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**An investigation on the global impact of
communication through technological
development on urban growth /
shrinking:
A Town Planning perspective**

by

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COMMUNICATION THROUGH TECHNOLOGICAL
DEVELOPMENT ON URBAN GROWTH / SHRINKING: A TOWN
PLANNING PERSPECTIVE.**

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CHAPTER 1

Introduction

1.1 Background and Hypothesis

COMMUNICATION, ONE OF THE CORNERSTONES AND FUNDAMENTAL BUILDING BLOCKS OF ALL SOCIETIES IN THE WORLD, DETERMINING HOW WE LIVE, WORK, PLAY AND EXIST.

Manuel Castells (1989:1) writes:

“A technological revolution of historic proportions is transforming the fundamental dimensions of human life, time and space. New scientific discoveries and industrial innovations are extending the productive capacity of working hours while superceding spatial distance in all realms of social activity. The unfolding promise of information technology opens up unlimited horizons of creativity and communication, inviting us to the exploration of new domains of experience, from our inner selves, to the outer universe, challenging our societies to engage in a process of structural change.”

Can you remember and still imagine the times with no cell phone, or even before that, when there were only farm lines with the famous expression known all over South Africa: “Nommer asseblief?”. Also when everything was still written on paper with pen or pencil?

Incredible how the world has changed in the past few decades!

It is said that:

"History abounds with irony, and economic progress is littered with naïve predictions about technology" (Sawubona, 2002:64).

South Africa has seen its fair share of foolishness when it comes to telecommunication development. "Sawubona" refers to a saying by the 1897 Minister of Post and Telegraphs, who rejected the use of wireless telegraphy when he intoned, *'Life is troublesome enough with ordinary telegrams. With wireless telegraphy it would be unbearable'*. Many people still have the same perception with regards to cellular phones.

It is also said that the telecommunications, broadcasting, e-commerce and postal services are on the threshold of changing the very face of society in South Africa (Sawubona, 2002:64).

1.1.1 Purpose of Study

Telecommunication systems underpin the economic, social, and environmental performance of modern life. They are the basic spatial infrastructure grids that provide the fundamental conduits through which modern cities operate. There has been little research that explicitly addresses the changing relationships between the provision and development of *communication and planning processes* (Little, 2000:15).

This study is done to determine:

- Problems arising from the influence communication has on Town and Regional Planning and on the city;
- To possibly provide some solutions for these problems;

- To get a better understanding of the utilisation of communication within and between urban areas; and to
- Contribute to Town and Regional Planning and knowledge on the subject.

1.1.2 Hypothesis

The global information society is evolving at an incredible tempo. The accelerated convergence between telecommunications, broadcasting multimedia, information and communication technologies is driving new products and services, as well as ways of conducting business and commerce. Simultaneously, commercial, social and professional opportunities are exploding as new markets open to competition, foreign investment and participation.

The modern world is undergoing a fundamental transformation as the industrial society that marked the 20th century rapidly gives way to the information society of the 21st century. This dynamic process promises a fundamental change in all aspects of our lives, including knowledge dissemination, social interaction, economic and business practices, political engagement, media, education, health, leisure and entertainment.

All of the above will have a profound impact on the development of urban areas. This study will address the severity and effect of this communication development on urban growth or shrinking.

1.2 Defining the field of study

A study with a scientific backbone could start with a hypothesis, describing the reason for study and also the methods used to define a study area.

This study address a generic principle and will therefore not have a specific study area defined but will focus on the general urban area indicating growth or shrinking.

As the study is generic and not limited to a specific area, the entire country will be the field of study. As South Africa is a developing country in the starting phase of communications development and due to the fact that some developed countries already went through the entire process, the RSA can be evaluated against these findings of the developed worlds and assumptions can be drawn.

The study is also relevant to today's development issues as it has a definite impact on the growth and development on the first world countries, or perhaps not! This can be seen as the methodology of the subject.

1.3 Definitions and Abbreviations

Indicator	Definition
Internet Host	A host is a domain name that has an IP address and a record associated to it. This would be any computer connected to the Internet.
Telephone Lines	Telephone lines connecting a customer's equipment (e.g. telephone set, facsimile machine, modem, etc.) to the Public Switched Telephone Network and which have a definite port on a telephone exchange.
Personal Computer	Number of computers designed for single person use.
Internet Subscribers	The number of persons and organisations paying for access to the Internet.
Internet Users	The number of persons using the Internet.
Access to Internet	Number of inhabitants that have access to the Internet but who may not necessary use it.
Awareness of Internet	Number of inhabitants that are aware of the Internet.
Internet Service Providers (ISP's)	Number of companies that provide end-user access to the Internet.
Tariffs	Tariffs refer to the prices charged to end-users for communication services.

Dial-up Internet Traffic	The volume of Internet dial-up traffic in minutes. Users connecting to the Internet.
LDC	Less Developed Countries
CBD	Central Business District
ATM's	Automated Telling Machines
ISDN	Integrated Service Digital Network
IS	Information System
GII	Global Information Infrastructure
LAN	Local Area Network
US	United States
SMS	Short Message Service
EIA	Environmental Impact Assessment
SDI	Spatial Development Initiative
LDO	Land Development Objective

1.4 Outline of Study

The study exists out of nine chapters and can be defined as follows:

Chapter 1 introduces the reader to the study and explains the reasoning behind the methodology.

Chapter 2 examines Town Planning, the Town Planner, and the role of the planner in this study and all the possible Laws and Ordinances impacting on the study.

In **Chapter 3** communication, the different types of communication, technological development and the impact of technological development on human life are discussed.

Chapter 4 explains the difference between business centers and growth poles of cities and the possible effect technological development and telecommunication may have on these nodes of growth.

Case studies are a major importance in this study, as explained in **Chapter 5**. First world technological development is compared to Third world development. Different phenomenons are also investigated to determine the effect this will have on the urban form.

In **Chapter 6**, Intra- and Inter urban communication is discussed and the effect this have on urban development. It also studies the effect this has on the industry.

Chapter 7 explains then the research methodology used to base this study on and also the questionnaires are analysed.

The results of this study are presented in **Chapter 8**. All the different findings are categorized and discussed to explain the meaning thereof and the impact this will have on urban life as all know it.

In the last chapter, **Chapter 9**, recommendations are brought forward, providing possible solutions and explanations to this particular phenomenon.

1.5 Conclusion

South African planners can only learn from the findings of this and other relevant studies. The information is purely based on actual happenings in other countries and must be addressed here as well. As South Africa developed a bit different than the rest

of the world mainly due to the "Apartheid" issue, the focus of this study will be slightly different than those pertaining to the rest of the world.

The scientific method used to determine the way, in using the general public to provide current situations and perceptions, and also how to formalise this study, has been confirmed in Chapter 7.

The actual defining and analysis of the questionnaires will be discussed in Chapter 7 and Results and Recommendations in the last two chapters.

CHAPTER 2

Planning and Town Planning

2.1 Introduction

Planning is a formal process created to formalise any development and growth of rural as well as urban areas. It is there to address the inefficiencies of the past but more so to plan future growth in these areas.

This chapter will explain the planning concept and the effect planning has on development.

2.2 Concepts in Planning

2.2.1 Planning (a Holistic Perspective)

Davidoff and Reiner, in Faludi (1973:11–12) define planning as a process for determining appropriate future actions through a sequence of choices.

They use *determining* in two senses:

- Finding out, and
- Assuring.

Planning incorporated a notion of goals. Action embodies specifics. This is the outcome of planning efforts. The choices which constitutes the planning process are made at three levels:

- The selection of ends and criteria;

- The identification of a set of alternatives consistent with these general prescriptive and the selection of desired alternatives; and
- Guidance of action towards determined ends.

2.2.1.1 Planning Characteristics

The following elements characterise the planning act:

- Determining and completing goals/means and achieving ends;
- Providing choices and exercising thereof;
- Goal orientation towards the future;
- Planning creates actions which must create results; and
- Comprehensiveness- planning comprises of systems and procedures. All actions and above mentioned must be balanced to create a perfect end (Faludi, 1973:17).

2.2.1.2 Ethics and Values in Planning

Facts and values are an ethical choice. It is not easy to decide which values will be used in planning. Davidoff says planners must be advocates, but there will always be conflict. Do you choose your own or the values of the community? (Faludi, 1973:277).

People normally link their value to their belief, therefore you cannot proof values, but you can proof facts. Ethics plays a role here. The planner must decide if a project is in his personal interest or in the publics' interest.

Most planners source their professional obligations in characteristics of the client-professional relationship. Others arise out of guilt characteristics of the occupation. A few are also the

result of the employer-employee relationships. This is due to the fact that planners can also be seen as “social scientists”. Planners are obliged to give the customer sound and independent advice. Planners can only do this through *specialised knowledge*. Planners must show *guilt loyalty*, to fellow professionals and the profession alike (Marcuse, 1976:267).

Davidoff, in Faludi (Faludi, 1973:279) states:

“The right course of action is always a matter of choice, never of fact”.

Values are nothing more than matters of personal taste or preference (Klosterman, 1983:217).

Banfield, in Faludi (1973:139) indicates the word planning have numerous meanings e.g. socialism, layout and design of cities and scientific management. All the above have one thing in common - means and ends.

Steyn (1989:3-22) defines planning as an action for the future, in which human insight and values at decision-making must be considered to establish harmony between human and nature. Planning can therefore be seen as a method to assist us to be responsible, be free and to change the environment so that we can use it optimally.

2.2.1.3 Ends and Means as a Theory in Planning

Banfield writes that a method of making decisions through a logical structure is using means and ends. Such an attempt leads at once

to the action frame of reference, the usual mode of rational choice. An actor is considered as being oriented towards the attainment of ends. Planning is the process by which he selects a course of action (a set of means) for the attainment of his ends.

A plan is a decision with regard to a course of action. A course of action is a sequence of acts related as means. Planning can be defined as rationally choosing actions (Faludi, 1973:139).

He furthermore states that the process by which a plan is rationally made can be described under four main headings:

- *Analysis of the situation* - the planner must lay down in prospect every possible course of action which would lead to the attainment of the ends sought;
- *End reduction and elaboration* - the planner must explain the meaning in full. It must be reduced to specific or operational terms before it can serve as a criterion of choice in the concrete circumstances;
- *The design of courses of action* - must be based on the elaborate consideration of alternatives and consequences, choices from set alternatives;
- *The comparative evaluation of consequences* - if a plan is to be rational, all consequences must be taken into account (Faludi, 1973:139-149).

2.2.1.4 Comprehensive Planning

Meyerson, in Faludi (1973:130-131) propose that we consider the following for community planning:

- *A central intelligence function* - Facilitate market operations through regular insurance of market analysis;
- *A pulse-taking function* - to alert the community through reports to danger signs in the community;
- *A policy clarification function* - to frame and regularly revise development objectives;
- *A detailed development plan function* - to phase specific private and public programs as part of a comprehensive course of action; and
- *A feedback review function* - to analyse, through careful research, the consequences of program and project activities.

The above five points are all interrelated and focusing on especially economic development. We can, through this, focus on a short-run development plan and a long-range comprehensive plan.

2.2.1.5 Communicative Planning

A few years ago Judith Innes (1998:53-60) defined *Communicative Planning*. The planners use each other's work/information and built on the work. This means that it is more practical and they do not communicate with the "armchair theorising" planning community. This type of planning will mean that all participants must participate, in other words - *Participatory Planning*. This means that effective communication is critical for a more smooth planning process. Communication involves two- way relation. The Communicative Planning Paradox shows us that participation is linked to representation. This will obviously grow and succeed through increased communication.

One aspect that is not running coherent with the information age is a statement made by Henk Voogd (1998:3-21):

“the fact that the solution for the communicative planning paradox can only be found by reducing the public- governmental communication space. It should be aimed at less communication, but the remaining communication should be of a high quality!”

2.2.2 Town Planning

According to Friedmann, (1966:19) Town Planning can be defined as:

“primarily a way of thinking about social and economic problems, planning is oriented predominantly towards the future, is deeply concerned with the relation of goals to collective decisions and strive for comprehensiveness in policy and program”.

Regional planning will not play such a significant role in this study but can be seen as the planning of a region. It can be seen as the link between town planning on the one side and national planning on the other.

Necessity of planning: Le Grange (1987:30) indicated that planning was not seen as a necessity before World War II, and that the control it created had a negative impact of individual rights. Glasson (1978:17–28) indicates that a definite move from the above view to a more ordered society took place. Here the government intervened into the development of communities. He indicates that the mind shift took place when the market factors and interaction with the community creates unaccepted conditions. Such a “condition” can only be corrected by a control mechanism called *planning*.

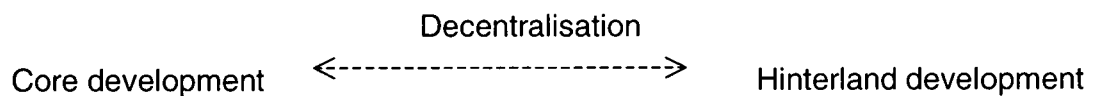
When Government decides to intervene in the spatial development, Geyer (1979:85) differentiates between three policy trends - a) centralisation, b) dispersement, and c) decentralisation. Friedmann (1966:48) instead use the terms concentration and dispersement to indicate strategies that can be used to

perform a specific policy. These three planning policies can be indicated as follows:

1. Core development;
2. Hinterland development; and
3. Decentralisation.

Geyer (1979:85) presents the above on a continuum, with core development on the one side and hinterland development on the other side, with decentralisation somewhere in between:

Figure 2.1 Decentralisation



Source: (Geyer, 1979:85)

Decentralisation normally takes place when information systems are so highly developed in a specific area that contact could be made without any inconvenience, meaning that a business still needs to be able to perform its daily activities and functions even if it is situated far from the city center.

Urban settlement patterns, as described in Christaller's theory, are extremely important here. These patterns normally develop through the range of goods and services and the minimum threshold of the population whom is necessary to support the goods and services.

2.3 The role of Town Planning and more specific, the Town Planner, in the current lifestyle with regards to urban development.

2.3.1 The role of the Town Planner

A planner must protect values of the planning society, the Government and the general public. Values will influence how the planner does planning. It influences the humans' perception of reality. Hoch (1994:1) states:

“Planners learn theories of city decline, suburban expansion, neighborhood change, and regional balance and use these ideas to shape the advice on specific proposals, complaints, and conflicts”.

2.3.1.1 The planner must perform certain functions (Steyn, 1989:7):

- a) Referee - the planner must make sure the field is set for planning through the use of the correct rules and standards;
- b) Coordinator - the planner must coordinate all functions between all role players, including Government/ public sector, private sector, etc.;
- c) Advocate - literally choosing side between himself, the community and the government (Davidoff, in Faludi, 1973:227); and
- d) Guide - the planner can be seen as a leader in the community as he must direct the community with regards to development, usages and feasibilities.

2.4 The role of communication / information in planning

Planners talk and interact most of the time. Talk is a form of practical communicative action. Communication is therefore central to planning. Planners are also mostly deeply engaged in a web of communicative and interactive activities. Previously planners only had to give advice to elected officials and policy makers.

"The planner's job is to speak truth to power rather than to participate in the messy world of action" (Innes, 1998:52).

There is an emerging paradigm - ***planning as communicative action***.

Experts and non-experts developed communication to solve problems that have been identified. Planning is best understood as primarily communicative action. In the information society, new products are information-based. Planning is *formalised* by communicative action. Planning is influenced by information by becoming embedded in the practices, thought and institutions of a community.

Information does not influence, unless it represents a socially constructed and shared understanding created in the community of policy actors. The information changes the actors and actions, often without their applying it expressly to a specific decision. Information is often used in helping people reach agreement. Communicative action around the information changes the players' attitude about the problem.

Through the above, ***Communicative planning*** was developed (Innes, 1998:52-60).

John Forester (1982:67) writes:

"Information is a source of power in the planning process".

He also writes:

"Whether or not power corrupts, the lack of power surely frustrates".

What is the planners' strength? Information - it is necessary not only to understand how information may be a source of power in the planning process, but also to recognise what kind of misinformation planners and citizens alike might regularly face and learn to counteract as well.

There is a limitation to the use of information - politics get in the way!

Planners can prepare participants in planning to deal with expected misinformation - sometimes preparing them with the facts, sometimes with questions and arguments, sometimes with expertise, and other times with just an early warning.

2.5 Statutory and Non-statutory guidelines for town planning

Planners have the responsibility for shaping the physical and institutional environments within which citizens live. Laws, policies and comprehensive plans bind them.

The foremost and primary obligation of the planner is to serve the public interest. Thereafter the planner will provide the elected officials and municipal elites with professional and expert advice. Professional ethics should coincide with the above. Public interest can also play a major role in the guiding of town planning (Howe, 1992:230-233).

On the formal side there are Acts and Ordinances guiding Town Planning which will be discussed shortly. Town Planning and development cannot realize without formal guidance of acts and ordinances. These guiding mechanisms play an integral part in the overall development of rural and urban areas.

- **The DFA (Development and facilitation Act No. 67/95, Act on Development facilitation)**

The DFA addresses the general principles of land development. It also promotes urban integration and densification, optimal usage of current infrastructure, compact town and cities and increase in densities.

In Chapter 5, Case Studies, it will be addressed and indicated if communication actually is for or against this documents' principles.

This document also allows for the environment to be protected.

- **LDO's (Land Development Objectives)**

In the DFA there is a portion providing explanation to Land Development Objectives. The Local Government must provide a certain level of standards for development. This includes infrastructure, coordination of land development with other councils and land use control. This act also addresses urban densification;

- **EIA's (Environmental Impact Assessment)**

A control measure to manage development and protect the environment and endangered species;

- **RDP (Reconstruction and Development Program)**

Any development must conform to the RDP. The basic principles addresses *integration, democracy, peace, security, reconstruction and development*, and

- **Structure Plans for urban areas**

These plans provide Government and Council alike with broad guidelines for Town and Regional Planning. These documents include IDP's (Industrial Development Plans) and SDI's (Spatial Development Initiatives).

- **Municipal Acts**

All Local Councils and Municipalities make use of policies, for example - Acts for Water, Electricity, Sewerage, Sanitation etc. These Acts determine the type of services to be provided in certain areas linked to type e.g. residential, business etc. They also determine the volume each type is permitted to use. Any over-utilisation might result in

a fine. These documents include IDP's (Industrial Development Plans) and SDI's (Spatial Development Initiatives).

2.6 Conclusion

The above Acts and Ordinances all play a definitive role in the development of urban and rural areas. From this chapter it is therefore clear that Town and Regional Planning and development is a complex and detailed issue.

It is therefore necessary to understand all the legal aspects impacting on development. A relevant question results - will the impact of communication and information have a positive or negative effect on development, as addressed by the different Acts and Ordinances?

CHAPTER 3

Communication

3.1 Introduction

According to the Collegiate Dictionary (Merriam-Websters, <http://www.yourdictionary.com>) the following:

- Pronunciation: k&-"my-n&-'kA-sh&n (Scientific writing formula);
- Meaning: An act or instance of transmitting. Information communicated, a verbal or written message. The technology of the transmission of information.

Telecommunications refers to long-distance communication (the Greek word "tele" means "far off"). At present, such communication is carried out with the aid of electronic equipment such as Radio, Telegraph, Telephone, Television, Internet, etc. In earlier times, however, smoke signals, drums, light beacons, and various forms of semaphore were used for the same purpose. The information that is transmitted can be in the form of voice, symbols, pictures, or data, or a combination of these. The physical equipment for a telecommunications system includes a transmitter, one or more receivers, and a channel or means of communication such as the air, water, wire, cable, communications satellite, or a combination of these (Laible, & Kaiser, 2002:2. <http://www.fht-esslingen.de>).

Communication develops through economical and technological advancement. Technology in First World countries are much more advanced than in Third World countries, therefore communication will also be like that. This is creating a gap in the development of these urban areas.

Communication and development are inseparable from each other. Communication is part and parcel of human life and supports the process of development. Education and resource transfers as well as social and physical infrastructure development can remove a multitude of social barriers. All these development activities need appropriate communication support (Kumar, 2002:4-7 <http://yhlib.northernlig>).

The statement is made that new information and communication technologies is not a “new information society” but inherently part of a late modernity.

3.2 Forms / Types of Communication

In a new and increasingly global social and economic environment, traditional patterns are fast replaced with personal networks that are geographically distributed over wide areas (e.g. sprawling suburbs, other cities, other countries) and where distance interactions through electronic media play an increasing and often dominant role. These electronic media types are: *telephone, cellular phone, fax, Internet, EDI, FTP, video, TV, etc.* These networks encompass family, friends, work partners and associates, clients, suppliers and competitors. They are both specifically geographically located, and increasingly, non-local or de-localised. They are also non-hierarchical. In the US this is called a “high risk society”. It may free peoples’ creativity and opens new opportunities for development and peaceful, safer healthier, and democratic forms of social organization, but place strong constraints on people’s lives. This includes increased insecurity with respect to jobs, family, personal property, stress, tension and violence. All this takes place in a sea of increased information (Mandel, 2002:1-4. [http://www.indranet.co.nz/Fiverings/Earth/social .asp](http://www.indranet.co.nz/Fiverings/Earth/social.asp)).

The insecurity requires a telecommunication service and networking component. This include all facets of networking using electronic and computing means, provided these can effectively break down distance barriers and isolation, reduce insecurity and enable creative means of dealing with the global changes. This includes distance education, networked health agencies, etc.

A revolution is underway which affects the way in which we communicate and conduct business! This is changing more than our business practices. It has raced into our daily lives - our homes, our schools, and our communities. Millions of us correspond by e-mail, and many of our daily chores can be done electronically - paying the bills, balancing accounts, ordering groceries. Telecommunication is used to promote education, democracy, public health and hundreds of other interests. How can it be harnessed by Teachers, Librarians, Doctors, Farmers, Home-learners, public safety officers, etc? (Benton Foundation. 2002:1-4. <http://www.benton.org>).

The types of communication will be discussed shortly:

3.2.1 Verbal / Visual Communication

- Telephone
- Cell phone
- Television
- Radio
- Word of mouth

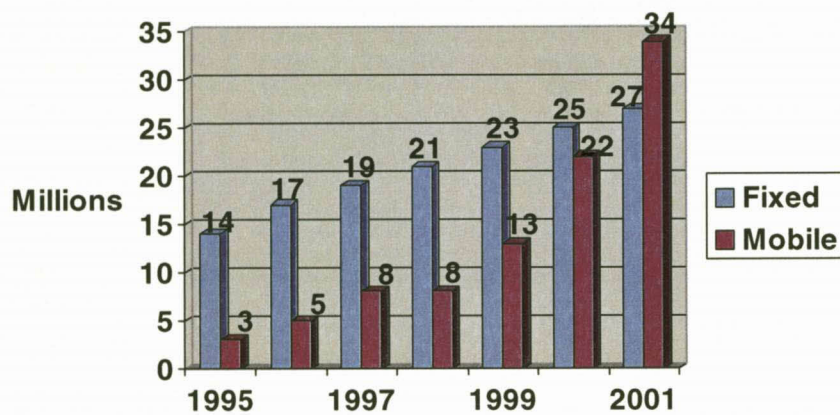
3.2.1.1 A short description / overview and history on each type:

- **Telephone** - Alexander Graham Bell patented his first telephone on the 14th of February 1876. Bell's telephone changed sound waves into pulsating voltage that is faster and easier to transmit than sound waves. In 1964 telephone calls were made through glass fiber cable lines. The Time Division Multiplex (TDM) and direct dial was developed in 1970, linking the USA and Europe on telephone via an Electronic Telephone Exchange (ETE) via satellite. In simple terms a telephone can be described by as follows: *"an apparatus for reproducing sound, especially that of the voice, at a great distance, by means of electricity; consisting of*

transmitting and receiving instruments connected by a line or wire which conveys the electric current" (Farley, 2002:1, 17).

The first public coin telephone came into use in Hartford, Connecticut. The payment was going to someone standing nearby (Farley, 2002:1, 17).

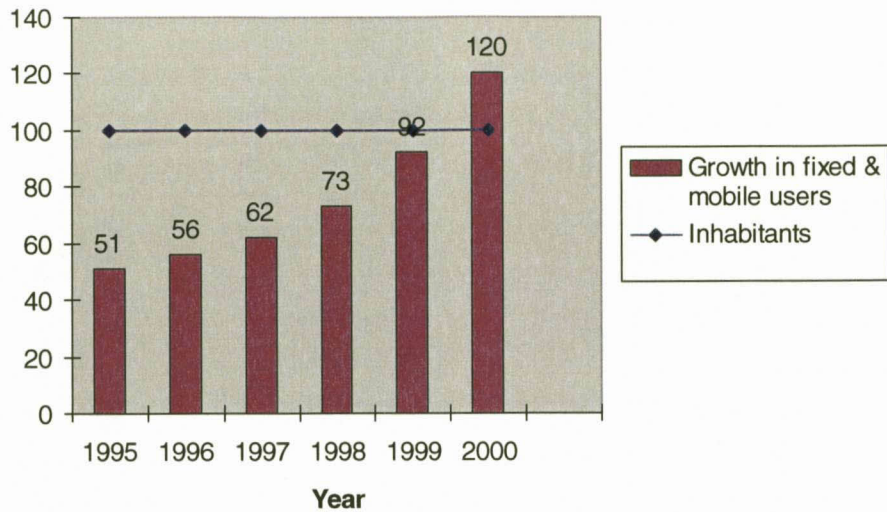
Figure 3.1 Growth in fixed and mobile users in South East Asia / 100



Source: (ITU. 2002:3)

The top figure indicates fixed and mobile subscribers in other countries, related to Africa which is indicated in the next figure.

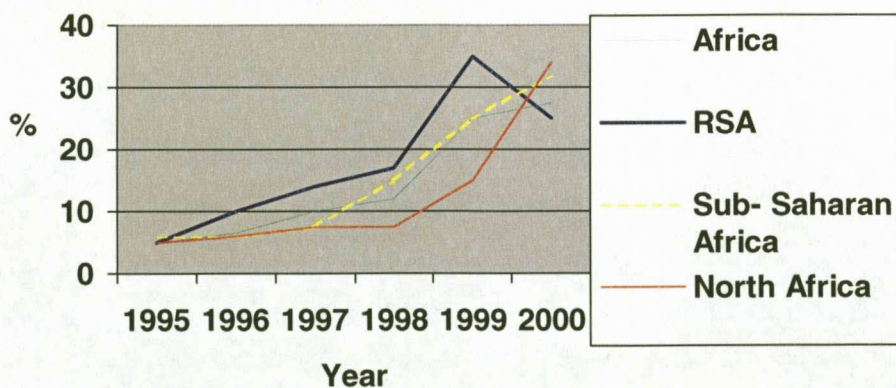
Figure 3.2 Growth in telephone subscribers / 100



Source: (ITU. 2002:2)

Out of every 100 inhabitants in Africa there were 120 users in the year 2001. This growth was dramatic but will start to ease out over the next 5 years. Figure 3.1 and 3.2 shows the difference in growth in users in two regions.

Figure 3.3 Growth in telephone subscribers in Africa



Source: (ITU. 2002:4)

The above graph shows growth in telephone lines in Africa. This indicates that South Africa had the largest growth but a negative effect during 1999 reduced the actual growth rate.

Table 3.1: Telkom SA Service Type Statistics:

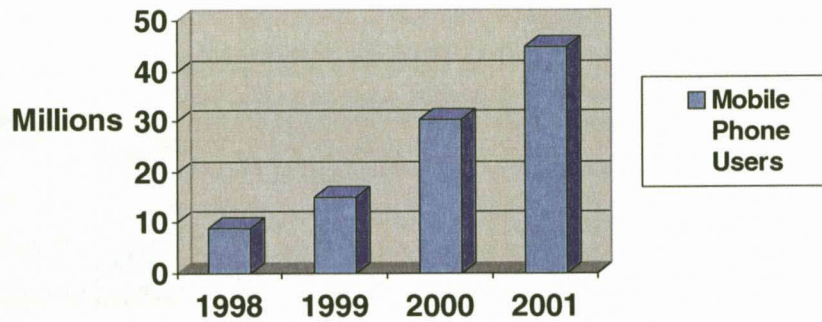
Operational Statistics	1998	1999
Main Telephone Services	4,645,065	5,075,417
Payphones	127,272	153,476
Manual Exchanges	127	89
Automatic Exchange Units	3,019	3,513
Transmission Circuits (km)	156,000	256,694
Optical Fibre (km)	343,000	360,000

Source: (Telkom Annual Report, 1999:1)

In South Africa, Telkom SA Limited was the only fixed line operator until 1 May 2002. As can be derived from the above information growth in new technology e.g. Optic Fiber takes place at a considerable rate (Telkom Annual Report 1999:1).

- Cellular phone** - Digital wireless roots go back to the 1940's. Developed almost 15 years back in Europe the mobile or cellular phone took the world by storm. Today almost 45 million people in the UK own a cellular phone and 65% of the population have access to one. Mobile communications are now considered vital to the success of the most business operations and individual lifestyles. Compared to traditional landlines, mobile telephone calls are more successful in reaching the person contacted. When phoning from one office to another, only 1 in 5 calls reach the desired person, compared to 4 in every 5 calls with mobile phones (<http://www.mobilemastinfo.com>, 2002:1, <http://www.privateline.com>, 2002:1-7).

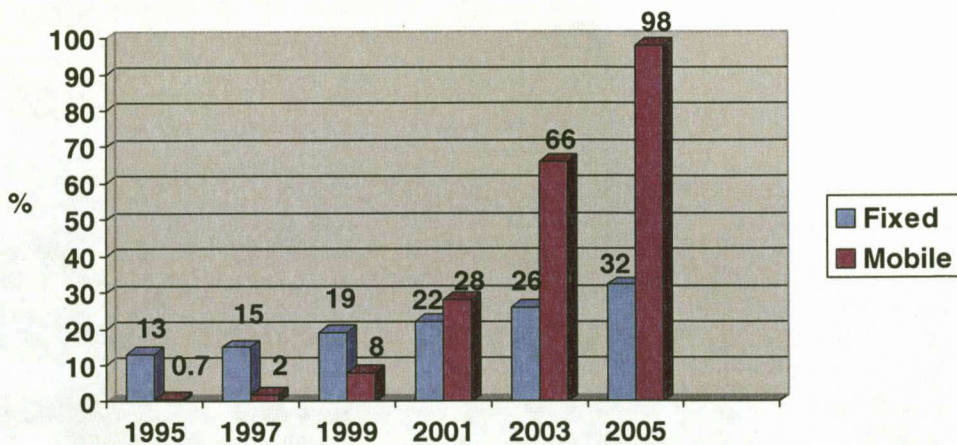
Figure 3.4 Growth in mobile phone users in the UK



Source: (ITU. 2002:7)

The above graph indicates that mobile users in the UK almost tripled over the last three years, meaning that there is an increase in the availability of services. Comparing the growth in fixed line users to mobile users is represented in the next graph.

Figure 3.5 Comparison between fixed and mobile users in SA



Source: (ITU. 2002:38)

As can be seen the growth in 1995 in fixed line users was almost ten times more than the growth in mobile users in SA. Since then, growth in fixed line users stagnated and mobile user growth exploded.

Table 3.2 Comparison between African regions

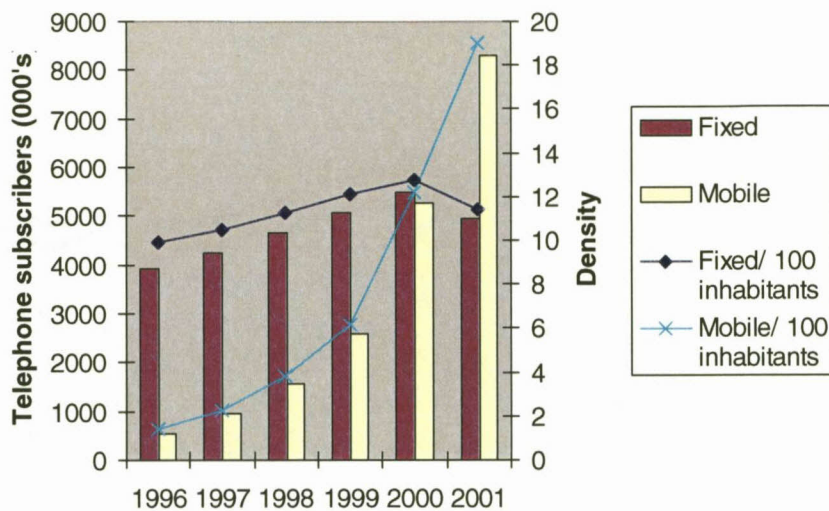
Country	Population (000's)	Main Tel Lines		Mobile Subscribers		Total density/ 100 inhabitants
		Total (000's)	Per 100 inhabitants	Total (000's)	Per 100 inhabitants	
North Africa	137 894	10 125	7.34	3 883	2.82	10.16
South Africa	43 686	4 962	11.36	8 308	19.02	30.38
Sub- Sahara Africa	610 650	4 558	0.75	3 244	0.53	1.28
Africa	792 230	19 645	2.48	15 435	1.95	4.43

Source: (ITU. 2002:15)

Nine years ago cellular telephone networks were introduced in South Africa for the first time and there are now close to double the number of mobile lines in the country opposed to fixed lines.

As can be derived from the above information, South Africa is geographically one of the smaller countries in Africa but compared to other countries and the sub-regions, the users per fixed and mobile line are much greater than any other country in Africa.

Figure 3.6 Fixed and Mobile Telephone Subscribers in the RSA



Source: (ITU. 2002:13)

Since the mobile network exploded in South Africa the mobile users doubled every year, but also in the same breath the subscribers for the fixed line component stagnated and even decreased during 2000/01. In 2001 there were approximately 19 mobile users per 100 inhabitants. This is almost double the fixed line users for the same period.

- **Television** - In 1972, the first cable TV connections were built in the USA. This introduced wide band communication. Television was introduced in South Africa in 1976;
- **Radio** - the radio functions through electromagnetic waves that were discovered in 1888 by Friedrich Hertz. In 1895 Marconi wireless telegraphy made commercial radio possible;
- **Word of mouth** - face-to-face communication is still most popular and frequently used to convey messages.

3.2.2 Non-verbal Communication

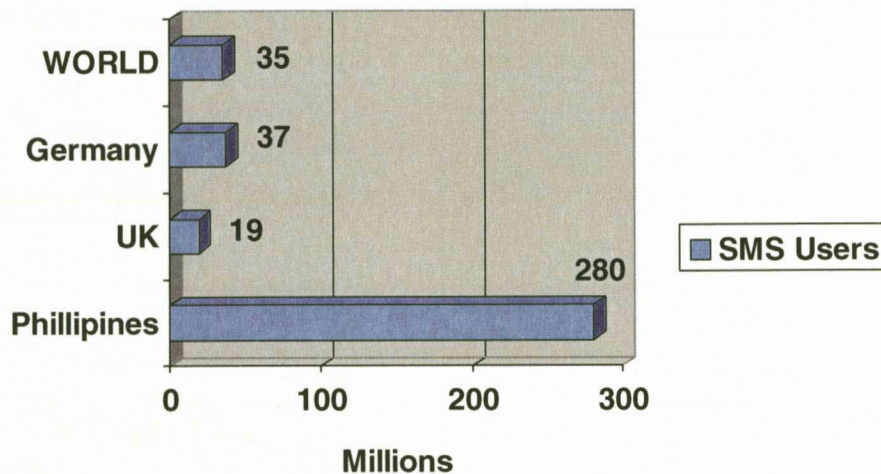
- Internet
- SMS Services
- Satellite
- Postal Services
- Telefaxes

3.2.2.1 A short description / overview and history on each type:

- **Internet** - Most of today's telecommunications such as e-mail, telefax, and online communication with the Internet, would not be possible unless computers had been developed in the past. The first model of a "programmable calculator" called ZUSE Z1 was developed in 1936. In 1942 Eckert and Mauchly developed the first all-electronic computer called ENIAC. During 1961 the first computers worked over the telephone network. In 1969 the origin of the Internet took place in the USA. Telephone lines and personal computers are key components for Internet access. In the developed countries, only 25% of households have personal computers with modems, meaning Internet access from households cannot exceed 25% (Minges, 2002:30);
- **SMS Services** - SMS (Short Message Service) was an accidental success that took nearly everyone in the mobile industry by surprise. Importantly the WAP (Wireless Application Protocol) developed out of this function in 2000. By using a Palmtop tool (handheld Computer) a job card can be send to a technician in the field. Before this service the technician had to collect the job cards at his office before going out into the field to perform his/her job (<http://www.m-indya.com>, 2002:1-4, <http://in.mobile.yahoo.com>, 2002:1-3).

SMS also provide information services. These services typically start with mainstream content such as news, travel, weather and sports (<http://www.m-indya.com>, 2002:1-4).

Figure 3.7 SMS Services



Source: (ITU. 2002:3)

This graph indicates the use of short messages as a way of communication. During September 2000 the Phillipines sent 280 million messages in comparison to the rest of the world, excluding the other three countries mentioned, who sent 35 million messages.

- **Satellite** - In 1960 the first satellite was sent into orbit by the USA. In 1965 the first communications satellite and television broadcast satellite was sent into orbit. In 1964 the first telemedicine over satellite radio took place. The Psychiatric Institute of Omaha and the Norfolk hospital was connected together by one satellite radio channel. The reason for this was to get the knowledge of expert doctors, not only in one hospital, but also in a net of diagnosis and therapy centers. The satellite connected the hospitals in tone and picture;

- **Postal Services** - This is the oldest form of communication in the world. According to some Historians it already existed in China and Assyria before the birth of Christ. The first public postal services started in 1504 in Italy. The formal postal services as we know it in South Africa, started in 1853. With the advent of e-commerce the postal sector is being re-engineered to provide e-services; and
- **Telefax** - Rank Xerox introduced the first tele-copier to the market in 1971.

The period between 1975 to 1995 is known as the Golden Age of Telecommunications. It is a period of “unknown” engineers who carried on the development. Nowadays even the remotest part of the earth can be reached via the various communications networks (<http://www.fht-esslingen.de/telehistory>, Bourseul, 2002:4).

Table 3.3 Comparison in communication type competition

Countries	Fixed	Mobile	Internet
% Competition	40	78	86

Source: (ITU. 2002:3)

The above information shows that the Internet has the most competition in the 201 countries where Telecommunication exists. This means in effect that the more competition in a country the lower the costs to acquire the services and allows more people to access these services.

3.3 Available technology and technological advancement as factor of potential urban growth:

- Automated banking
- Telephones

- Television
- Radio
- Telefaxes
- Internet
- Satellite

The above will be discussed in detail in Chapter 5, in the South African case study.

3.4 The impact of technology (communication) on rural and urban communities (rural verses urban) (Little, 2000:1-8).

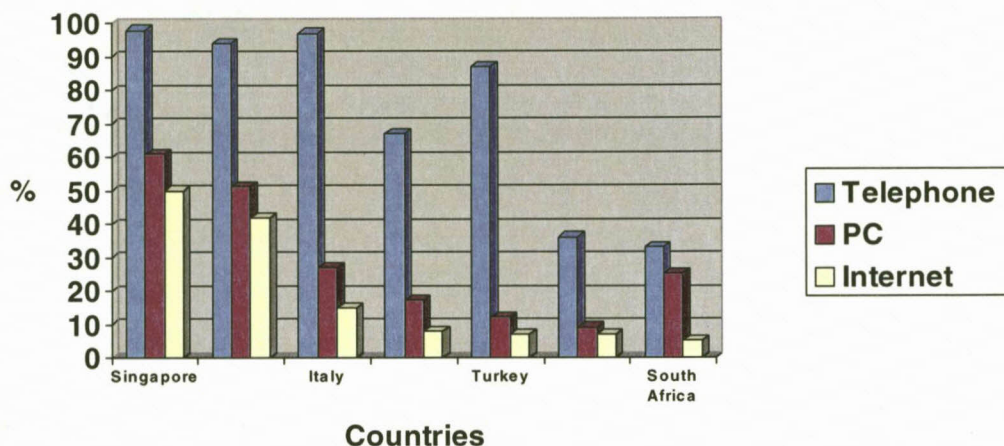
New forms of information and communication technology are linking the household to an increasingly complex public realm of formal and informal, spatial and non-spatial relationships. It is not just the unskilled or elite sectors of the labour market that are obliged to trade their labour across regional and national boundaries through communication networks. Middle-range (rural) players are finding themselves competing in a globalised area of outsourcing, downsizing and home-based self-employment contraction.

In developed countries the coalescence of communications and information technologies has given rise to "office automation" and "business process re-engineering". Small home-based businesses/rural areas are able to confront much larger competitors/urban areas beyond their immediate vicinity. The same technologies are at the same time allowing the state to relocate functions such as healthcare and confinement to the home. A key consequence is that access to appropriate information and communication technologies is playing a significant role in households and communities in their physical location.

The electronic mobility, now available to suburban and domestic labour force through telecommuting, opens a two-way street with electronic access to and from the home - redefining a sphere of both production and consumption. Many descriptions of

“information society” place a strong emphasis on the uniqueness of the present situation and suggest integrated technical change, leading to a globalisation of social life and economic opportunity.

Figure 3.8 Telecommunication household penetration in 2000



Source: (ITU. 2002:3)

This graph indicates the household penetration in 2000 for the three different types of communication services. South Africa is one of the lower service providers of the developed and higher developing countries.

However, the International Communications Board wants the 2006 targets to stand at:

Table 3.4 International telecommunication standards

High and Upper middle economies	Household Telephone Penetration > 90% Household PC Penetration > 50% Household Internet Penetration > 50%
Lower-middle & low income economies	Mobile Population coverage >90%

Note: Telephone penetration includes mobile and fixed. Mobile population coverage refers to the ability to receive mobile cellular signals. Source: (World Telecommunications Development Report, 2002:4).

In 1964 Melvin Webber argued that individuals were enmeshed in an overlapping range of groups, and that increasingly these social networks were not limited by physical or geographical location. He said planning must deal effectively with three components of metropolitan social structure:

- Spatial flows of money, people and goods;
- Location of the physical channels and adapted spaces that physically house activities;
- Locations of activity places.

He suggests that the first component can be derived from the effectiveness with which a communication system may substitute messages for physical movement of persons or goods. While developments in telecommunication capability and capacity had been equally instrumental in freeing access and range of location choice, face-to-face communication is still seen as a special need. Major developments in transportation and communication systems will be opening up unprecedented possibilities for whole new spatial patterns.

“Non-space realms” permits solidarities and collectivities beyond the physical limits of neighborhood and household.

Telecommuting by members of an organisation has become another alternative to simply outsourcing activities to separate undertakings. More flexible forms of work contracts are leading to the incorporation of households into formal business organisations in a way that recalls the pre-industrial household, as much as any post-industrial scenario.

As electronic communication becomes an increasingly effective substitute for physical movement, the relationship of the household to an increasingly integrated public realm of production and consumption is changing. Current commuting patterns were established in times of lower congestion and travel costs. Due to the absence of

adequate investment in public transport, diminishing benefits to users and growing reaction against the negative impacts of independent individualised transport provision has enhanced the attractiveness of some forms of white-collar home working which has been repackaged as "*telecommuting*".

Cyber trade is one of the results of communication. Consumers using Cyber trade to access the various services on offer can do so via the several communication types indicated above. From this they can experience the performance attributes of the product and/or conduct electronic shopping (<http://www.telkom.co.za>, Telkom Annual Report, 1999:1).

3.4.1 Technological Change

According to Castells, in Harrison (1994:74-76) a series of scientific innovations have brought about a new technological paradigm focused on information processing. Rapid advancement in telecommunications was an important complementary development allowing connections between the different processing units and the creation of information systems. He also mentions that the new paradigm had a profound impact on society and is changing our entire social organization: "new information technologies are transforming the way we produce, consume, manage, live and die".

He also indicates that shifts in macro-economic trends have brought about a new focus on localities and have served to sharpen competition between areas. It also demonstrates how economic trends, through communication advancement, have had spatial effects and have given rise to new patterns of uneven development. This creates spatial inequalities. It has been argued that since the mid-1970's we have witnessed the transition from an international to a global economy. Financial markets are being globalised, as international monetary flows are no longer restrained by national boundaries.

During the 1960's and 70's Fordism and mass production of standardised products controlled the world. During the 1970's the trend changed to a global community through increased information/communication technology. Industry responded with more flexible labour practices. The labour force has undergone significant restructuring. As traditional restructuring declined the information sector expanded (Harrison, 1994:73-74).

Since 1970 there was a major technological revolution in human history. It was mainly concentrated on information technology (Castells, 1989:74). It must be iterated that information technology and communication cannot be seen as separate entities in this document.

“Technopoles are the result of the information age. There was once an image of the nineteenth-century industrial economy: the coal mine and its neighboring iron foundry” (Castells, and Hall, 1993:1).

The above statement indicates that the thought in planning changed dramatically from then to now.

Technopoles - some are pure private sector real-estate investments, others are various kinds of cooperation or partnership between the public and private sectors. The people in the buildings of the new technopoles do not usually make anything, other people make VCR's, CD's etc. What these things have in common is that they embody information that has essentially been created here - **the information age**. Technopoles are deliberate attempts by public and private sectors to help control and guide some exceedingly fundamental transformations that have recently begun to affect society, economy, and territory and are beginning to redefine the conditions and processes of local and regional development.

In this new *Information age* cities and regions are being profoundly modified in their structure and conditioned in their growth dynamics by the interplay of three major, interrelated, historical processes:

1. A technological revolution, mainly based in information technologies;
2. The formation of a global economy, by a global economy we understand one that works in real time as a unit in a worldwide space, be it for capital, management, labour, technology, information or markets; and
3. The emergence of a new form of economic production and management, that - in common with a number of economists and sociologists - we term informational.

New information technologies are critical for the processes and forms of the new economy, on at least three levels. The first is to provide the material basis for the integration of economic processes worldwide, whilst keeping the necessary organisational flexibility for such processes. The second is that the industrial producers are the fastest growing sectors in the world economy in the last 35 years, and in spite of business cycles they have certainly not yet reached their state of maturity. The third is that this information-driven technological transformation of the global economy requires a rapid modernisation process of all sectors of the economy so that they are able to compete in an open economical environment.

The technological basis of countries and regions becomes critical for growth because, ultimately, the deficit in the balance of trade between high-value, high-technology producers and low-technology, low-value producers creates an untenable disequilibria. The culture of the technological-advanced, information-based society cannot be productively consumed if there is no significant level of innovation in the social fabric. Technological innovation, the production of technological-advanced devices and technological diffusion cannot be entirely disjointed processes. We must develop a milieu of innovation, as it has now

become a critical issue for economic development, and a matter of political and social prestige (Castells, and Hall, 1993:2-15).

According to Castells (1989:142-146) it shows how ill founded are the simplistic assumptions about the decentralisation of activities and businesses under the impetus provided by new technologies able to overcome spatial distance while maintaining communication. There is no direct effect of communication technologies on the location of offices and services.

He also states that centralisation occurs as a result of the above. To exploit the global reach of telecommunications, organizations must locate in certain areas where they will have access to an advanced infrastructure at relatively affordable costs. Thus, concentration of information industries attracts telecommunications investment, which in turn reinforces the centralisation for information-based activities.

3.5 Types of services affected most by technological and communication advancement

Non-local social, economic and commercial transactions include: orders, purchases, sales, marketing transactions, retail, training and banking. Electronic cash and electronic financial instruments is thus the logical outcome of global evolution. These services no longer need to be geographically located anywhere, not in New York, London, Paris, Tokyo, Johannesburg, not anywhere on the planet.

Firms, corporations, businesses, companies, profits, any organisation, first and foremost exist as **logical and informational entities in cyberspace**. The same applies, of course, to the full range of human social and cultural interactions. These transactions increasingly take place by networked electronic media rather than face-to-face. These processes occur in a virtual information space that is increasingly based on, supported

by and occurring through enhanced forms of telecommunication services (Dertouzos, M.L. <http://indranet.co.nz/Fiverings/Earth/Globalisation.asp>).

3.6 Shopping Trips

Truman (Hartshorn, 1992:181) writes that shopping trips are extremely difficult to study, as they are highly variable in duration and distance - depending on the distribution of opportunities, the type of goods being purchased and whether a single or multiple purpose and/or multiple place trips are involved. Distance plays a significant role in the prediction of trips, as most people are responsive to the discomfort of trips. Selecting a shopping location involves a certain degree of individual preference, which in turn depends on the individual's perception of the choices, information availability and experience.

He stated that the attractiveness of a particular *shopping opportunity* depends on expectations and actual attributes of the shopping opportunity e.g.:

- *Variety* (range of merchandise and stores);
- *Quality* (prestige of store);
- *Satisfaction* (store atmosphere, helpful sales person etc.);
- *Value* (good prices etc.); and
- *Parking*.

3.7 Retail change

Truman ((Hartshorn, 1992:338) further said several trends in retailing in recent decades have dramatically changed the CBD role in its traditional downtown activity. Up to the World War II era, downtown was synonymous with retailing; it was the only place one could find specialty shops or department stores. A descriptive three-stage model can best capture these shifts:

- *CBD Dominance* (1850's-1950's);
- *CBD Decline* (1950's-1970's); and
- *CBD Replacement* (1970's to present).

Part of this effect was the development of communication technology.

3.8 Tele-shopping

Little (Little, 2000:13-1813) writes that tele-shopping channels, initially broadcasted via satellite or cable, are being progressively reworked into a fully interactive technology. The prospects of direct sales into the individual households raise the prospect of further reinforcement of the household as a locus of consumption and reproduction at the same time as its productive function is being re-emphasised. These new forms of incorporation of the household into the public realm reflect the diffusion of information technologies and their impact on the organisation of production at local and global levels.

3.9 How technological development in communication affect urban / economic planning

Providing telecommunication services are part of utility services previously managed by Local Authorities. This has been removed from the service delivery of the Local Authority since the 1990's. The privatised utilities now provide infrastructure services according to their own commercial criteria within the broad framework set by legislation and utility regulators. Increasingly the emphasis has been on cost recovery by seeking developer contributions to fund infrastructure provision. The question arises of how far can a local planning authority be able to influence and coordinate the relationship between new development and infrastructure provision and how far development plans are able to perform a central role in these relations? This creates dilemmas in social accessibility to utility networks.

Little described that although there are many different aspects to the accessibility debate in the 1990's, two elements are of central concerns to *urban planners*. First, evidence clearly indicates that there are wide variations in levels of access to utilities at the local scale, which are hidden by aggregated statistics for national networks. Although nationally just over 90% of households are connected to telephone in Cruddas Park, a council estate in the town has a household connection rate of only 26%. Secondly the connection of new applications for telephone services is getting further behind daily.

Less expensive communication services resulting from privatisation create a reduction in construction and transaction costs in developing new networks. This also creates competition in providing new types of services as they become available. There is also progressive blurring of boundaries between different types of utility services as the companies provide better telecommunication through increased technological development (Little, 2000:18-23).

It is no longer possible to assume that a city's population has equal levels of access to these essential services. There are now major variations within and between cities depending on the characteristics of the population and the policies and attitudes of the local and regional based utility companies. These companies are increasingly adopting diversification strategies. These trends are likely to have important implications for urban planners.

There are increasing levels of spatial variations in levels of competition and service provision in the sector. Secondly also an increasing variation in the charges for utility services. Utilities are nowadays also taking up a central role in regional growth coalitions.

Globalisation through information and communication development has a spatial component. The restructuring has upset the spatial patterns. This creates uneven development in cities as well as regions. Global economic trends are also intensifying

social inequalities. According to Reich, in Harrison (1994:74) routine production jobs and lower to middle management jobs are vanishing in the old corporate hierarchies. More and more people are thrown into the uncertain world of self-employment. More than 70% of a society are suffering decline in income and living standards (Harrison, 1994:81).

Competition between places is a result of the above. The quality of place and location becomes increasingly important. The paradox is that as corporations are increasingly freed from the constraints of their home nation or region and are able to scour the globe for the most effective and attractive locations for operation and investment. Associated with this heightened competition between localities and the new politics is a shift in the focus and style of planning and development. There is a move away from national spatial policies and national supported regional or sectoral programs to discretionary territorial policies and territorial development programs. Planners have shifted focus from the regulation to the promotion of development. Urban governance was focused on the provision of services, facilities and other benefits. It is now concerned with the promotion of local economic development through mechanisms of inter-urban competition (Harrison, 1994:82).

3.10 Change in communities through the information revolution

During the past 20 years, edge cities emerged, city centers struggled, and mid-sized metro centers boomed. Over the past 10 years the work environment moved back to the home and office buildings are being converted into residential use. There are changes and transformation in the public, personal and corporate worlds. It is affecting local economies, central cities, suburbs and towns, travel patterns and floor space requirements. Planners must focus on the complex multi-layered transformation. Economic activity generated by the information revolution translates into redefining the demand for development, floor space and buildings. Following are three key forces of change (Blais, 1996:16):

- a) Restructuring industries, reorganising companies;
- b) Information technology and jobs; and
- c) Workspace changes.

Blais indicates that the above-mentioned is intended to assist planners and decision-makers effectively identifying and respond to change in their communities associated with the information revolution.

- a) Restructuring industries, reorganising companies - each industry/company is affected differently by the dynamics and impacts of the information revolution. Some industries, like computers, communications, etc. exploded and others stalled or contracted. In some growth industries some functions are declining and in some declining industries there are functions that are growing/expanding. A good example of this scenario is the fact that traditional manufacturing locally now takes place offshore. IT leads to automation of routine activities, e.g. automatic teller machines replacing human bank tellers. IT presents companies with an unprecedented range of organisational options by enhancing communications linkages through computer networks, phone, fax, modem, video conferencing and e-mail. A company can now optimally locate different functions in different settings: towns, cities, regions, or countries.

Examples are the relocation of back office functions out of high- cost urban centers to suburban locations, also to smaller towns and offshore locations. Activities can also occur between autonomous companies linked together by outsourcing and strategic alliances. Reliable telecommunications linkages between companies and their supplier's networks enable this.

- b) Information technology and jobs - a demand for floor space and buildings are created by an increase in jobs. Jobs are created and displaced by the information revolution. A new phenomenon exists - the space-less job. A smaller proportion of jobs will be accommodated in traditional workspaces such as downtown

offices or suburban business parks. It has been identified that the occupational structure change as a result of information technology - it now consist of highly skilled, well-paying jobs at one end and lower skilled, low-wage jobs at the other. This will affect, for example, conventional low-density residential suburbs (middle class);

Occupational profiles of individual communities will also change. Those with high concentrations of routine functions may be vulnerable to job losses. Creative and non-standardised activities are more likely to grow. Multi-location organisations expand and seek out the best locations for individual functions, communities may become less occupationally and socially diverse, attracting a narrower band of occupations; and

- c) Workspace change - Jobs generate floor space and building demands. Jobs are not translated directly into demand for commercial space the way they once did. It is now turning into space-less jobs. Companies such as Ernst & Young and IBM re-evaluated their office space plans and introduced smaller, more efficient workspaces in high-cost locations (Blais, 1996:16).

This includes the "hotelling" concept (working from home or shared areas e.g. hotel room). Some jobs can best be done out of a mobile office (e.g. a motor vehicle), through the use of cellular communications and portable computing. A number of companies are creating remote satellite offices or neighborhood telecenters, providing computing and telecommunications connections from a location closer to where workers live. This enables employees to reduce their commute-to-work distance, simultaneously avoiding the isolation of home-based work.

Information technology also created "just-in-time delivery", an inventory management technique. It requires reliable, on-time delivery of inputs on an as-

needed basis. Companies will reduce their storage space requirements by reduced inventory.

Lastly there is also a portion where planners start *teleworking*. This simply means conducting work - during the workday, after hours, or on occasional basis - from a remote location using telecommunications technology. Telework also includes "telecommuting" consisting of self-employed workers and workers operating from home-based businesses. 46 Million Americans conducted work at home in 1995.

All the above trends create a reduction in the demand for conventional, centralised workspaces through the shift in demand, and also increase the need for residential neighborhoods to be flexible and accommodate home-based work (Blais, 1996:16).

3.11 Globalisation as result of communication development

Globalisation started in the early 1980's and refers to:

1. The larger dispersal of capitalistic production relations on a long term;
2. Change in the organisation and functioning of capitalism.

In the literature of Robert Went (Went, 1996:1-11) there are three important elements:

1. The establishment of one real integrated market;
2. The conception, production and distribution of services and goods;
3. The construction and strengthening of super-national institutions.

Globalisation is here to stay and create a major change in international trade. This phenomenon exploded during the 1980's, also the period when telecommunication exploded into the most important method of doing business.

Technology results in a growth in communication development. The extremely high development and dispersement of technology play an important role in globalisation. There are three processes in technological globalisation:

1. Technological innovation;
2. Worldwide technological convergence; and
3. International technological development.

In the 1950's a cable under the seas between the USA and Europe made it possible to make 89 telephone calls at once. Today millions of calls can be made simultaneously through satellite. This means that a business can expand into other countries and be managed from one office/station without the actual visiting of the outside offices. For example Nike's Corporate office is in Beverton, Oregon, and not in a major city like Washington DC or in Silicon Valley. In Beverton there are only administrative divisions. The actual production of the shoes takes place in other countries, Taiwan, Korea, China, etc (Went, 1996:1-11).

The *Global paradox* is a result of technological innovation and communication. The bigger the world economy, the more powerful its' smallest players. Across the world people can more freely trade, but simultaneously want to be independent. Companies restructure and decentralise within networks of entrepreneurs to survive. The world is linked through computers and communication, which disperse new technology worldwide. Communication immediately gives globalised, decentralised companies access to capital, consumer preferences are globally integrated through television, and quality of products are the same everywhere. The revolution in telecommunication gave another dimension between *local* and *universal*.

Telecommunication is the driving force, which simultaneously creates a huge globalised economy, and making its' parts smaller but more powerful. Each and every company can now participate in a globalised market.

The information age has been founded on communication technology and networks of computers, telephones and televisions. This means that people get immediate access to all information and now move from “business-driven to individual-driven”. A strategic alliance is created through information, telecommunication, planning and the coherency of the computer, telephone and television and satellite linking.

Without telecommunication infrastructure a sustainable economy won't be feasible. The creation of such a network becomes a powerful mechanism for the individual to empower all. This makes it possible for individuals to communicate worldwide. The personal computer creates a situation where information is shared all over the world. This is the key to a successful information infrastructure, breaking the limitations on sharing real-time ideas and innovation (Naisbitt, 1994:43 – 93).

3.12 Technological Change

3.12.1 Telecommuting

What are the possible futures for Urban and Rural Communities? (Quay, 1993:12)

“Alvin Toffler in his 1980 book- The third Wave- weaves a vision of a future where half empty office towers are replaced by a return to cottage industries. The increase in telecommuting in recent years is one phenomenon supporting Toffler's vision. Telecommuters are also employees who work from home on a part- or fulltime basis. While the practice of occasionally working from home is not new, historically such activity has represented a very small portion of the work force. More importantly, it was not part of traditional business practice”.

During the past few years telecommuting emerged as an essential component of many corporation's business strategy. Examples of such companies are- AT &

T, Pacific Bell, U.S. West, and in S.A. Telkom, Standard Bank etc. Telecommuting and the interest therein are growing due to four forces:

1. The rapid proliferation and acceptance of electronic communications;
2. Personal desires to regain control over stress and time;
3. Corporate desires to improve the productivity and economics of labour;
and
4. Community desires to reduce congestion and air pollution.

The number of people commuting grows by 20% every year (Quay, 1993:12). Telecommuting workers will ultimately hold millions of jobs. This will represent 20% of the workforce. It reduces trips to work and lightens traffic congestion. As these workers function from home these locations need to be modified. Demand for more phone lines and data-quality lines on residential circuits will continue to increase. There is also an increase in requests for more flexible home floor-plans to allow a home office to be added. Design features such as security, improved electric and phone wiring, secondary outside entrances, and adequate parking is requested. New marketing and service delivery strategies are being developed to provide better business support services to home workers.

Whether you live 3 or 300 kilometers away from the office does not matter with telecommuting. The opportunities and option from where home is, becomes enormous. It means shifting our existing office to your existing home. In future, commuters will decide where they want to live. This future will see people unsatisfied with living in urban areas - but still wanting to take part in urban employment opportunities - will begin relocating to rural areas. During the past 10 years there was a 1.5% shift in U.S. population from rural to urban areas. Twenty percent (20%) of potential telecommuters move to rural America, this will reverse the trend and have a profound impact on the selected rural areas. Places like Santa Fe, Arizona and in S.A. Paarl, Stellenbosch, Centurion, etc. already show signs of change. These rural communities must provide increased

libraries, parks, cultural facilities and good transportation facilities to allow telecommuters to readily access their corporate offices.

"Telecommuting will also require enhanced communications infrastructure in rural areas, as telecommuters require high quality phone services. These demands will require the construction of new public communication infrastructure in areas undeserved in the past" (Quay, 1993:2-3).

According to Castell (1989:1) telecommunication allows work at home in "electronic cottages" and firms become entirely footloose in their locations. They are also freed in their operations by the flexibility of information systems. People can stay at home and be open to an entire world of images, sounds and communication flows. This will suspend the need for cities, as we know them.

He defines telecommuting also as:

"Home-based automated office work. This refers to the ability of workers to perform their work from their homes, using computers connected to IS networks".

The deteriorating of the office component in the CBD of cities is the direct result of Home Offices.

3.12.2 Incorrect Predictions

The chance that predictions could go wrong is 50:50. Telecommuting and the explosion therein is one thing that was predicted wrong in the United States. It was predicted that over a third of the workforce would be telecommuting by 2003. It was also said that the rest of the world would follow suit. Reasons given for this was sound: lower overheads for employers, better quality of live for employees and less pollution from fewer commuters on the road.

If the study is redone now, it will be found that the predicted boom has not materialized. Some Telecom Companies spent millions to upgrade communications in preparation for the electronic crofter. It is true that more people choose teleworking, but not nearly as was expected.

In South Africa it is not even worthwhile for Telkom to invest in upgrading the communication system, as it has not yet realised locally. A trend in S.A. is that more people are choosing to start businesses from home. More people are also hot-desking, spending a few hours a week in an office and connect to it via technology when they work from a remote location. According to a study done by AT & T in the United States, 28.8 million employees are teleworkers with an increase of almost 17% per year. According to the UK Government only 1.6 million people were teleworking.

According to the teleworkers themselves, a negative result of teleworking is the *feeling of isolation*. A study done by the American Cardiology Association has proved that teleworking plays havoc with the peoples' health. People are more stressed and frustrated about being cut off from colleagues. They also tend to work longer hours.

On the positive side more that 80% of teleworkers feel greater commitment to their organisation, most say they plan to stay with their employer. More that 75% reported better work quality and productivity. These people also tend to have higher education levels than others (Bennet, 2002:1).

Office work and corporate offices are revolutionised by the convergence of two streams of information technologies. This is the computerisation of information processing and the application of telecommunication. Automation substantially changed the situation in the office and office work. The combination of communication and the integration in an Integrated Service Digital Network, which will become universal provides the capability of flexible communication of

both voice and data, from anywhere to anywhere, and all this by using the standard telephone line. Telecommunication and computers then gave birth to Information Systems which created office automation in is now an indispensable tool in management of the economy (Castells, 1989:125-180).

3.13 Conclusion

Communication and communication-systems development exploded in the last 20 years and there is growth in communication connection all over the world. This results in globalisation.

There are also changes in the working environment as more and more people work from home, called telecommuting or hotelling. People also don't have to be close to the CBD of cities and companies can function and operate from anywhere in the world. The impact of communication on urban growth or shrinking will be discussed later.

Chapter 4

Business centers verses growth poles of cities

4.1 Introduction

In the previous chapter the study concentrated on communication and the different types of inter- and intra-communication methods. It was also discussed how these factors and communication types affect urban growth.

In this chapter the city and development thereof are discussed and also the principles and theories resulting in a development pattern. Focus will also be placed on the history of city development.

4.2 What is a City?

To define a city can become a difficult task. It can be a place larger than a village or town. The word *Urban* also has a somewhat nebulous connotation e.g. the *HAT* describe urban as follows:

"Groot, uitgebreide geheel van geboue met strate en pleine, groter as 'n groot dorp"
(Odendal, Gouws, 2000:1070).

Webster's new Collegiate Dictionary defines urban as:

"... of, relating to, characteristics of, or constituting a city" (Hartshorn, 1992:3).

In general a city can be seen as a concentration of people with a distinctive way of live in terms of employment patterns and lifestyles. Specialised land uses and a variety of

social, economic, and political institutions coordinate the use of facilities and resources in the city, making them very complex machines (Hartshorn, 1992:3).

4.3 The Urban Lifestyle

The increasingly dominant urban composition of first world countries like America, Europe, Australia etc., had an accelerated impact on rural traditions following World War II. Information systems like the television, movie theater and radio media, among others, reinforced the impact of urban values on rural areas (Hartshorn, 1992:5).

4.4 Historical background on the origin and growth of cities

Cities first emerged between 3000 and 4000 B.C. A prerequisite for the development of cities was an efficient agricultural system that could produce enough surplus food and fibre to support a non-agricultural class. An elaborate social organisation to coordinate collecting, storage and distribution of the agricultural surplus also became a prerequisite for urban living. Later, another class of workers emerged - the merchant. This group offered farmers money for their surplus products (Hartshorn, 1992:16, 1, 120).

4.4.1 Stages of development

Thompson, in Hartshorn, differentiates between 5 stages of development:

- *Export specialization* - a local economy emerge and produce goods for export outside the local community;
- *Export complex* - when companies begin production to supply inputs or purchase outputs from the original enterprise;
- *Economic maturation* - the growth of a local service sector (retailing, wholesaling and transportation);
- *Regional metropolis* - providing a service to the regional hinterland; and

- *Technical-professional virtuosity* - this stage signals national or international preeminence (Hartshorn, 1992:15 – 16).

We now live in the **Information age**, a post-industrial economy since the 1990's. Smaller cities process ambiguous information and larger cities agglomeration economies for the handling and exchange of this information. The information age and large urban centers seem to be made for each other and facilitate the generation and exchange of ideas (Hartshorn, 1992:1).

4.5 The Central Place Theory- Range of different products and services (Christaller's theory)

According to Bos (1987:117) the Central Place theory of Christaller is the most commonly known theory for the explanation of the current settlement patterns. Christaller based his theory on the fact that people always strive to organise their activities in a geographical space. He also makes a few suppositions - accepting a homogenous plain with geographical uniformity with regards to quality of farmland and the appearance of natural resources. As well as that the population is evenly spread.

Christaller made it clear that not all settlements could be considered central places. A central place exists to provide goods and services to a surrounding hinterland population (Hartshorn, 1992:137).

4.6 Another Central Place Theory- Lössch

According to Lössch in Hartshorn, Christaller's theory and system was rigid. A town in his formulation *always* had all the goods present in a village. You might find a dentist in a tiny hamlet if the exclusive trade area of that hamlet encompassed sufficient population to meet the threshold requirements for a dentist.

Lösch developed a theory for the size and spacing of settlements that differed in many significant respects from the one derived earlier by Christaller. Like Christaller, Lösch also began his theory with very simple initial conditions. Self-sufficient farmers were dispersed in farmsteads over a homogeneous plain. He also derived a theory in which economic forces explain the basic settlement pattern, but he differed from Christaller in his basic philosophy and this led to differences in the settlement pattern.

Christaller's view of central places led to a condition in which entrepreneurs engaged in the distribution of particular goods or services could accrue excess profits solely because of their location within their settlement fabric. Lösch, on the other hand, assumed that excess profits for entrepreneurs were inconsistent with the goal of consumer welfare maximization. Christaller attempted to describe the actual pattern of the central places in an economic landscape. Lösch formulated a theory that would describe an ideal landscape (Hartshorn, 1992:145).

4.7 Ordering principles of Central Place Theory

Figure 4.1. A Central Place Hierarchy with three levels

Source: (Hartshorn, 1992:142)

The above figure display three levels, as described by Christaller:

1. Hamlet;
2. Village; and
3. Town/ City.

Each place of a specific order is surrounded by six centers of the next lower size. The aggregate distance traveled by consumers to purchase central goods and services was at a minimum because of the existence of the maximum number of centers at each level. This is also called the $K = 3$ system, K refers to the constant. Market areas at a given level of the central place hierarchy are three times larger than the market levels of the next lower order in the $K = 3$ system. For example, if there were 2 cities in a particular area, there would be 6 towns, 18 villages and 54 hamlets.

There are also two other ordering principles, the Administrative principle and the Transportation principle.

Purpose and role of business centers in the current city/rural environment (Hartshorn, 1992:138, 322).

A statement is made that consumers will always purchase from the closest central place that offers a particular good. A second states that whenever threshold purchasing power for a good is obtained at a central place, an entrepreneur will offer the good; whenever demand for a good drops below threshold, the good will no longer be offered.

Consumers always minimize distance by patronising the closest central place opportunity. The above-mentioned explains why there are central place theories. This will have a large impact on the future development of urban areas where communication through technological development takes place.

4.8 Growth Pole Theory

There also exist an alternative economic development philosophy that highlights the importance of the city, the *Growth pole theory*. The theory has several behavioral applications in terms of priorities for resource allocation. Growth is not balanced but disproportionately concentrated at certain points, forming the basis of this conceptualisation. At first there was a development pole called the *Propulsive industry* - generating growth through it's own purchases and sales.

With the increase of communication, larger and faster growth takes place called *circular and cumulative causation*. This will create a multiplier effect, which will create an increase manufacturing, transportation, retail sales and other services. The way the city develops will have an adverse effect as described above with the development of communication. This will be discussed in a later chapter (Hartshorn, 1992:123).

4.9 Planning Applications

Central place concepts are excellent tools for planning guidelines. The intra-urban hierarchy of retail centers would range from the isolated street-corner grocery store, to the neighborhood center to the community and regional center. This study will largely focus on the above centers and the impact, future development and existence of these centers with the development in information technology. The study will also furthermore focus on the impact of home-based business and decentralisation on the planned urban environment (Hartshorn, 1992:151).

4.10 Interpreting Reilly's Law of Retail Gravitation

According to Reilly in Hartshorn (Hartshorn, 1992:88) retail trade areas can be measured. Trade area boundaries can be measured around cities in a precise manner using only population and distance figures. The trade area boundary between two cities

of equal size would be midway between them, and if they would be unequal in size, the boundary would be nearer the smaller of the two.

With the ability to do shopping or other purchases over the Internet this Law will be distorted. People will purchase goods and services from places further than what the law states as this will be delivered to them and the purchaser will not have to travel to the food or service purchased.

4.11 Conclusion

This chapter indicates that cities/urban areas developed over time and according to different people the development was and still is based on certain strategies of which Christallers' and Löschs' Central Place Theories are the most familiar theories.

Guidelines also exist on the placement and natural growth and existence of commercial activities. Communication, one way or the other, effects urban development, meaning growth or shrinking.

Chapter 5

Case Studies

5.1 Introduction

Communication technology, and especially the Internet, had a major impact on society and business during the last decade. Although the quality and quantity of information has recently improved, there are still huge shortages in Less Developed Countries resulting in the fact that LDC's are not part of the Global economic trend. Electronic commerce, nowadays, controls the economies of the world, but not in LDC's (Minges, 2002:1-16).

Telecommunication case studies provide an analysis of modern day issues in telecommunications, also how they have been addressed in individual countries. The resultant study analyses the various models or strategies that might be employed, describes current approaches, identifies obstacles, and assesses past and current experiences.

Case studies will be conducted by region:

- Africa
- America
- Europe.

(International Telecommunications Union, 2002:1-6)

The phenomenon studied in this document already exists for a few years in some countries and are currently also exploding in South Africa. This will result in the fact that no one city or region will be studied, but the entire country. Comparing other countries with South Africa and identifying problems and solutions for the RSA will be first priority.

5.2 Role Players

Who will participate in technological development?

Something that has an effect this large on the environment will result in numerous groups, individuals and institutions taking part in the whole process. The major role players would be:

- Governments - All Governments have a stake in the Information Society, irrespective of size. They are a key for bringing the benefits of the Information Society to everyone through the development of national and global policies and frameworks to meet the challenges of the Information Society;
- United Nations Family - This group offers an opportunity for the global community to reflect, discuss and give shape to our common destiny in an era where people and countries are interconnected as never before. The UN enhances change through consultation and bringing together the individual person, the private sector, government, international institutions and civil society;
- Private Sector - The private sector must play an active role, in conjunction with governments and civil society, by offering an economic viable model to achieve the development objectives on the world agenda. The private sector is instrumental in creating the material conditions for universal access to information and value- added services; and
- Civil Society - They are playing an active role in identifying the cultural and social consequences of current trends and in drawing attention to the need to introduce democratic accountability on the strategic options taken at all levels.

As there is a difference in the level of participation and or any participation at all, between the role players in the developed nations compared to LDC's, there will also be a difference in growth and development between first and third world countries (World Summit on the Information Society, 2002:1-6).

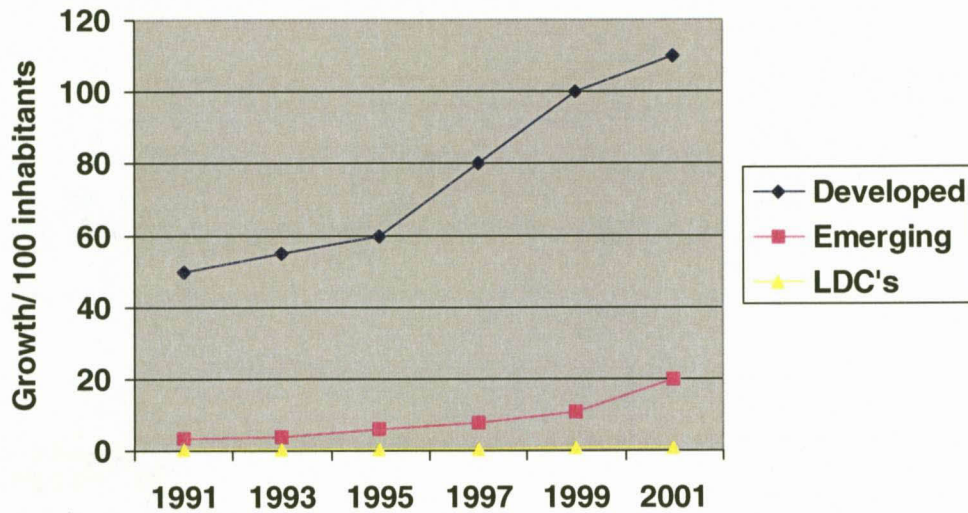
5.3 Urban growth in first world countries verses third world countries, with regards to technology

The world and development in the world can be divided into three types of economies, Developed Countries, Emerging Countries and LDC's (less developed countries). This creates all types of problems within and between countries and economies. In the first two types of economies, technological development exploded and there are no problems in providing telecommunication in these countries to the entire population. However, in LDC's the technological development seldom gives access to the largest portion of the population. Normally only the elite part of the population have access to communication types, for example the Internet. Therefore urban density will be higher in those areas than in developed countries.

The above statement does not mean that LDC's urban growth is slower or faster than in developed countries, the persons/sq.m. is higher than in developed countries. Due to a lack of telecommunication, the CBD of cities will still be populated by commercial and business zones with industrial areas in close proximity. The office portion will also be situated in or on the periphery of the CBD.

The Graph below indicates the growth of communication between the three types of Economies:

Figure 5.1 Growth in telecommunication

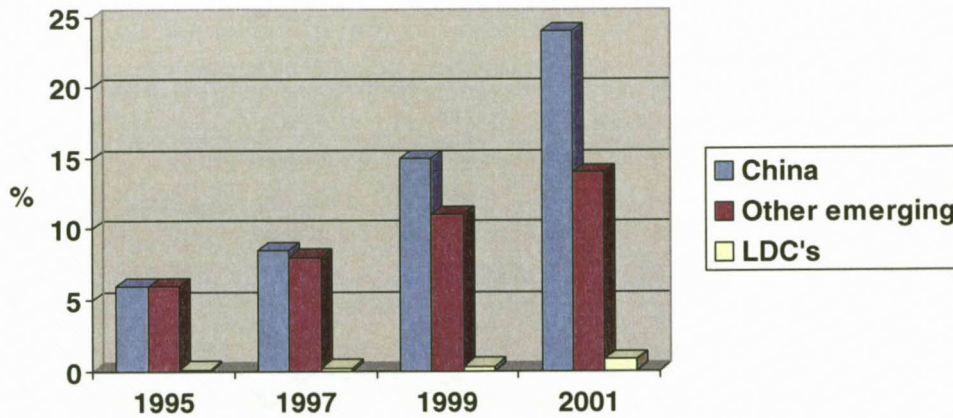


Source: (ITU. 2002:7)

As can be seen from the graph, developed countries in 2001 had more than one communication line per person. During the same period LDC's only had one communication line per 100 inhabitants. Thus resulting in lack of globalisation of the economy. The gap between developed economies and emerging economies are shrinking, but the gap between these two economies and LDC's are growing.

The Internet makes it possible for decentralisation and therefore plays an extremely important role in urban growth/expansion. It must be noted that there is a difference between urban growth and urban expansion. It could also be that the urban area is shrinking as it expands.

Figure 5.2 Share of world Internet users



Source: (ITU. 2002:7)

LDC's share of world population = 10.6%

LDC's share of Internet users = 0.3%

The information above shows that LDC's are so far behind in communication development that it is almost possible to say they will never catch up with the emerging and developed countries. The Internet plays such a major role in globalisation and global economies that a lack thereof results in very little change in urban expansion, growth or shrinking.

5.3.1 Internet Business

The Internet is a powerful tool and can be found all over the world. Business is conducted freely and as private as possible. It is also one of the less expensive ways to do business these days.

Training and education also start to relate to the Internet as a larger audience is reached with more and better information provided.

5.3.1.1 Amway

One of the most successful enterprises the past 20 years is the method to conduct business over the Internet. One of the success stories is Amway, originally developed in America. This is an Organisation selling goods over the Internet, telephone and fax. The goods are then delivered to the indicated address free of charge, 24 hours after placement of order. The goods sold range from health care products, food, artistry, household cleaning products, etc. In addition to this, the goods are sold 30% below the normal price of the goods sold in general stores. At first people were hesitant to make use of this method of acquiring goods but due to its' excellent network and service it quickly spread to other parts of the world. Amway has become a market and household name in most of the first world countries. This was made possible through the communication network and word of mouth.

Word of mouth is an extremely powerful tool to market a product/service. If a product/service is good/positive any person will tell at least 5 people about his experience. On the other hand, if something is bad/negative the person will tell on average 20 people.

Amway was brought to South Africa in 1997. Since then more than 200,000 people are making use of the network to purchase their household goods. As the communication networks are only available in certain areas, e.g. the formal cities and towns, the largest portion of the population cannot utilise this great tool. The product range in South Africa is also not as wide as in other countries and therefore limits choice. As the company exists in

most countries, it is possible to order something from another country via the Internet.

The question to ask: ***Will this service be as successful in South Africa as in other parts of the world?***

The answer: ***Only time will tell!***

What could to be said is the following:

- More than half of the population in South Africa do not have access to either telephone, fax or the Internet;
- More than $\frac{3}{4}$ of the population do not have a delivery address;
- The products currently for sale in South Africa are not on the basic list of most South Africans' shopping lists and therefore will not be purchased;
- The product range is too limited for the different cultures in the country; and
- The company does not market the service avidly.

All the above factors therefore indicate that this method of doing business will not rise to expectations as what happened in Australia and America. Janse van Vuuren, R. (2002:Personal interview).

5.3.1.2 Electronic Banking

Castells (1989:140) mentions that the Banking sector used the technology to automate banking through ATM's. Through this banks then close down bank branches and replaced them with automatic machines. As crime increase in most of the larger towns

and cities, people are more and more moving away from cash purchases and carrying cash in general.

Electronic banking services (E-Commerce) makes it possible to do all your banking through the Internet, which include payments made to different organisations and companies, salary payments, deductions etc. This method of banking will finally result in the decrease of large banking institutions and only small satellite stations will be found with one or two corporate buildings. This already happened in parts of the United States and Europe.

Castells (1989:141) sum up by saying:

“the penetration of computer-and-telecommunications information systems is altering the dynamics of office work and of the information economy in all it's dimensions.”

5.3.1.3 Education and Communication

Communication in First World countries is way above developing and underdeveloped countries. This can also be said of their education systems. Another phenomenon is the huge amounts of education channels that can be found on television in these countries. This is to assist educators and the education system as a whole in educating the youth. Television channels solely dedicated for education purposes are at the order of the day.

This however, does not exist in other less developed countries as they do not have the resources, financial backup and the largest part of the population, needing the service, has no money for a television set. In South Africa this started approximately 10 years

ago with K-TV on M-Net. A few years after this SABC 1 and 2 started with the same type of education programs in the afternoons to assist learners with difficult subjects e.g. Mathematics, Biology and Science.

This will have a positive impact on the population in the long run but will not result in people taking their children out of school and using this service as sole educational device. Less than 10% of children in developed countries learn from home. This is due to the fact that much larger emphasis is placed on the development of the child through interaction with other people.

The above means that it will still take years to use communication for education where it will not be necessary for children to be educated at home without any sort of schooling service as well.

5.4 Telecommunications in the United States and Europe

Christells (1989:147-149) writes the creation of telecommunications in the US takes place at three levels:

2. Long- distance communications;
3. Intra-regional communications; and
4. Local networks.

With *long-distance communications* the US' satellite-based networks also have the edge on optic fiber in terms of communications flows, being able to communicate, at the same cost, from anywhere to anywhere.

On the *regional level* the US are also turning to optic fiber, and to the establishment of new facilities for the regionally based organisations. New York are also in process to

set up other intra-regional systems, using coaxial cable, microwave, digital termination systems, and cellular mobile radio, which extends the office into transportation vehicles.

“Smart buildings and LAN” are establishing telecommunications equipment as an integral part of the structure of offices, at the *Local level*. Developers are increasingly providing built-in telecommunications and wired automated equipment into buildings, which can be shared among different tenants. This is also more and more happening in SA e.g. in Residential Security Complexes they provide 24 hour free access to the Internet.

5.4.1 Telecommunications - a phenomenon

In the US emerging telecommunications is an overwhelming urban-based phenomenon. Most discussions of new communications technologies emphasises the opportunities presented for decentralisation. New communications technologies permit geographical dispersal.

There are also trends in the worldwide economy as described by Philip Harrison (1994:75). They focus mostly on Technological Change and rapid advance on telecommunications. In America there are a process of economic internationalisation as national economies become increasingly interconnected through trade.

5.4.2 Decentralisation of Activities

In the US there is also currently a process of decentralisation of service activities taking place over regions, urban areas and locations within major metropolitan areas. This decentralisation is even being helped and stimulated by new information technologies. These service activities that have been decentralized are specific in terms of their contents and functions. It is received wisdom that

information and telecommunication technologies have made this possible, says Castells (1989:151-152).

Decentralisation in the US is taking place on three levels:

1. between regions;
2. from metropolitan to non-metropolitan areas and small towns; and
3. from inner cities to the suburbs.

Furthermore there are also two trends growing in the US and this is the offshoring of service activities and the decentralisation of office work at home (telecommuting).

Communication do play a role in facilitating these movements because the new nodal areas would be unable to compete with the established metropolitan centers were it not for their access to communication and information networks that keep them in close and constant contact with their command and control centers (Castells, 1989:229-307).

5.4.3 Suburbanisation of business and office activities

A major process here is services, and particularly of office activities which has been taking place since the late 1960's in most metropolitan areas in the US. The new suburban office centers differ greatly from the inner-city predecessors. They are low-rise, low-density buildings, not like the CBD with skyscrapers. The largest characteristic of this expansion of the built environment is the presence of the automobile. In the US it is undeniable that offices are decentralising to mainly the suburbs.

In many occurrences it so happens that a portion of the company that decentralise, stay behind in the city centre. These desentralised units remain

connected with other units of the corporation. This is only possible due to the existence of telecommunications.

Migration is the result of people moving to another area, country etc. The improvement of communication enhances migration to certain areas. According to Raymond Vernon (Class notes:1998) there is a major movement of people from the South to the North, Latin America to U.S. and Canada, Korea and China to Japan.

There are also pull- and push factors in migration and urbanisation. They are:

- Push Factors - High unemployment and low employment.
The decrease in communication cost result in migration to poorer countries.
- Pull Factors - Improvement and expansion in communication facilities across international borders and television, creating an illusion.

A main function of the city Central Business District was the face-to-face communication for the activities it demanded. Improvement in communication methods resulted in the deteriorating of the CBD as the face-to-face services decreased. People also now live further from the CBD. This results in the loss of centrality.

There is an increase in the flow of information between East and West Europe as well. Geographical changes and towns exploding in size was a result of this, e.g. Vienna. As the cities expand the peripheries are becoming more and more competitive. The demography change and the population increase.

Another effect of an increase in communication services is the increase in social split. People relocate to the city but still don't have access to communication, the largest portion of the migrants.

The author came to the conclusion that in South Africa the informal settlements houses more people than the formal urban areas but only approximately 45% has access to communication sources.

As a result there is an increase in cultural diverse groups living and working together. People can now stay in another country and still work in the country of origin. For instance, in Telkom there are over 1000 Chinese, Malaysian, American and European workers, but they still report to their companies in the land of origin.

Overall communication also created a decrease in differences between North and South Europe. It resulted in the disappearance of Communism and also created integration of East and West Europe. There was a change in the demography and physical environment of the cities in Europe. Amalgamation of cultures also took place (Vernon, Class notes:1998).

As will also be discussed in more detail in Chapter 6 in South Africa there is a spread affect in most towns/cities subsequently resulting in most Metropolitan Councils developing a Spatial Development Framework to try and stop the affect.

All the above address the fact that new technologies must be developed and current technologies expanded to assist in the development of communication systems. New technologies are not a panacea, but they are certainly a means to an end.

According to the Benton Foundation (2000:1-7) there are states in the United States of America that developed differently but focused on the same end - to connect communities and develop communication through technological advancement.

In Rawley, a new city north west of Florida, there are no commercial services in the CBD as they developed the telecommunication system to allow companies to locate on the outskirts of the city.

Most communities have particular strengths on which they can build. Some states concentrated their communications resources on education. They developed K-12-Education Schools that are presented on TV.

Central Indiana started a partnership with a very high-tech university and a successful and ambitious public broadcaster to deliver a university schooling program on the Internet.

New Mexico also managed to develop their schooling system by developing the telecommunication system with a boost of \$17 million initiative from the United States Government. This would provide \$1-a-month phone service to 300,000 Native Americans nationwide. In these areas a public Internet Service was developed for libraries and schools.

In the US, demand for access to commercial on-line services and the Internet has resulted in a rapidly growing number of competitive on-line service providers. Consumers have experienced easier to use interfaces, reduction in prices and a huge expansion in the information available over computer networks.

The US and other Governments have identified universal service as an important goal in reaching global communication development. The US focused on competitive markets and open access networks to ensure wide availability of products and services at affordable prices.

In the UK only approximately 24% of the households possessed a personal computer in 1994. At this stage the government experienced a boom in the

concern about information technology. The UK then introduced the competition public policy to develop the information society (CSPP Reports, 1996:1-42).

5.5 South Africa as Case Study in general

R. Bolch (1990:139-154) wrote that South African Planners followed an urban- industrial growth-pole strategy since the 1950's for primarily political rather than economic trends. This was done extremely poorly. Too many growth poles/centers/points have been designated at different times. The result: - lack of linkages and agglomeration economies, low multiplier effects and little spillover into the surrounding regions.

The Department of Communications indicated Information and Communications Technologies (ICT) have been identified by the South African Government as being central to development both in South Africa and across the African continent resulting in over 2,5 million lines installed since 1997 (Sawubona, 2002:65).

There is a huge drive in South Africa and the rest of Africa to bring telecommunications within reach of everyone. Previously, most cross-border telecommunications between African countries was transmitted to Europe and back, mostly by satellite which is a costly method. In May 2002 an undersea cable system, called SAT -3, was launched, connecting Africa to the rest of the world, and all islands along the eastern coast of Africa, with South Africa. This will then also open economic growth in the rest of Africa. SAT-3 will enable fast and efficient delivery of local and global multimedia communication such as distance learning and telemedicine (Sawubona; 2002:208-210).

In Rapport (2002:17) it is indicated that Cape Town are developing into the IT-capital of South Africa. More and more International companies come to South Africa to establish companies or open a branch here.

In the same instance there is a major increase in the sale of properties in South Africa over the Internet. This is becoming more evident in regions such as the Cape, Gauteng and Kwazulu-Natal. Pam Golding Properties sold more than double the properties over the Internet for the first six months of this year than the entire last year. This is due to the virtual tours on the Internet that allow possible purchasers to view the properties without visiting the physical site.

5.5.1 Saambou Bank as Case Study

Saambou Bank was centralised in the CBD of Pretoria. The main frame of the electronic equipment servicing the entire Southern Africa was also situated in this building.

In late 1994 Saambou Bank decided to decentralise to the Eastern part of Pretoria, and the first question asked (Howard, 2002:Personal Interview):

“Are there sufficient lines in the area and will the Telkom communication network carry our load and support our main frame”.

Peter Howard (2002:Personal Interview) investigated this and indicated to Saambou that their Communication network will not be supported if they relocated at that stage and that it needed to be upgraded. This was done and Telkom provided a new 2 Meg Optic Fiber route which made it possible for Saambou Bank to relocate out of the CBD of Pretoria.

5.5.2 Centurion as Case Study

Centurion is currently the second largest growth node in South Africa. Peter Howard Town and Regional Planners received numerous applications from large national and international companies for offices and warehousing based on the same concept as Amway. Currently Centurion does not have a 2 Meg optic fiber

route covering these areas selected for development and therefore the applications were cancelled by the applicants. These warehouses use state of the art electronic equipment linked to telecommunication lines from where distribution takes place to smaller distribution centers across the country.

Centurion and Midrand can also be seen as a small Silicon Valley as a large number of the High Tech Computer and Telecommunications companies centralised to this area. It is situated right in the middle of Johannesburg and Pretoria. But as Peter Howard said:

"It will be impossible for these two areas to have been developed if there was no communications infrastructure as 99% of the current companies came here because of the areas state of the art communication services. Although everyone think locality is the first choice for Centurion and Midrand, they forget the underlying fact that you can have the best location but it will still not be acceptable to the user if it can not communicate with the rest of the world" (Howard, 2002:Personal Interview).

5.5.3 The Red Cross as Case Study

South Africa, together with four other Southern Africa countries, applied for famine relief from the International Red Cross Service last year. When the Group visited SA they indicated their base is currently in Harare, Zimbabwe, but due to the political instability they want to relocate to the Pretoria/Johannesburg area. Their first question was:

"Will we be able to link through to the Red Cross Headcourters in Geneva and to the other four countries requesting our assistance"

This is a good indication that their first, largest and most important issue will be communication. They are now located in Sandton, Johannesburg.

5.5.4 Pick & Pay Service Delivery as Case Study

Pick and Pay started with a project to provide a service to customers wanting to acquire goods over the Internet. The Group started with a pilot project based in Fairy Glen in Pretoria, which has now been running for approximately eight months. Within this time the service grew so big that it is now saturated and expansion to other Supermarkets are in the pipeline. The Centurion Branch will start with the service in the first week of September 2002. The Group requires a nominal fee for home delivery and do so within a certain time frame (Brian Austin, 2002:Personal Interview).

5.5.5 Checkers Hyper Group Service Delivery as Case Study

Rudolph Barnard (2002:Personal Interview), Manager of Checkers Hyper Group, indicated they also tried the above in Sandton as a pilot project. However, this time the project was not successful and the Group took a decision not to continue with the role-out of the project until the environment was more accommodating to this type of service delivery.

5.6 Impact on Town Planning

As indicated earlier the location from where work is done is dramatically changing in South Africa. As a result people work from home due to different reasons. This could be for business or personal reasons.

A few are mentioned:

1. More woman work from home to be with their children;
2. As the economy in South Africa deteriorates more and more people are retrenched and they start small businesses from home, as this is the cheapest method to run a business;

3. Most of the financial, banking and insurance institutions formulated a policy that their consultants must work from home;
4. Professional people for example doctors, architects, planners, etc. are home based as it gives them more freedom and reduces cost in rental for office accommodation;
5. As most of the core urban areas are in a state of decay there are huge safety risks and therefore people move away from these areas; and
6. Getting access to city centers are becoming increasingly difficult and time consuming.

Previously land uses were very clear and simple to plan, as there were uses for specific needs, for example, residential, commercial, business, retail, recreation and industrial. With the new trend to move the business into the residential area created a conflict in planning terms within South Africa. For each land use there are specific terms and conditions that planners must adhere to, and this is in conflict with the "mixed use" currently developing (Pretoria Structure Plan; 1980:177-180). Giving people free access to the outside world would not have been possible if there was no means to communicate and if telecommunication systems and tools did not exist.

An excellent example is the eastern suburbs of Pretoria (refer to attached Map 1 on next page). The number of residential houses in this area used for business purposes increased tenfold from 1997 to 2001. Due to this change the Pretoria and Centurion Local Councils decided to formally place a Town Planning policy and land use zoning in the Town Planning Schemes for management of the process. This is a Mixed Use Zoning allowing people to apply for rights to work from home. (This zoning is not the same as the Home Industry Zoning).

This is the direct impact on Town Planning. Indirectly more severe problems now evolve due to the above allowance, which is more negative and destructive than anything else. These issues are also most of the time linked to something else and not to the root cause.

As in the case of the Eastern suburbs, they are the following:

1. An increase in traffic in the area;
2. Increase in crime;
3. Increase in usage and often misuse of all services, e.g. water, electricity, sewerage, waste disposal etc.;
4. Increase in parking problems;
5. Increase in commercial and retail development to provide a service to the increase in population.

The above are the main issues that also have an indirect impact on town planning. As soon as traffic to and from the area increase, roads must be widened, resulting in changing of the Town Planning Scheme, which contains standards for roadwidth in certain areas and land usages. Where this kind of development takes place the area has been planned to allow for a certain amount of bulk services. With the explosion in increased usage of services it is not easy to suddenly change the planning for the suburb as everything is set and done. Now suddenly Town Planners must come up with innovative initiatives to overcome the problems.

To make provision for the additional retail and commercial requirements the town planner must rezone other use areas, for example park or recreation areas, to accommodate the requirements. As indicated, this is currently taking place in the eastern suburbs resulting in the Pretoria and Centurion Local Council Town Planning Departments to be in dire straights, as it will now cost millions to rectify and alleviate the traffic problems in the area.

The above also leads to negative connotations to urban densification policies as addressed in the DFA and other Acts.

In the Record East (2002:3) it is stated that there is a huge increase in "Home Offices" in the all Towns and cities, but more so to the East of Pretoria. According to Nico Smith (2002:Personal Interview) the increase in densification of Pretoria is currently more than 20%. It was therefore decided to develop strict rules to manage these issues and a Spatial Development Framework was approved by the Tshwane Metro to govern the application and unlawful existence of "Home Offices". This Framework will manage the effective management of change, particularly to the accommodation of home offices in residential areas. The Framework also identifies the boundaries of the business nodes in the area, the appropriate land-use parameters and applicable and necessary development controls. An action plan is in development to guide and coordinate future development and changes in land use.

Danie Schoeman (2002:Personal interview) of the Bloemfontein Local Council explains that Home Businesses in Bloemfontein are increasing and the Planning Department receives a large number of applications per year for new business to be operated from residential houses. Currently there is no demarcation of areas to indicate where this is allowed and where not. As a result some of the roads in town and more specific Westdene, are suffering due to over-usage. The same applies to the services. However, currently it is impossible to determine the actual impact of this phenomenon on the structural and physical environment. What is however striking is the amount of illegal home businesses operating in residential areas. In informal areas a huge phenomenon is the large amount of shebenes and tuckshops, also illegally.

The Bloemfontein Town Planning Scheme currently makes provision for all residential erven, larger than a certain size, to be subdivided into two or more. It also allows that two houses can be build on one erf. There is no restriction on the usages of services. This also results in the over-exploitation of all services.

There must also be the defining and protection of the rights of the owners of intellectual property (CSPP Reports, 2002:5).

5.7 Conclusion

As can be seen from the case studies it is extremely important to have access to communication and telecommunication services as most of the companies function through these channels and cannot exist without the services.

The case studies compare the first world countries with South Africa, a third world country, and through this indicates the differences on progress made by the different studies to correctly utilise the technological development phenomenon. It could also assist planners in identifying problem areas before the problems actually exist.

Lessons and Suggestions will be discussed in detail in Chapter 8.

Chapter 6

Inter- / Intra Urban Communication

6.1 Introduction

In the previous chapters the decentralisation issue and the impact thereof on town planning was discussed in broad terms. The question remains: How will this take place? The answer is: Through inter and intra urban communication. Meaning, the method of communication in a city and between 2 areas. This Chapter deals with the types, frequency of usage and the effect it has on urban growth or shrinking.

6.2 Inter- and Intra Urban Communication

Communication methods within urban areas (intra) and between urban areas (inter) are more or less the same but the frequency of usage will differ. When looking at the different types it could be said that communication in an urban area will mostly be done through telephone or face-to-face discussions. There will also be a high frequency of E-mail communication.

Methods of communication between urban areas (inter) will also be telephonically but much less face-to-face. There will also be a high frequency in E-mail and also now video conferencing will come into play. Video conferencing is a high-technological tool that came onto the scene approximately 3 years ago in South Africa. It is communicating through video. Most of the larger international companies prefer connecting across countries in this manner.

6.3 Importance of Intra- and Inter Urban Communication

The development of communication systems is driven by major environmental, economic and social change trends. The two main aspects of these trends are:

1. The globalisation of the world economy; and
2. Related changes in people's social and working lives, their lifestyles, work environments and work practices.

(Musasbi, <http://www.indranet.co.nz/fiverings/Wind/Winds.asp>.)

With the development of intra- and inter-urban communication most have neglected, if not totally ignored, the profound and growing gap between how people think, communicate and live, and the logical paradigms upon which current patterns of technology development are predicted. In consequence, customers and users that are seeking to operate their own networks and strategies in co-operative ways that are inherently non-hierarchical and non-local (inter- and intra-urban) are being forced to use systems and infrastructures that are profoundly hierarchical and increasingly constrained in their capacity, speed and throughput. A telecommunication system designed to meet present and emerging customer demands, must be able to mirror and emulate how customers socially and economically interact with each other in inter- and intra urban spaces.

In effect people tend to develop and operate their own particular networks in the same way as they walk or drive from place to place (Gilder, <http://www.indranet.co.nz/Fiverings/Wind/inadequacysoa.asp>.)

While production, transport and consumption processes take place at specific geographical locations and routes, the corresponding social, economic and commercial transactions themselves increasingly take place in an information space that is logically **non-logical**. This is a consequence of emergence of the non-geographical space people now commonly call "**cyberspace**", also known as **trans-nationalisation**.

These activities can no longer be confined and defined by nation-state boundaries and allegiances. This means that travelling are decreasing in inter- and intra-urban functions but increasing communication between inter- and intra-urban function takes place (Dertouzos, <http://indranet.co.nz/Fiverings/Earth/Globalisation.asp>).

6.4 Intra- / Inter Urban Communication vs. Urban / Regional growth or shrinking.

Communication and technological development results in the following:

- Towns and cities are parasitic. They allow town-based elites, large corporations and central government agencies to exploit the rural population and to drain rural areas of their resources. The implication is that investments should not be located in these places, but dispersed in rural areas;
- Through communication even small towns are “structured” to enhance the well being (social, economical and political) of those who are relatively advantaged;
- Communication results in the weakening of the economic structure of the small towns, making them dependant on the metropolitan economy;
- On the positive side, cities are per say not necessary parasitic. Many perform beneficial functions that are essential to rural development;
- Through communication rural people can compete fairly with city people; and
- Only approximately one-fifth of the market participants live in the city. (Rondinelli, 1985:8-12).

Stephen Gill (Gill, 1997:90) indicates that regionalism and globalisation is a result of increased usage of communication. It will not be necessary for labourers to work and stay in/near cities. They can work in the rural areas for companies situated in cities.

All the economies and politics of the world can be linked and finally result in one global structure. This may result in the creation of a global government.

Communication also creates a restructuring of inter- and intra-regional migration. With the restructuring of global production and global relations through communication, people move away from their current environment to selected areas where they feel at ease and relaxed. Labour also tends to move nowadays more between cities in one region and also between regions and countries.

There also now exists a transformation in culture in the sense that different cultures migrate within a region and between different regions.

Kenichi Ohmae (1995:1) believe that communication now dictates the movement of capital and companies across regions.

Through communication regional cities developed e.g. Silicon Valley, the Bay Area and Hong Kong.

After the Second World War in 1945 a "Global Economy" was forming. All people want a better life for them and their children. Through this they move from one area to another in search for this.

Industries are more focused on globalisation than ever before. They are moving to where there are the largest possibilities and take with them capital and technology. The movement of these industries is made possible by communication technology, which makes it possible for all companies to fully function in every country/region in the world without a physical presence there.

The largest factor, that plays an important part, is the fact that people all across the world tap into one global information system, provided by a well developed computer system and network. Certain communities can now see how other communities function and perform and they can increase their own efficiency through this. The fact of the matter is also that this will not always be positive. It is a fact that economic

activities in today's' boundary-less world are information driven efforts in a globalised economy.

Due to the fact that information and knowledge lead to a major change in technology, the global economy changed dramatically over the past few years. As a result of communication technology, this effect is three-fold:

- 1) Capital can immediately be moved to any place in the world;
- 2) The companies and workers later loose pace with the fast technological change;
and
- 3) It changes the people's views on products, services and values.

Communities are no longer limited to their own boundaries and resources. Satellites place the world in your hands. The new era of information result in the amalgamation of communities and countries.

There are countries that still ignore, or through law decided not to make all the communication services and technology available to the people (Ohmae, 1995:1-143).

In Chapter 2 The DFA is mentioned and one of the important issues in this document addresses the fact that **densification** must be a priority. The chapters following chapter 2 describes communication and telecommunication and the impact on the city. The result might be the expansion of towns and cities as people can communicate and work over longer distances. In actual fact all cities and towns in South Africa currently have a spread affect that the radius of the areas just gets bigger and bigger. To this fact most of the Metropolitan Councils in South Africa started and developed Spatial Development Framework Plans to try and stop the spread affect. This is also due to the cost in all disciplines for the planning and delivery of bulk services. The longer the distance over which planning and delivery of services must take place, the higher the cost.

A high emphasis is placed, by Christaller, in Castells (1989:167), on decentralisation. This occurs among regions, among metropolitan areas, from metropolitan areas to

smaller towns and rural areas, to a limited extent abroad, and, in the future, to the domestic premises. This was written in 1989. Since then the “domestic premises” already became a major role player in Town Planning as a whole. This will also in the end create urban growth and shrinking. It may sound impossible, but it will be discussed in detail in Chapter 8, Lessons and Recommendations.

6.5 Impact of Telecommunications technology on the Industry

There is a two-fold impact of these technologies on the industry according to Castells (1989:160):

1. Telecommunications technology increases the spatial mobility of the industry and lowers the cost of transmission between companies' units. On-line information processing allows geographical separation of activities without losing accessibility to the customer; and
2. Large-scale office automation restructures the occupation profile, increasing the need for skilled clerical labour.

New communication technologies make it possible to relocate operations, particularly back offices, in remote locations, or foreign countries.

6.6 Conclusion

Out of this chapter it is learnt that there is a difference between inter and intra urban communication, and that both play a major role in the development of urban areas.

Through this difference in communication types and the frequency of usage in urban areas, this creates an effect of decentralisation on the one hand and centralisation on the other. Through telecommunication it is easy to increase the densities in urban areas by utilisation of residential accommodation for businesses, and on the other hand,

create the possibility that businesses can now move out of the CBD to the surrounding suburbs without losing face with its customers.

This means the impact of technological development in South Africa are in the embryo phase and the major effect will still realise in the years to come.

Chapter 7

Research Methodology - Background and Analysis of Questionnaires

7.1 Introduction

In this chapter the author will discuss the method of research that was used and the outcome of the research study. The author will also explain why certain criteria were used to formulate the questionnaire and the study group selected.

The research project will try to indicate the different levels of telecommunication users in South Africa, the preference under the different age groups, for the different telecommunication types. It will also assist to identify the current preference of the South African community for the working environment and their purchasing habits. Lastly it will assist to possibly make predictions of where we could find ourselves, as planners in the future, looking at the current trends.

7.2 Research Methodology and Process

7.2.1 Background

Research usually proceeds in an orderly manner, through successive phases, from the beginning to the end of a particular project. However, this sequence of phases can vary under special conditions. The research process and method used will be explained shortly.

7.2.2 Research Variables

This study will contain at least two variables:

- (1) The independent variable, which may or may not be manipulated by the researcher, and
- (2) The dependent/response variable, which is observed and measured by the researcher.

There are three important groups of Descriptive Statistics:

- (1) Frequency counts and frequency distributions,
- (2) Graphical Representations of data, and
- (3) Summary Statistics

All the above-mentioned groups will be used to conduct this study. (Graziano and Raulin, 1993:91)

Random selection should be conducted from the population. Random sampling is a procedure for selecting subjects from a population, where each subject has an equal chance of being selected. A serious threat to generalisability is the subtle kind of bias that occurs when a researcher has access to only certain groups. Ad-hoc sampling will be used in this study.

7.3 Major steps in Survey Research

Surveys are based on the idea that; - if you want to know what people are thinking, just ask them! The major goal of a survey is to learn of the ideas, knowledge, feelings, opinions, attitudes and self-reported behavior of a defined population of people by *directly asking them*.

The survey instrument will be in the form of a questionnaire. The Questionnaire will begin with an introduction, which explains the purpose of the survey and gives instruction to the respondent. The questions will be divided into two major categories,

demographic and content questions. The demographic questions seek information about the respondents such as age, sex, occupation, family status, etc. These are factual items, and they can be verified independently. Most of the items are content items, dealing with the subjects being surveyed. Content items ask about the respondents' opinions, attitudes, knowledge and behavior. (Graziano and Raulin, 1993:302-302)

This survey will be done by personal interview. Sampling procedures are divided into two major categories:

2. *Non-probability sampling;*
3. *Probability sampling.*

Probability sampling will be used in this instance with simple random sampling as method, meaning every member of the identified population will have an equal chance of being selected.

The group selected for the research comes out of the telecommunications environment. They were identified by random sampling selection (probability sampling).

7.4 Research Problematic and Shortfalls

This study focuses on communication and information and the way this influence peoples' behavior in development, working relations, and shopping. Unfortunately only an extremely small portion of the population has access to the technological tools and therefore the largest portion will not understand the impact it will have on their lives or the influence it currently have on development.

This will result in limited survey where people will be questioned.

An appropriate research methodology and method must be chosen. There are two choices; qualitative and quantitative research methodologies according to Gina Wisker (2001:29-31). This study will use the quantitative methodology and will therefore measure variables.

Questionnaires will be used for the collection of data. Questionnaires gather information directly by asking people questions and using as data for analysis. They are often used to gather information about attitudes, behaviors, activities, and responses to events and usually consist of a list of written questions.

7.5 Findings

Attached under Annexure B, the Questionnaire standard format used. This study was done to determine the availability of different kinds of telecommunication and also the preference of the respondents. The analysis will be broken down into different types:

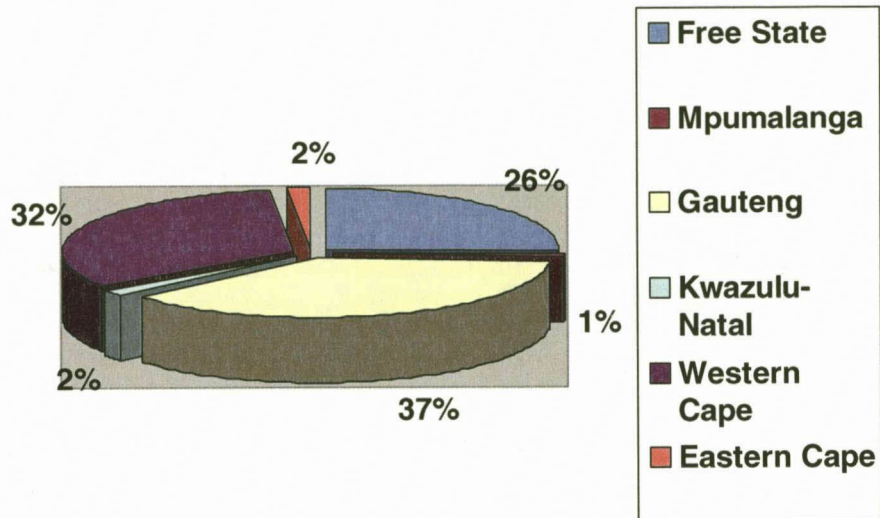
1. Rural;
2. Urban;
3. Age (10 year interval groups); and
4. Gender.

An evaluation and comparison of all types will be done.

7.5.1 Overall Findings

Annexure C indicated a summary of the questionnaires. This finding includes male, female, rural and urban respondents.

Figure 7.1 Breakdown of respondents per region



The above graph indicates that there is a spread between the larger regions and the smaller ones. The biggest group falls in Gauteng.

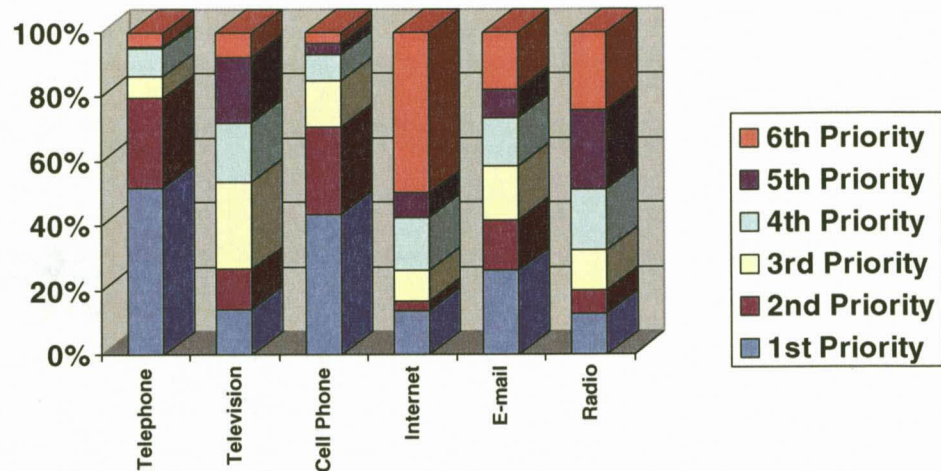
There is also a gender split:

	Male	Female
Gender	49	76

It can be mentioned that the nationality is 124 South African and 1 other.

The communication method or preferred choice will be explained in a graph:

Figure 7.2 Priority of telecommunication types



According to this figure it is clear that the telephone and cell phone is the largest choice for the respondents, thus the communication type that is used the most. E-mail is third in line followed by Internet and television. Through this it is simple to understand that the Internet and E-mail do not have the impact and choice all think it should have. South Africa is still a Third World country! Therefore it may be said that E-commerce and Internet business will not be as strong in South Africa as in other First World countries.

The respondents' shopping habits were also tested, namely day-to-day needs and monthly shopping as well as the value of the individual shopping types and where the preferred shopping takes place. Distance willing to travel for the preference types is also tested:

◦ **General day to day needs:**

	Corner Café	Convenient Store e.g. Spar	Supermarket e.g. Paick 'n Pay
General day-to-day needs	26	67	45

◦ **Monthly grocery shopping:**

	Corner Café	Convenient Store e.g. Spar	Supermarket e.g. Pick 'n Pay	Warehouse type store e.g. Makro	Shopping Complex e.g. Menlyn
Monthly grocery shopping	0	23	98	11	23

The above indicate the day-to-day shopping is mostly done at the convenient store. The reasons are:

1. Almost every suburb/residential area has one;
2. Close distance; and
3. Most of the smaller towns doesn't have a grocery store larger than the Spars' etc.

The monthly shopping is mostly done at the Pick 'n Pay type stores as it has a larger variety of products and sometimes cheaper rates.

- **Frequency of purchases:**

Although it is not indicated in the above figures, it is mentioned that the day-to-day shopping is done preferably daily or weekly and the monthly shopping is done preferably once a month. (Daily means e.g. bread and milk and monthly means all household products).

The value of the day-to-day needs is mostly less than R50.00 and the monthly shopping is on average between R500.00 and R1000.00.

- **Distance willing to travel:**

The average distance people are willing to travel for day-to-day shopping is between 0 to 5 kilometers. The average distance people are willing to travel for monthly shopping are also between 0 to 5 kilometers. This means that people are not willing to travel from one end of a city to another end just to get to a Makro or Pick 'n Pay. There must be something bigger to attract a purchaser, normally this is linked to entertainment in the same centre e.g. Menlyn situated at the east of Pretoria.

- **Willing to buy over the Internet, or other telecommunication method:**

The following question is asked: "Are people willing to purchase products or services over the Internet or other telecommunication mediums, if it is available to them?"

Sixty-eight (68) answered yes and 52 responded no. It should be mentioned here, and be taken into consideration throughout the rest of the analysis, that the rural portion of the study has a negative impact on the figures of Internet purchases.

- **Working from:**

Where do the respondents work?

	Office	Home
Do you work from:	89%	11%

Most of the respondents work in an office, but if telecommunication allows them to work from home, their choice would be:

	Office	Home
Prefer to work from:	51%	49%

The respondents indicate they are more or less equal in willing to work from home than from the office. Again there is a huge difference between urban and rural areas.

According to this there would be an increase of 38% in home offices if people can work from home. This is an indication how much pressure there is to work from home.

- **Do advertising influence peoples' purchasing habits?:**

Lastly, it is found that twice the amount of people is influenced by advertising than those who are not.

7.5.2 Comparison of Urban vs. Rural respondents (Annexure D & E)

- **Communication medium most frequently used:**

The urban respondents are 100 in total and the rural respondents are 25 in total.

- **The urban analysis is as follows:**

	Telephones	Cell Phone	E-mail	Internet
Priority	47%	47%	30%	14%

In the urban respondent analysis it is found that most utilise the telephone and cell phone, then next E-mail and third Internet.

- **The rural analysis is as follows:**

	Telephones	Cell Phone	E-mail	Internet
Priority	56%	25%	0%	0%

From this it is found that the rural people just don't have access to the Internet or E-mail, or they do not believe in this medium of communication. This could also be attributed to the fact that they follow a different lifestyle than urban people. Rural areas are also far behind the development from urban areas.

In combining the two areas it can be seen that telecommunication are far more developed in urban areas than in rural areas. As a matter of fact, that is not the case. Telecommunication services are as advanced in rural areas as in urban areas, it is just the perception of rural people that they will not benefit from utilisation of the Internet and E-mail.

- **Distance willing to travel for shopping/services:**

In rural areas the respondents are only willing to travel a maximum of 5 kilometers for daily and monthly shopping. This is because they are already very close to all services and shops.

In urban areas the majority respondents are also only willing to travel only a maximum of 5 kilometers but they are also willing to travel 20 kilometers for monthly shopping. This is because the urban respondents are used to long distances daily.

- **Willing to buy over the Internet, or other telecommunication method:**

Are respondents willing to purchase products or make use of services over the Internet or other telecommunication medium?

	Yes	No
RURAL	23%	77%

77% of the rural respondents are not willing to make use of such a service if it was available.

	Yes	No
URBAN	65%	35%

In urban areas it is found that 65% of the respondents are willing to utilise telecommunication mediums for their business.

This is more proof that rural respondents do not believe in this type of service and they do not have access to these services. It might also be that it is not necessary to make use of these services because of the short

distances, and they are not so hurried all the time, as in the case of the urban respondents.

◦ **Working from:**

From where do rural respondents work and where do they want to work?

	Office	Home
Working from	84%	16%

	Office	Home
Prefer to work from	56%	42%

From where do rural respondents work and where do they want to work?

	Office	Home
Working from	59%	41%

	Office	Home
Prefer to work from	50%	50%

Comparing the above it can be said that half of the urban respondents are willing to, or want to work from home, opposed to the only 42% of rural respondents that would want to work from home.

This also explains why more people in urban areas currently work from home. It may be because it is more expensive in urban areas to work away from home than in rural areas.

- **Influence of advertising on respondents:**

It was found that advertising positively influences 72% of the urban respondents.

However, only 48% of the respondents are positively influenced in rural areas.

7.5.3 Comparison of Gender respondents (Annexure G)

Comparing male and female respondents will clearly indicate that males are using the telecommunications networks and mediums more than females. Also with shopping there are a clear distinction between the two groups.

Out of the 125 respondents 39% is male and 61% female. It is found that most of the respondents using the Internet or e-mail are between the ages of 20 and 40. However, most of the male and female respondents use telephones and cell phones more than the Internet.

- **With distance to travel for shopping or purchase of services it is interesting to know that:**

1. Males are willing to travel further than females; and

The below information are for monthly shopping.

MALES	0-5 Km	6-10 Km
Distance willing to travel	24%	24%
FEMALES	0-5 Km	6-10 Km
Distance willing to travel	43%	16%

- **Prefer to shop:**

59% of male respondents are willing to shop over the Internet opposed to 51% of female respondents. The lower % females are of course an indication that females prefer to stroll and do window-shopping. They enjoy this tremendously. As some comments of the female and male respondents indicate:

1. Love shopping experience (female);
2. Shopping on the Internet would not be as fulfilling as real shopping (female);
3. Live would become very limited (female);
4. Would save time to shop via the Internet (male); and
5. Internet shopping saves time, money and effort (female).

- **Work from and want to work from:**

88% of males and 82% of females work from the office, but if it is possible for them to work from home, 47% of males and 51% of females will work from home.

7.5.4 Age Groups analysis (Annexure F)

There are comparisons between 5 age groups, starting at age 20 – 29, etc. An analysis is done on the most important part, utilising the Internet and Working from where?

- **Prefer the Internet:**

The age group between 20 and 39 prefer to do business via the Internet (67%).

- **Prefer to work from:**

The age group 20 – 39 chooses to work from the office (53%). However, the older age group from 40 – 69 prefers to work from home (75%).

These statistics indicate to you that young people enjoy the Internet and telecommunications but still want to have interaction with other people. Older people choose to work from home, but do not utilise or want to utilise the Internet and telecommunications to such an extent.

This, however, is a contradiction, as you cannot really work from home without utilising telecommunications and the Internet.

7.6 Conclusion

With the development and analysis of the questionnaires, it was found that the respondents are in general willing to utilise telecommunication mediums to its' full potential. The increase in people willing or wanting to work from home is more than the current percentage of people working from home. The same for people willing to do business over the Internet. However, South Africa is not as far developed as other first world countries, and therefore people are still afraid of using the Internet for business purposes.

Chapter 8

Results of the study and questionnaires

8.1 Introduction

As discussed in Chapter 5 in the Case Studies portion, there are lessons and recommendation from existing American models. The models were discussed in short.

It must be said that no one organization can manage development of communication models. This must be done in a coalescent way, but one can act as a catalyst for others.

With the analysis of the questionnaires, some recommendations can be made to the future planning of urban areas.

8.2 Results of the study and from case studies

8.2.1 Embracing New Technologies

The only approaches with any change of being successful are those that embrace new technologies, and use them to create public media- such as public broadcasting, cable access channels and community networks. The problem, with the traditional forms mentioned above, they have to think digital, e.g. Nebraska's Educational telecommunications is presented on a web site, not television.

The more organizations depend, ultimately, upon flows and networks, the less they are influenced by the social contexts associated with the places of their location.

8.2.2 Thinking Digital

Radio is already a feature of the Internet. Video can be streamed to the desktop. Interaction communication is becoming a staple of our lives, whether in voice, video or text. It will not be long before computers and television are compatible and interchangeable.

Digital can also create wireless communication. Digital European Cordless Technology (DECT) can be utilised to assist in bridging of the communications divide.

8.2.3 The generation division is very real

The newest generations in the workplace, and those to follow in the education system is computer literate. Silicon Valley is one example of a technological city where communications are fully functional, even though the city started as a place far away from the rest of the community. This city dictated the march of technology.

8.2.4 The need for a catalyst

The communities in the vanguard of this movement to harness new technologies to the public interest have another aspect in common. They are coalescing around an institution that has been prepared to go out front and become the catalyst. This institution must have the trust of the entire community.

8.3 Creation of demand in the market place

There is no point in trying to create a service if the consumers do not require it. A lot of the innovative services made possible by new technologies are hard to imagine for the great majority of us. Is it necessary for high school curricula to be offered online? Is it

helpful or safe for doctors to examine patients on long distance two-way video hook-ups and then prescribes treatment? Does it promote/support democracy if constituents have politicians E-mail addresses?

Demand will be created in all the above if people realise what an important extra dimension the online curriculum can provide, how lives may be saved by doctors using long distance video links, and how democracy can be served if legislatures and executives are in more direct touch with their constituents.

It was not known how easy commerce might be until we made use of Amazon.com. Until the first household bill was paid electronically no one had the idea of how much time it would save.

To create demand the market/community must first be made aware of what sort of service can be provided. How will it be delivered? How useful will it be? What is it going to cost? Before this entire development is presented to the community, it must first be tested.

Launching the Global Information Infrastructure one cannot wait for Government to act. Industry must create and deploy many innovative, global applications. Companies will have to start establishing domestic and transnational applications to support electronic mail systems, distance learning projects, commercial networks, interconnected libraries, medical facilities, service organizations, etc.

The private sector must take the lead in creating and making available the networks, appliances and information services. There must be competitive markets and deregulation and this will create the most effective mechanisms to stimulate innovation, expand customer choice and decrease cost.

8.4 Public Policy

Government policy can influence this development by helping to create a context, or environment in which communities are positively encouraged to participate. One aspect of this is making sure that new technologies are widely available and not merely tools for the more affluent section of society.

The US has a policy where the telecommunication broadcasters must provide a universal service to the entire public. Everyone has the right to be connected. The US Government also provides an E-rate where discount is given to schools and libraries acquiring telecommunications technologies. This covers Internet access, video conferencing services, high-speed data connections, phone services and certain types of internal wiring and network equipment. The above was created in 1993 and made law in 1996 (Benton Foundation, 2000:11).

8.5 Perspectives on the Global Information Infrastructure (GII)

The Global Information Infrastructure program was developed to assess and start a worldwide upgrade of communication and telecommunication systems. This program is called the GII. The GII is more than a network. It is the worldwide assembly of systems that integrates four essential components:

- Communications networks, such as telephone, cellular, cable and satellite networks;
- Information equipment/appliances, including computers, televisions, and telephones;
- Information resources, including educational materials, medical databases and entertainment and commercial programs; and
- Applications such as telemedicine, electronic commerce and digital libraries.

GII is creating new ways of learning, playing and working. It will link individuals around the globe to each other as well as the private and public institutions, varying from schools and businesses to libraries and laboratories.

The South African and other governments should identify and remove regulatory-, trade- and policy barriers that impede competition and limits widespread deployment of the GII. Through this competitive and deregulated markets can be achieved.

There are a few priorities that must be achieved by South Africa:

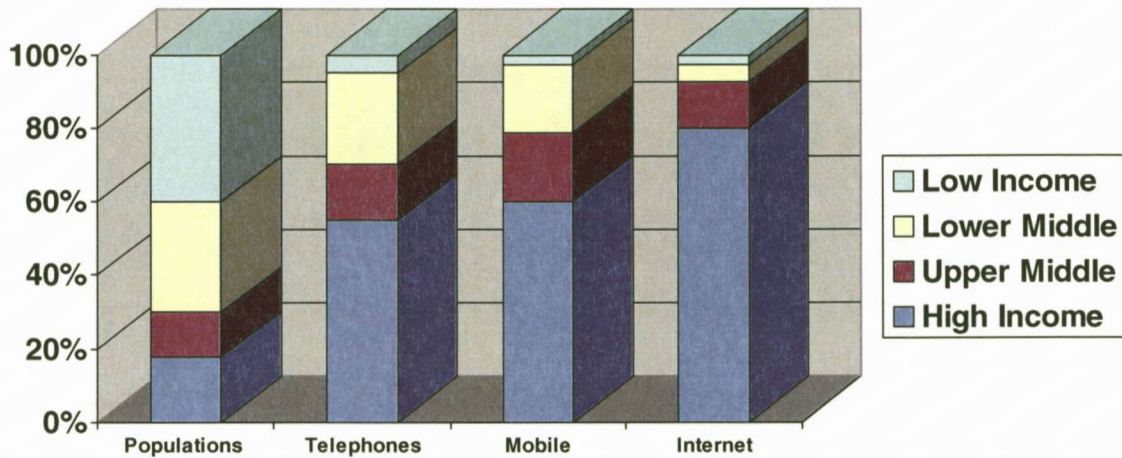
1. **Inter-operability:** developing and adopting globally accepted standards for key interfaces;
2. **Market Access:** achieving open and competitive markets, in a deregulated environment;
3. **Security:** developing and adopting security mechanisms, including encryption standards ensuring privacy for authentication for business and personal transactions; and
4. **Intellectual property Protection:** defining and protecting the rights of the owners of intellectual properties.

The town planner must focus on sustainable development, which will include economic improvement, social needs and care for the environment.

(CSPP Reports, 1996:3-4).

A motivation will be to lower the digital divide created by economical divide. In the graph below it is clearly stated that only a small percentage of the population in all countries fall in the high- income level, but the portion of all populations having access to the digital/communication services is mostly in the high- income level, meaning small portions of the population will in the end benefit from the services provided.

Figure 8.1 Distribution of telecommunication by economic classification



Source: (ITU. 2002:13)

The bottom line is to increase access or the number of people in the lower income groups with access to communication. In South Africa this can only be done by the formalisation of the informal settlements through town planning and providing of the necessary bulk services. Approximately 60% of the population in South Africa lives in informal settlements with no communications services at all.

All communities within a region/country, and also between countries must be developed meaning building the communication infrastructure and create the Information Society infrastructure and bridging the Digital Divide. This will result in achieving a universal and equitable access to the information society, meeting the needs of the developing world and providing information as a public good (ITU, 2002:1-20).

Creating the Information Society, through communication, will result in a positive impact for economic, social and cultural development and science.

The above will give each and every citizen the right to communicate and to utilise the information provided.

Information will be free but the information society must develop ethical rules to protect private communication channels. Roles must be developed for Government, the private sector and civil society in shaping the Information Society. Information must also be seen as a common public good and not belonging to government. This must be combined with freedom of expression.

To control this "monster" there must be Telecommunication and Internet access tariff policies. These policies will manage the companies providing communication in order to prevent the misuse and abuse of power and overcharging of different users.

As training and education in the Third World becomes worse, education can be performed via television, as is currently the trend in most of the first world countries. This also already exists in South Africa, but not at such a high level where the learner can study from home and not at school. In the end this will reduce costs for the public, the private sector and government.

The Town Planning society should have a special development plan. This plan must make provision for allocation of investments in the development of communication and the telecommunication services and infrastructure through better technology. The above will build up the capacity of settlements to serve residents more effectively and to stimulate development throughout a region. Linking of cities, hinterlands and the surrounding rural areas through communication will delineate those areas in which people have little or no access to town-based services and facilities (ITU. 2002:1-6).

Here are three ways to develop an area/region by using communication:

1. Growth Poles can be developed to stimulate spatial development, economic growth and investment in rural/regional areas;
2. Through communication, to develop and well-articulated and integrated system of growth centers of different sizes and functional characteristics which will facilitate more widespread regional development; and

3. Using decentralised concentration of investment. This will assist in organising of economies of rural hinterlands, which will increase and diversify employment opportunities.

All the above have a positive impact on decentralisation through communication. People can now live in the hinterland or rural areas but it will still be convenient and efficient for the consumer. This will also create a reduction in the length of roads and reduce the amount of transportation as well as reducing the cost of providing physical services. This scenario will facilitate the exchange of information between activities as well as the focus on the development of a region.

Communications can be used to assist small towns and cities to be positive forces for developing their hinterlands, for transforming subsistence rural societies into commercial agricultural areas and for integrating rural and urban economies within developing nations. It will also assist in creating and developing "growth poles". Growth poles alone will not be sufficient to stimulate widespread economic growth in rural areas. The spread effects tend to weaken rapidly with distance. Therefore communication must be excellent to link rural areas, towns and cities that will create innovation and diffusion (Rondinelli, 1985:13-21).

Stephen Gill indicates regionalism and globalisation develops as a result of increased usage of communication. The potential exists for the world to migrate to a global government (Gill, 1997:70-80).

8.6 Results from Questionnaires

In short the questionnaires supports the fact that to date South Africa are not focused on growing technologies in communication as other first world countries. It must be taken into account that South Africa cannot be seen as a first world country, except for the few metropolitan areas. The Government will rather invest in education, poverty and the upliftment of the poor. This can be seen from the low percentage of people

currently using the Internet. Furthermore it is found that more people are willing to work from an office than from home. This can either be the result of lack in trust in communication technologies enabling people to work from home, or alternatively the respondents are afraid of change.

It is also evident that people are afraid to use the Internet as just more than 60% will utilise the net to do business. They believe there might be a risk in fraud. Ultimately this means South Africans are not educated in the Internet and safety thereof. It might also be because the network are not delivering to its full potential and exclude certain services.

8.7 Conclusion

This chapter deals with what other countries are using in technology and comparing to South Africa it is found that this country are not on the same wavelength as the other countries discussed.

It is evident that South Africa are not participating in the GII initiative and focus on other projects as discussed above. The choice of technological and communication usage is extremely limited and only fully functional in certain areas. South Africans are not educated in the types of available communication types and they also still believe in the status quo. Only the high income part of the community, which is an extremely small portion of the South African community, have access to all the types of communication and also making use of it.

Chapter 9

Recommendations

9.1 Introduction

The information revolution is the most important factor shaping communities today. The change in and impact on each community will be unique. Planners must begin to identify the issues and impacts relevant to all communities. The types of industries, jobs, establishments and sectors exist in the community now - and how are these likely to be affected by information technology? Are specific neighborhoods or areas at risk? How will projected office, retail and manufacturing space requirements change or be affected by the changing workspace needs and "just-in-time delivery". Which strategies should be applied to residential areas to address the growth in home offices? Finally, what attributes exist in the community that can be turned into opportunity and competitive advantage in the information society? (Planning Commissioners Journal, Blais, 1996:4).

As indicated in Chapter 5, Case Studies, South Africa is in the process of developing Spatial Development Frameworks through the IDP's. These frameworks would in future prevent future encroachment of businesses into residential areas. Buffer zones would be established between business and residential areas. The question that might arise is whether this will be enforceable by the Councils. Illegal businesses must be kept out of residential areas and home offices must not be allowed to spread further than the areas approved for this purpose. The guidelines to be followed would be to ensure that all new developments conform to an action plan. All developments should promote acceptable aesthetics issues, all buildings should reflect a suburban character, the conversion of current dwellings for other purposes should be done in sympathy with the residential character of the area and intensified landscaping on sidewalks must be included in a site development plan (Record East, 2002:3).

As stated previously it is therefore a proposal to stop all application for home businesses until a formal policy has been developed to manage this. It is also stressed by Nico Smit (2002:Personal Interview) that no town/city will keep on surviving when the services are stressed to its limits by the continual increase of inhabitants to a certain area.

9.2 A changing South Africa

No one can deny that South Africa is in the midst of a revolution that is fueled by new technologies, that has affected and will affect the whole of the South African society. The benefits of the revolution should be spread through the South African society.

As the world is changing and everything and everybody is becoming more and more competitive, a competitive edge will be created by reducing the time spend on roads and traveling. This can only be done by utilisation of communication systems to its utmost capacity.

With the availability of telecommunication mediums it is easy to work from home, an island, your car, almost practically everywhere imaginable, therefore hotelling and teleworking are becoming a choice which more and more companies are selecting.

9.3 Town Planning Proposals

9.3.1 Spatial Development Frameworks

This document could indicate certain areas called "Spatial Development Nodes". Currently there are Frameworks in place in the larger cities and towns demarcating certain areas for this type of special development. However, it does not take into account the impact this have on the area, e.g. services and environment, both natural and physical. Therefore the policy or framework must make provision for the restriction of e.g. home offices to certain areas, which will

manage to carry the increase in the use of all types of services. Cities and towns which do not have these frameworks in place, must immediately develop one to stop the approval of home offices in wrong areas.

This framework must also link to the Township Scheme, which carries all the land use information and restrictions. The SDI's and LDO's must also be updated parallel to the frameworks. Most of the Township Schemes are old, but it must be noted that they are continuously updated, but very little of them are indicated as newer publications. It is therefore still applicable to use these documents. (Pretoria Beleidsplan. Kruger, & Viljoen, 1972:59-150).

It is interesting as well as alarming to notice that almost none of the current informal settlements have frameworks in place. These areas are actually the ones on top of the list requiring all the formal planning possible to assist with upgrading and formalising. Most companies are hesitant and resistant in moving to such areas but strict control measures to force certain industries to these areas will assist in the growth and development of such areas. It is noted that certain aspects have to be addressed such as:

- Security
- Access
- Safety for the workers
- Available services
- Good road networks

If industries and companies are restricted to certain areas the above must comply, resulting in an automatic upgrade of the areas. It must also be the sort of industries/companies which services/goods will be utilised in the same area.

- **Development areas**

There are different types of development areas according to the structure plans of cities/towns. The areas demarcated for the so-called “home office” must conform to the areas identified for development and growth in the structure plans. There is also a physical/structural difference between the areas identified for “home offices” and structure plan development areas. “Home offices” are found in already developed residential areas, where the usage of the plot has been changed from residential to home office. Areas identified by the structural plan indicate the type of future growth that will be allowed in a certain area. Normally this will consist of areas that are currently under-developed compared to the rest of the city/town.

Allowing home business and industries into less developed areas will automatically result in the upgrade and upliftment of the area if it is managed correctly.

9.3.2 Town Planning Scheme

Most of the urban areas in South Africa have these schemes in place, containing all relevant information towards land zonings, uses, restrictions and special allowances. It is imperative to enforce this document and manage all future growth and development in conjunction with the spatial development framework. Urban sprawl takes place in almost all the urban areas, but more so in the informal settlements. This is the result of the continuous influx of poor and jobless people thinking they will have a better life and find a job in the city. As mentioned before, the local councils must strive to restrict sprawl through identifying of space in developed areas where densification can take place. Where areas have been identified for densification it must be restricted to certain types of special usages and the percentage densification must be kept to a

minimum, only to where the services and the environment would not be exploited.

As indicated in Chapter 5 in respect of Bloemfontein, the major problem is the fact that there are no restrictions on home businesses and residential properties that is used for business purposes. In some cases, residential properties are subdivided into three sections. On each property two houses can be build which subsequently results in services being subjected to abnormal strain/demand as each house/unit must be now fitted with a new connection point for water, electricity, sewerage etc.

To prevent this the local Town Planning Scheme must be revised to restrict this type of situation and allow for less than the current norm. There must also be a selection of certain areas where this cannot take place at all. Lastly it must also be forced to policy that all special reduction and discount for residences be cancelled as soon as a plot or erf is subdivided or a second house build. This must also be applicable to home businesses or full businesses on residential erven.

9.3.3 EIA (Environmental Impact Assessments)

The EIA document must also make provision for these types of land use changes as it may affect the environment in the long run. Urban sprawl effects the environment more than densification as the people make use of e.g. wood for fire, depleting the natural resources, and polluting the environment.

9.3.4 Township Establishment

Most of the cities that currently exist have a universal development type, starting at a core, called the CBD, and develops from there. Well-aged, well-developed cities have a few CBD's which was developed over time.

The figure below shows the development of the average city/town over time. The CBD contains the heart of the city and the residential areas develop around this core. In time, as the CBD starts to decay and the value of properties decrease, there is a shift and new cores develop on the outer boundaries of city. This result in the city expanding outwards and sprawl takes place. Currently, most of the South African cities want to limit urban sprawl, as it is becoming more and more costly to provide services mainly as a result of the increase in distance.

Figure 9.1 Urban Form

Source: (Hartshorn, 1992:160)

As already explained, telecommunication make expansion and sprawl extremely easy and possible because of connectivity.

All Councils should therefore analyse the current approval of Township establishment applications and limit it to the minimum as far as possible. The reason for this is to prevent the opportunity of new CBD's developing over time.

Current developed areas can then be re-developed with the same funds allocated to the new township. Most of the older cities have decayed cores where crime is worse than anywhere else. A policy enforcing the re-development of certain areas will revitalise growth and will bring about the influx/moving back of companies to these areas.

By doing this, it will be possible to invest in current developed areas to stimulate the upgrading of these areas instead of wasting time and funds on new developments.

9.3.5 Planning and Development of New Towns

“Is central/core CBD’s still necessary when a new town/urban area is planned?” Although there is little chance of establishing and developing of entirely new towns, a proposal for this will be to develop the town without a single core CBD, but rather to start with a residential area and establish four to five cores/nodes around the residential area. From here the town will keep on developing in a circle, and not just in a specific direction as in most cases where there is development along one or two axes, and not in the rest of the town.

Annexure A is a plan of the Pretoria, Centurion, Midrand and Johannesburg areas, indicating the growth to the east of Pretoria. It is clear that the CBD is still close to the Western areas of the Pretoria city, indicating there is no growth in that area. It is also clear that Centurion is now growing faster than Pretoria, with the east of Pretoria close second. (Pretoria Beleidsplan. Kruger, & Viljoen, 1972:59-150).

As can be seen on the plan of Pretoria, development is currently taking place in the east, where there is a 25% densification of the residential areas. On the other hand, if the densification of areas is maximised to 20%, the densification can be stopped for that area and the next area can be identified. The western

side of Pretoria remains under-developed, which contributes to the degrading of the area. All development currently takes place in the east leading to all the roads and services being over utilised, creating major traffic and other problems. A study which was done in 2001 indicated it would cost approximately R150 million to upgrade the roads network in the area to cater for the growth in traffic pertaining to this residential and entertaining area. (Pretoria East mobility Study, 2001:personal notes) All funding are now channeled to this area, with little assistance available for the upliftment in respect of the rest of Pretoria.

The same scenario applies to Bloemfontein as densification is taking place in Westdene as well as development along the Zastron Street and Curie Avenue axes. This applies to Johannesburg as well where the West remains as is but the North exploding and densification taking place at an enormous rate.

With the analysis of the questionnaires and as the above examples shows, it is indicated that if there is a choice, and telecommunication is available and up to standard, 38% of all working people would work from home, creating a huge problem in the residential areas with services being subject to over utilisation, e.g. water, sewerage and electricity. Residential areas do not cater for parking for a large number of visitors which will negatively influence the flow of traffic in these areas.

By developing new towns with 4 to 5 business areas with a lower density than the well known CBD's of current cities, it will bring about that residential areas will be in close proximity of a business area. This will attribute in people wanting to work in these areas, as it is close to home, but still business type orientated. With this the Planning Departments must also give incentives to people with offices in these areas, but penalise people with home offices and businesses. The Central, Provincial and local Governments can subsidise companies staying in CBD's which will create an incentive to attract new business into these areas.

9.3.6 Urban Growth and Shrinking

Due to the fact that telecommunications allows for decentralisation and centralisation, creating either urban growth or shrinking, it will affect town planning in one way or the other.

As it is the choice of councils to keep away from urban creep/sprawl, they will have to exploit densification and allow for the approval of home offices by steering away from approval of new township establishments. This will contribute towards the centralisation process leading to the councils supporting these objectives.

Local Councils do not support decentralisation at this point in time as it creates urban sprawl should businesses move the periphery of the city. If they move to other areas for example other towns or countries, local councils will not experience such a huge problem as it will not influence their cost on the provision of bulk services. The downside however is that they will lose on rates and taxes on the land that could have been occupied by the companies. The fact that businesses started to concentrate on hotelling and tele-working means that they are directly against the strategy of this document, as this will result in people working from home.

Decentralisation creates development where there was none before. This creates work for, inter alia, town planners, but must be kept to a minimum and managed properly to prevent development from going array and uneven growth. All town planning issues must be taken into account.

Centralisation creates huge challenges for town planners as this normally takes place in already developed areas, increasing the densities and influencing the services already in place.

Areas least developed must be identified by the Local Councils and promoted for both centralisation and decentralisation and, if possible, some or other subsidies/incentives must be awarded/implemented to enhance the acceptability of the proposed areas to the customers. Town planners will also then know in which areas development and change will occur and can pro-actively plan towards that.

Through this all focus must be placed on development and upgrade of the informal settlements.

9.3.7 Municipal Acts

All Local Councils can use their Acts, for example the Water Act and Sanitation Act etc. to limit the exploitation of these services. Households can be given a discount or subsidy if they use less than permitted, or they can be fined if using more than permitted.

9.3.8 Internet Commerce and Town Planning

Although this might sound strange, there is an impact on town planning when business are done over the Net. As already discussed in Chapter 5, it is shown that the structure of urban areas change when this function is utilised to its' full capacity. People will not have to visit shops or businesses to do their shopping or business, they simply utilise telecommunication and the Internet. The bigger stores will presumably eventually develop large warehouses in or close to the areas where the most orders originates from or which are the most central, and all deliveries will be done from there. It might become reality then that these businesses/supermarkets will not develop a branch, say for example in informal settlements, but will rather service these type of areas from the nearest distribution facility minimising risk exposure and promoting safety and security.

The same will apply to the banking sector or any other commercial business, which can perform the same function from a central point without having to establish satellite offices/branches in the area.

Towns will change shape and these will in the end mean town planning must be re-thought/engineered. The possible solutions have been and will be discussed in this document. The only major change foreseeable will be in the supermarket industry as supermarkets exist in each and every suburb. It is envisaged that this number will reduce and that a few warehouses will be erected instead to cover deliveries to the areas. However, in South Africa, more than half of the population does not have access to these services of ordering the service or good over the Net or phone, and they will still make use of the current scenario by physical visits to shopping areas including supermarkets. This is also as a result of the segregation of different races in the past which lead to the establishment of large townships quite distant from developed urban areas (Christopher, 1994:103).

South Africa cannot therefore be compared with the rest of the world in thinking we will follow the same route as example Australia.

It is derived from the questionnaires that 57% of the respondents are willing to do business over the Internet. When compared to the average growth of Internet users in SA over the last 5 years, the author envisages that this figure can easily reach 80% within the next 5 years. This is not such a massive priority in South Africa at this stage and therefore will not have a huge influence on the current lifestyle and environment of urban areas. As stipulated earlier it will have an impact on urban areas if most or all people work from home, as there is a 38% increase in the current status and possible future status.

Out of the questionnaires can this be said- it will not be feasible to start developing big warehouses and close down the shopping centers at present.

People still want to visit shopping centres, walk around, do window-shopping, visit restaurants and simply enjoy the outing.

Currently most people residing in the informal settlements will not make use of home delivery services, as they do not have access to telecommunication services and need to visit the stores/shops directly.

It is however perceived to be possible to develop a "test area" in a township with all the possible communication services. This can then be seen as a so-called Silicon Valley where these ideas are tested and examined to determine whether it would be possible to carry on with their lifestyle utilising these services in performing their day to day needs. As a matter of fact, the Gauteng Metropolitan Council could be targeted for this purpose.

9.4 Conclusion

This study was done to determine if telecommunication have an impact on the growth of urban areas. Furthermore it was done to determine what the type of impact would be on the city, and if there would be growth or shrinking of urban areas.

It was found that the urban areas/cities in South Africa do not reduce in size, but that there is an extremely high rate of increase in density and densification in the residential areas. This means that cities do not expand or sprawl takes place, but that they still grow in density.

It was also found that decentralisation and centralisation takes place simultaneously in urban areas. Currently many companies and businesses apply to work from residential areas, creating huge problems in those areas.

Therefore, this study proved that communication on all levels is necessary to affect the growth / shrinking of urban areas. Telecommunication is therefore an important building

block in the cities' development and if this has not existed, there would have been major problems in urban areas.

However, it was found that it will still be a couple of years before Internet business will have a huge impact on the current lifestyle and influence the future of cities.

As indicated in this chapter, there are problems that come with telecommunications development, and the Planning Departments of the towns and cities must immediately start implementing strict controls to manage these issues and prevent any serious problems.

The study was done to determine if communication would have an impact on urban growth or shrinking. A final analysis indicates that communication has an impact on the city. It is however more difficult to determine the effect it would have on the growth or shrinking in urban areas. The answer to this would be two-fold and as follows:

1. There is growth through decentralisation. However, if it takes place naturally growth might be incurred, but it can also create densification if a council places a hold on any new township establishment or new development outside the current and existing urban boundaries.
2. There is shrinking through centralisation.

Finally proposals are made to overcome the negative influences of communication on urban areas. It must be stressed that these are high-level proposals and must be investigated further to formally ascertain if it could be feasible.

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ANNEXURE A

Map of Pretoria, Centurion, Midrand and Johannesburg

ANNEXURE B

STANDARD QUESTIONNAIRE

GENERAL QUESTIONNAIRE SHEET

PLEASE NOTE THAT THE FOLLOWING QUESTIONNAIRE TO BE COMPLETED IN FULL.

Suburb			
Town		Nationality	
Surname		Name	
Address		Tel No	
Gender		Age	
Do you make use of:	Communication method (list the usages according to priority from most frequently used- 1 to least used- 6)		
Telephone		E Mail	
Television		Radio	
Cell phone		Internet	

Shopping Preferences

MARK APPLICABLE WITH

X

General day to day needs
(bread, milk etc.)

Corner Cafe Convenient Stores (e.g. Spar) Supermarket (e.g. Pick & Pay)

--	--	--

Frequency

Daily Weekly Monthly

--	--	--

Value

< R50.00 R50.00 – R100.00 > R100.00

--	--	--

Corner Cafe Convenient Stores (e.g. Spar) Supermarket (e.g. Pick & Pay)

--	--	--

Weekly/ Monthly grocery shopping

Warehouse type Shopping Complex (e.g. store (e.g. Macro) Menlyn)

Frequency Daily Weekly Monthly

Value < R100.00 R100.00 – R1000.00 > R1000.00

What is the maximum distance willing to travel for:

Day to day needs	<input type="text"/>	Monthly shopping	<input type="text"/>
------------------	----------------------	------------------	----------------------

If the same products can be bought through the Internet, via E-mail, fax or telephone and delivered to your residence free of charge, would you utilize this method of service?

Yes No

Types of goods/ groceries/ services most frequently purchased:

Value:

<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

Do you work from:

Office Home

Would you prefer to work from:

Office Home

Does advertising influence your purchasing habits?

Yes	No

Open-ended information (any comments/remarks):

I agree that the information captured on this questionnaire is materially correct.

Name: _____

ANNEXURE C

ANALYSIS OF QUESTIONNAIRES- SUMMARY

ANNEXURE D

ANALYSIS OF QUESTIONNAIRES- URBAN

ANNEXURE E

ANALYSIS OF QUESTIONNAIRES- RURAL

ANNEXURE F

ANALYSIS OF QUESTIONNAIRES- AGE

ANNEXURE G

ANALYSIS OF QUESTIONNAIRES- GENDER

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