approach is applied, these businesses will be disrupted by such a change in their clientele, which factor will have an impact in their returns and economies of scale. In the short to medium term non-capital job losses will be experienced, as an attempt of businesses to maintain certain profit margins. Electronic commerce tends to expand the size of any business's potential market from its geographical location to a worldwide scale. Serving such a global market would require providing a world-class quality service, as well as being flexible enough to meet diverse needs and demands. These requirements tend to place a heavy responsibility on a business entity to employ high technology equipment that will be familiar and useful to a wide range of customers. Achieving this degree of sophistication may be a much challenging task for Small, Micro and Medium Enterprises, who lack resources and infrastructure to conduct electronic business. This requires some form of a partnership between Small, Micro and Medium Enterprises, government and established corporates to provide education, training and developmental support to the former. A very vibrant Small, Micro and Medium Enterprise promotion strategy is essential to make sure that they are not left behind of the technological developments. Nevertheless, what has been 'noticed' is that large corporates are beginning to focus on their core businesses, and outsource non-core aspects of their businesses to 'established' Small, Micro and Medium Enterprises, which is a positive step to the right direction. IT Web (2000) defines Small, Micro and Medium

Enterprises as entities which comprise micro enterprises that employ one to five employees and whose turnover is less than R300 000 per annum; R500 000; small enterprises which employ up to fifty employees with an annual turnover of not more than R5 million; and medium enterprises which employ up to hundred employees with an annual turnover of not more than R25 million (IT Web, 2000:2).

9.1 SOCIO-POLITICAL IMPACT OF ELECTRONIC COMMERCE

South Africa, like the rest of the African continent, is currently faced with a high level of job losses and abject poverty. The economy is slowly improving and experiences short interval increases that are accompanied by a constant rate of job losses in large economic sectors especially. This situation further widens the wedge between existing social classes. The percentage of people who have access to the Internet is far less relative to the entire population, especially the youth and adult population. The mass population which has no access at all to the Internet, will forfeit the benefits derived from it. A wedge that exists between urban and rural communities will widen, as the latter do not have much access to modern technology than their urban counterparts (ICOMTEC, 2000:8).

Electronic commerce has an economic effect as well. Since the traditional economy is moving towards an information economy, the current trend in the commercial world is to provide on-line real time information to all consumers and stakeholders. Transactions are effected electronically, thus saving on time and storage costs. There is an efficient resource allocation where a higher return is obtained by utilising fewer resources and cutting costs. Commerce is moving out from the physical city into the virtual city (Group 7, 1999:6). Commercial entities will be offered an opportunity to operate on small office spaces and near to their targeted markets. This has a positive cost effect. There will no longer be a need for concentration of businesses in a central business district. Electronic commerce also brings opportunities for the physically disabled community. Technology devices are made to suit their condition and thus enable them to be productive at workplaces like their able counterparts. The economy requires the contribution made by the disabled community.

There is however a downturn to the benefits obtained by utilising electronic commerce. More resources will have to be allocated for training and educating communities with less or no access to modern technological devices that are utilised for electronic commerce purposes. Ideally, this should be a joint responsibility of the corporate sector and government (ICOMTEC, 2000:8). More jobs will be shed in the process. Job losses as a result of 'going the e-commerce route' will impact on the poverty level currently experienced. This will result to a socially undesirable alternative means of earning a living when less skilled- labour jobs become scarce as a result of the advancement in technological ways of production and electronic commerce in the short run, which will replace labour anyway. This situation may lead to frustration building up and ultimately the attempt to use the voting muscle to unseat the government of the day. The government institutions may experience a reduction in revenue generated through income tax of companies. This will have an externality effect on provision of public goods, leading to less or lower quality being provided to communities. This may result in less deference to the levels of government that are close to the communities and tasked with providing basic services to them. From the look of things, poorer communities, which comprise a larger percentage of the South African population, will be harshly affected by this phenomenon than their rich counterparts. This can be relatively prevented if public and private sectors jointly embark on community-development programmes, which will involve training and skilling individuals and communities in modern technology and self-reliance, by so doing enabling the poor communities to face the challenges posed by electronic commerce (Group 7, 1999:7). Other problems, including psychological and physical health-related effects of sedentary, computer-anchored work environments, have not been fully examined. Early experience suggests that this type of work (and social) activity expands, businesses and government will have to consider broad-based means to offset health hazards with new policies and treatments (Department of Communications, 1999:49). Electronic commerce may offer the potential to shift the balance of opportunity, wealth and social as well as political inclusion. As much as these trends can be beneficial to the majority of the society, they are also likely to bring unanticipated effects on cultural and social norms. Indigenous traditions that have so far survived the

intrusion of modern values may be less resilient in the face of global networks and instantaneous communication (Department of Communications, 1999:50).

Electronic media has provided the opportunity to educate people in the electronic classroom. The health care system in rural and poor areas is said to benefit from electronic commerce. Using electronic media technologies donated or provided by the corporate sector, medical expertise that is currently concentrated in cities will be made available to needy communities (Group 7, 1999:7). The government will be able to provide social welfare services to needy communities at a greater speed. Provision of electronic banking facilities to pensioners in rural areas to avoid robberies that occur at pension pay-out points is a social benefit to those communities since safety and utilisation of their pension are guaranteed.

It is also clear that South Africa has inevitably become part of the 'global village' like the rest of developing countries (Group 7, 1999:7). This is made obvious by her participation in numerous world institutions that were created to 'take the responsibility' of world interests, one being to converge different economies into one global economy. It is these institutions that are being used to subject developing countries to programmes that are decided and formed by highly industrialized countries. These institutions created appendages in the form of internationally-based companies that would invest in countries with an intention of assisting those countries' economies to grow and develop, and at the same time influence those countries' governments to 'tow the line of their masters', which are the world's biggest institutions. Highly industrialized states see South Africa as a 'beacon' of economic development in the African continent, and this is a conformist role that she (South Africa) has to play.

South Africa is said to benefit from electronic commerce when trade relations are tied with other African trade partners, which will make her a more powerful state in the continent in the long run, either militarily or economically. Large corporates will benefit from electronic commerce across countries in the continent, more so these bolster development in largely demanded technologies.

10. SUMMARY

The aim of the chapter was to do a comparative analysis of electronic commerce in the United States and the Organisation for Economic Co-operation and Development countries, explore its cross-sectoral influence, its developments, the legal framework and its development in South Africa.

The Internet has helped to facilitate the undertaking of commercial transactions by world countries which are geographically apart. UNCTAD (1999) has estimated that there are more than hundred and fifty million Internet users, and the figure is increasing by almost fifty thousand a day. It was also noted that more than half of the user population is located in the United States. This implies that electronic commerce is still confined to developed countries, though developing countries for instance India in Asia, and South Africa in the African continent are now transacting through electronic commerce.

The use of technology to trade electronically started in the sixties. This form of electronic trading required pre-existing relationships between businesses and strictly compatible equipment. By then the Internet was largely confined to research laboratories and some educational institutions. Its eventual widespread use became possible when the World Wide Web was developed. The use of the Internet for the purposes of electronic commerce has narrowed the borders of trading nations.

The United States is the major player in electronic commerce, but its leading role is expected to decline to approximately two thirds of the world's total electronic commerce activity. Europe and some developing countries, notably India and South Africa, have shown the potential to develop the technology that would enable them to take part in electronic commerce meaningfully. The United States being a leading country in electronic commerce has developed a Global Information Infrastructure which is seen as a global market place. This development is based on several principles. These are the private sector leadership, government having to avoid undue restrictions on electronic commerce, minimum government intervention, and recognition of unique Internet

qualities by government and facilitation of electronic commerce on a global basis by the United States.

The United States government took it upon itself to ensure a rapid growth of electronic commerce by making its policy in the form of certain directives or policy instructions, which needed to be carried out. This process resulted in the development of new technology to make Internet more faster and easier to use. The United States government thus issued the following directives; high speed Internet access, consumer protection, and enhancing developing countries to access Internet. The United States government has also developed strategies to assist small businesses cope with the demands of electronic commerce. Training on use of Internet has been provided to government employees who have regular contact with small businesses. Procurement of goods and services that are consumed on a regular basis by the government is now done through Internet such that small businesses in the United States are able to access it. Initiatives that were taken to encourage small business participation in electronic commerce are the development of virtual trade shows via Internet. Government has also created on-line services for small businesses. By taking such steps, the United States government has shown the importance of small business involvement in the economy.

Electronic commerce has influenced key sectors of the economy, for instance businesses, consumers and government. Large volumes of electronic commerce transactions have been recorded to have taken place between businesses, followed by those business and consumers, and lastly those between government and consumers. The number of electronic commerce transactions between businesses and government is increasing rapidly though. The OECD (1999) estimates business to business electronic commerce to consume approximately 1.3 trillion US dollars by 2003. This is expected to have a major impact on firms, markets, employment and economic growth. The South African corporate sector treads far behind those of developed countries. This situation requires more promotion of electronic commerce.

Business to consumer electronic commerce is growing at a faster rate. The leading transaction is entertainment, more especially adult entertainment. Consumers who have access to the Internet can easily visit company Websites. It is in these Websites that consumers identify goods and services that they need for consumption. The most common electronic commerce transactions between businesses and consumers are financial services and banking transactions. Established banks in South Africa are offering banking products and services through the Internet. The well-known banks are ABSA and Standard Bank of South Africa. The study has shown that products which are sold through electronic commerce are classified into tangible and intangible products. Entertainment, which makes the bulk of electronic commerce sales is classified as intangible. Tangible products on the other hand that are popularly sold on the Internet are books, wine, flowers and computer equipment. Purchase of groceries is now taking place through electronic commerce. Congestion that always takes place in shopping centres will gradually force consumers who have access to Internet to shop on-line. Sales of automobiles through Internet are a common phenomenon in South Africa.

Consumers still find buying through the Internet an expensive exercise, though it is a convenient way of shopping. Costs of acquiring electronic commerce devices and subscription to Internet facilities are high. The number of poor communities in South Africa is much higher such that this retards the growth of business to consumer electronic commerce. It is therefore recommended that the government follow steps that were taken by the United States government, for instance in issuing electronic commerce policy directives namely; to allocate a budget which would ensure that a large number of consumers have access to Internet at a possible lower cost. More emphasis should be put on protecting consumers and all institutions that are involved in electronic commerce transactions. Guidelines and laws which government electronic commerce and its application should be implemented and enforced.

Governments have generally been slow in embracing the use of electronic commerce. Political institutions are known for slow response and delivery of services. Electronic commerce has a significant role to play in the public sector, for instance accessing much

needed public information to citizens. The South African government has made certain initiatives to use information technology for most of its programmes thus far. These are the establishment of the Universal Service Agency tele-centre projects, Trade Net and the Department of Labour Electronic One Stop Service Infrastructure. These initiatives are the government's response to the demands of electronic commerce.

Interviews that were held with key economic institutions reveal differences in their understanding of electronic commerce. Universities have begun to will utilize the necessary technology which will help learners to get effective education, and other individuals who would want to get information they require from the university even if they are far away from it. Academic institutions have introduced on-line education, and use Internet to communicate among themselves when sharing information. UNISA as a distance-learning institution would require an extensive use of technology to enable it to communicate and lecture its registered students who reside outside South Africa. Few risks which could affect academic institutions when the Internet and electronic commerce were utilised, were cited. . The risk of using this type of technology is foreseeable job losses in industries in the long run when electronic commerce is fully implemented. The remedy to that would be re-training workers in modern technologies that are being used for electronic commerce. Book sales will drop due to the fact that information is now obtainable on-line. The most to be affected by this situation would be academics who thrive on writing books for academic purposes. Electronic education, as another risk, does have an effect on the comprehension of the syllabi content by learners. When academic information is easily obtainable it makes learners not to read and memorize enough, thus making them to rely entirely on electronic referral and limit their understanding capabilities. A need to incorporate electronic commerce subjects in the commerce and management faculties of academic institutions was identified. This will help equip graduates with a technology know-how.

The institutions that were interviewed demonstrated some knowledge of electronic commerce and its necessity as a key instrument that could be utilised to grow the economy. They put more emphasis on training communities, mainly workers who stand

to lose their jobs because of lack of proper skills that are required in the changing economic pattern.

The South African government realised that electronic commerce needed to operate in a legal environment. This requires business and government institutions to develop a set of policies that build greater trust in these electronic ways of doing business. On the international front the Organisation for Economic Co-operation and Development made some recommendations on the global legal framework which would affect the operation of electronic commerce. The South African government appointed the Department of Communications to investigate all issues that would be relevant to electronic commerce policy. The Department of Communications formed task teams that were given the responsibility to investigate and looked at the following issues; security and privacy, consumer protection, customs and taxation, intellectual property, Infrastructure, access and convergence, electronic payment systems, Internet governance and domain naming, education, awareness and enablement, contracting and trade laws, technical standards and digital signatures. The working groups made their investigations and presented their findings to the Communications Department. The Department had to draft a policy discussion paper that would lay ground for drafting a Green Paper on electronic commerce, which was subsequently drafted.

Electronic commerce has a social, economical, legal and political impact. Consumers are likely to benefit once electronic commerce is fully implemented as this will lead to the value added on goods and services. The gap between the rural poor communities and the urban and enlightened communities will be widened, as the latter have much access to modern technology than their rural counterparts. Electronic commerce has the potential of creating job losses, more so a large number of the economically active population in South Africa is unskilled. This situation may even lead to civil unrest and loss of confidence in the government of the day. It may thus be recommended that government and the corporate sector form a partnership and allocate resources for training of communities that have a potential to contribute meaningfully to the economy.

Institutions of higher learning have an important role of incorporating electronic commerce as a subject in their curricula, so that graduating students could be well equipped in this technology.

CHAPTER 5: SUMMARY

The aim of the study was to provide an exploratory analysis about the possible impact of electronic commerce in the South African economy. The study focused on the South African economy and the impact it might have on major economic entities.

It was noted that the use of technology to trade electronically started in the sixties. This form of electronic trading required pre-existing relationships between businesses and strictly compatible equipment. By then the Internet was largely confined to research laboratories and some educational institutions. Its eventual widespread use became possible when the World Wide Web was developed.

Trade theories that were discussed emphasize much on the Ricardian comparative advantage. The comparative advantage theory demonstrates the importance of technology by showing that trade will take place between two countries if a difference between comparative costs of producing two given commodities exists. It thus becomes beneficial for each country to specialise in the production of a commodity in which it has a relatively greater advantage, thus affirming that the crucial variable that explains the existence and patterns of trade is technology. Its shortcoming is its static nature and assumes a single factor of production whereas in the real world commodities are produced by a combination of factors. The advancement in technology has begun to alter traditional trade patterns and necessitates the existence and effectiveness of electronic commerce.

Various international trade theories were discussed, but had their shortcomings. These theories do not make provision for electronic commerce as an advance form of trade, they acknowledge the importance of technology. Empirically, the Heckscher – Ohlin theory does not adequately explain actual trade patterns. It only applies to static conditions and does not provide for dynamic changes. Other theories do not provide for conditions of imperfect condition, but simply assume explicitly or explicitly constant returns. Electronic commerce is still at a very early stage of its development, and thus requires a comprehensive research to be conducted so as to help in formulating a theoretical study.

It is thus recommended that trade theories that accommodate electronic commerce and technological advancement that produced Internet be developed.

Electronic commerce has been made possible by the existence of the Internet. The expansion of Internet globally has made the use of electronic commerce possible. It is estimated that the number of users increases by one hundred and fifty thousand per day in developed countries, mainly Canada, the United Kingdom and the United States. Most economies have undergone a transitional to the economy of knowledge and information. Trade in non–physical goods is rising rapidly, which is a characteristic of an information based economy. Non–physical goods that are traded mostly are knowledge and services. The information economy is facilitated by the application of information and telecommunications technology, which has changed the constraint of time and space, shifted geographical and industrial borders. This type of technology has made it possible for the world countries to share information, limiting time lags in the process. On the other hand, Internet as an advanced technology is the primary driver of the information economy through electronic commerce. Electronic commerce has an effect on import trade. International trade which is conducted through electronic commerce is duty-free. Goods and services that are sold through the media of cyberspace are not subject to trade duties and taxes. This has resulted in losses on import revenue incurred by countries which trade by way of electronic commerce. Electronic commerce influences not only the way in which traditional goods and services are exchanged, but also raises prospects of digitalisation of a number of products. These prospects alter the notion of comparative advantage and thus compel a rethink of economics of location, which in turn affects the direction of trade. The use of electronic commerce has a positive effect on firms' cost structure. Prices of computing equipment and the overall mainframe have been falling since the production of technological equipment increased as a result of a constant and rapid improvement of technology. It was noted that the falling prices enabled a large number of firms in developed countries to switch to new information and telecommunications technology, allowing them to engage in electronic commerce. The emergence of firms which use electronic commerce has stimulated competition in the product markets.

It would however be incorrect to conclude that electronic commerce reduces transaction costs to very low levels and abolishes barriers to entry completely. Speculation would also be that, with its use, the 'middleman' is cut and the transaction takes place between the producer and customer. When costs are low in a market, more firms enter and competition is increased. This results to a downward pressure being exerted on prices and in turn shifts power from producer to consumer. Lower prices make producers to bear costs of production, as the expected profit margin is not hit, at the same time more products have to be sold.

The United Stated has been the major user of electronic commerce until developing countries, notably India and South Africa, advanced themselves technologically and began also to use electronic commerce, though to a lesser extent. The United States had an influence in electronic commerce by developing a Global Information Infrastructure, which is seen as a global market place. This development is based on the following principles; the private sector leadership, government having to avoid undue restrictions on the use of electronic commerce, minimum government intervention, and government recognition of the unique Internet qualities and facilitation of electronic commerce on a global basis by the United States.

It was important to establish the benefits derived from electronic commerce and its use by South African economic entities. For this, interviews were conducted with nine major institutions in electronic commerce. These are government sector, private sector, Pretoria Metropolitan Council, South African Agricultural Union, South African Reserve Bank, Consumer Institute of South Africa (a Non Governmental Organisation), University of South Africa, Congress of South African Trade Unions and FABCOS, which represents Small, Micro and Medium Enterprises. These organizations' views differed on the effects of electronic commerce in the South African economy and the society. Their views did not diverge much more than it would have been envisaged given their different levels of understanding and size. More than half of them agreed that electronic commerce would bring opportunities if resources were put into training in technological skills.

Electronic commerce influences all major economic sectors, for instance businesses, consumers and government. Large volumes of electronic commerce transactions have been recorded to have taken place between businesses, followed by transactions between business and consumers, and lastly those between government and consumers. The number of electronic commerce transactions between business and government is increasing rapidly though. The use of electronic commerce by the South African business community is still far less than its use in developed countries yet South Africa is technologically advanced than most other African states. It is therefore recommended that the South African government follow steps that were taken by the United States government, for instance issuing electronic commerce policy directives namely, to allocate a budget which would ensure that a large number of consumers have access to Internet at a possible lower cost.

It is recommended that a necessary policy that would encourage multinational corporations to invest locally be implemented. The policy would entail a relaxation in labour regulations that would allow such corporates to allocate production resources more efficiently and minimise costs where possible with minimum disruption by the labour force, and a relaxation of taxes for foreign corporates and providing them with the opportunity to expatriate profits without having to impose restrictions. An arrangement with foreign companies to assist in growing the local economy will have to be made though. Multinational corporations would thus bring high technology and electronic commerce skills. The government will have to move faster with its electronic commerce process that it initiated in July 1998 and enact electronic commerce into law.

The government focused on nine important themes when it initiated its electronic commerce process, whereby a discussion paper was drafted. Nine working groups were formed to conduct research and make recommendations on the following themes: security and privacy; customs and taxation; intellectual property; infrastructure, access and convergence; electronic payment; Internet governance and domain naming; education, awareness and enablement; contracting and trading laws; and technical standards. All working groups submitted their recommendations to the government,

which drafted and wrote a Green Paper on Electronic Commerce. The working groups made the following recommendations:-

- Legislation on consumer rights is reviewed to ensure that electronic commerce is adequately covered.
- Where necessary, the relevant definitions should be widened.
- A Code of Practice is encouraged.
- Industry needs should be cognisant of generally accepted principles such as those of the European Union directive.
- The industry should be encouraged to institute Seal of Approval programmes.
- Government and the industry should collaborate in educating consumers on their rights and the meaning if these Seals of Approval.
- Additional legislation should be considered if these recommendations fail to have the desired effect.
- Copyrights and related rights should be protected.
- Domain names and trademarks should be allocated equitably, and be protected.
- A framework for value creation in respect of control of money supply in the economy should be drawn.
- The South African Bureau of Standards should accept responsibility to co-ordinate and maintain national EDI standards through a working committee that is representative of all market sectors.
- All standards that emanate from this endeavour should be published by the South African Bureau of Standards and made available via the Internet at no charge.
- Costs incurred in this regard should be funded by way of government subsidy.
- The South African Bureau of Standards should make only the General Information section and Invoice Message format available via the Internet.
- South African Bureau of Standards should again adopt the EANCOM EDI Standards as the South African standards, with the standards being made available via EAN South Africa rather than the Bureau of Standards.

- The South African Bureau of Standards should be given the responsibility for developing simplified EDI Standard message formats based on the EDIFACT Standards that could be used through a forms-based Web Browser.

It was found out that electronic commerce requires investment in advanced technological infrastructure. Institutions and individuals alike should have knowledge and access to the Internet, for instance, to be able to surf and look for information that may assist them in making economical decisions. It is therefore important that the government and the business sector play a meaningful role in making resources available for electronic commerce to be used widely, and to maximise its benefits fully. For this to happen, it would be recommended that the government and the business sector allocate funds to establish business centres country-wide, which will provide individuals and emerging businesses the necessary training and skills in electronic commerce and other technology that is useful in business.

Electronic commerce has opened access to international markets. It has also enabled businesses to run small operations and at the same time make a higher return. Businesses that run large operations will soon realise the benefit of scaling down on their operations, thus reducing costs in the process. Businesses that run small operations can easily move offices to where there is a market for their products.

It was found out that competitive economies, mainly Europe, the United States and Canada benefit from using electronic commerce more than less competitive ones. South Africa has opened its economy to international investors, becoming more competitive than most of the developing nations. South Africa has identified the small business sector as one of major role-players in the development and growth of the economy. This sector should therefore be encouraged to take part in electronic commerce, though with the necessary assistance from government and big business. Government has created a fair environment for the small business sector by making policies that are favourable to them. This sector of the economy is expected to play a meaningful role in economic growth and poverty reduction.

It was found out that electronic commercial activities do not take place within a legal framework. Trade and contract laws that affect traditional business activities should affect electronic commerce. OECD member states, South Africa being one, have made certain recommendations as a legal framework on which electronic commerce is based. Certain aspects which are; consumer protection, privacy protection, digital signatures, intellectual property rights' domain names, electronic contracts, certification and certification authorities, curbing of cyberfraud, and taxation of electronic commerce transactions, were identified as issues that require more attention when electronic commerce is applied. Taxation is equally important in that government should generate revenue from business transactions through the revenue service institution, which may be used in research and development, and technology infrastructural investment. By playing this role, government lays a basis for South Africa to leapfrog in technological development, and narrows the digital gap. On the other hand, South Africa should make provision for adverse effects that may result when electronic commerce is in full swing. A thorough research has to be conducted to establish the effects of electronic commerce and information technology on individuals and family structures. This is against the background that family structures are an important unit of society.

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