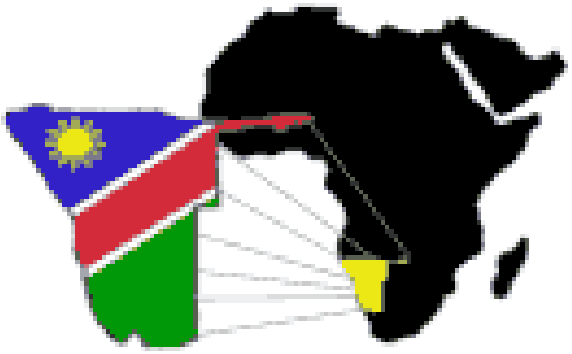
Information Technology

in

Namibia



A Project of the High Commission of India

to

Namibia

Prepared by: Manufacturing Consultancy Services

Contact Person: Mr. Horst Heimstädt

P.O. Box 32129

Windhoek

Republic of Namibia

Tel / Fax: + 264 61 22 3759

Mobile: + 264 (0)81 272 3413

E-mail: heim@mweb.com.na

15 March 2006

Executive Summary

Africa offers great revenue opportunities within the Information and Communication Technology (ICT) sector, however traders need to have the right market information to make informed decisions concerning their strategy. As a primary step towards obtaining this information the High Commission of India to Namibia has initiated this survey with the view to enhance commercial trading relationships between India and Namibia.

In this survey emphasize has been placed on Information Technology and therefore will appeal primarily to Information Technology traders, such as equipment providers, business application software and service providers, who believe that the next great technology growth opportunity lies within the emerging markets such as the untapped potential of Africa and Namibia.

The methodology applied by the consultant has been based on desk research to obtain background information and thereafter field trips, to Windhoek based Information Technology companies, verifying the information with primary information. The research has been conducted over a period of four weeks, in which a broad range of public and private stakeholders have been interviewed. Organizations outside Windhoek have been interviewed telephonically, to confirm the claim that at least 98% of all Information Technology sales and services are channeled through the Capital irrespective of Hardware or Software.

The overview of the Information and Communication Technology sector in Namibia is divided into two sections where Communication Technology is controlled by State Owned Enterprises (SOE's) whilst the Information Technology is controlled by the private sector. All government purchases are supposed to be channeled through the Public Service Information Technology Management division within the Office of the Prime Minister and awarded on a tender basis by means of the Tender Board, however some discrepancies have been identified during this research.

The communication technology section of the Information and Communication Technology sector is channeled through two different ministries, with the Ministry

of Information and Broadcasting responsible to supervise the Mobile Telecommunications Company (MTC) and Namibia Broadcasting Corporation (NBC), whilst the Ministry of Works, Transport and Communication is responsible for the regulation of Telecom Namibia.

It is a general opinion within the Information Technology industry that the government as well as the private sector should work towards the creation of a technically competent workforce that can contribute to a dynamic economy and participate in the Information Society. The government of Namibia has launched a campaign to enhance Foreign Direct Investment in all State Owned Enterprises, with the Mobile Phone service provider MTC having signed an agreement with a Portuguese company already, proposals are open for investments in Telecom. The aims of these invitations are for local organizations to partner with international organizations and by means of agreements update the technology.

The main challenge facing the telecommunications sector is to make information communication technologies cheaper and more accessible to the public. While most Namibians can afford to have cellular phones in both rural and urban areas, the majority of people cannot afford to have access to the Internet. A Non Governmental Organization called Schoolnet has been established to combat this major challenge with seemingly huge successes. This Non Governmental Organization is based on the principals of the Farmer Call Center system in India making use of School children instead of University students.

The biggest opportunities in the Namibian Information Technology sector exist within the government. Unfortunately Information Technology is still seen by many officials and Namibians in general as a luxury and other realities receive preference. Considering the impact that could be achieved with relatively small investments, private organizations should concentrate on providing various government departments with SMART (Simple; Measurable; Achievable; Reliable; Timorously) solutions to the current Information Technology problems.

Index

1. Introduction

The maturation of the Global IT market has resulted in revenue declining in the more developed IT markets. In order to achieve growth, technology traders are looking to emerging markets, among them Africa including Namibia. Africa is still an “unknown” within global IT circles and the real power of IT is vaguely known in Africa. With ongoing privatization of major economic sectors in Africa, and the infiltration of IT knowledge, it is expected that spending in this sector will increase drastically in the future.

Namibia has a fairly advanced ICT infrastructure, limited to developed areas. However the majority of the population lives in rural areas, and is not touched by the ICT revolution, aggravated by low income and the lack of electricity and fixed line telecommunication in those areas. Mobile phone reception is available in all more densely populated areas although unaffordable for most of the rural poor communities.

In general the country is lagging behind in many aspects within the ICT sector and needs to address these issues. ICT needs to be seen as a necessity, on par with health and education, in government budgets, and must not be viewed as a luxury. Considering the perception of ICT advancements (Annexure 1) within the government the country is well within target of its ICT policy. The dominance of State Owned Enterprises as sole providers in the communication industry is hindering development, as short-term profitability is overruling long-term objectives. In both cases of fixed line and mobile phones, an additional organization in the market would translate into lower prices and development in anticipation of a competitive environment.

2. Study Methods and Outcomes

The methods used to achieve the objectives of this study were straightforward. The consultant used desk research to obtain background information on the IT

industry in Namibia, followed by face-to-face interviews with major stakeholders in the public and private sector within the industry.

The interviews were used to:

- Enhance the available data gathered from existing surveys (Limited)
- Verify data already available
- Determine priority areas to leverage IT rollout in Namibia
- Obtain other relevant publications such as vision statements, annual reports, brochures and publications
- To tap subjective opinions as to prospects for IT in the country.

It was found that statistical data within the IT industry in Namibia is very limited, mainly due to stiff competition, therefore competitors are not willing to provide the necessary information requested, even internal information is often lacking in organizations. This contradiction within the IT industry portrays the lack of dedication towards IT in Namibia.

The short supply of data led to many of the results being based on hearsay figures, based on knowledge and experience obtained from the industry experts and converted into logical statistical calculations to provide the required results.

3. Namibia in a Nutshell

Namibia is situated on Africa's southwestern seaboard, bordered in the west by the Atlantic Ocean, in the east by Botswana and Zimbabwe, in the south by South Africa and in the north by Angola and Zambia.

Geographical Area	824 268 km²	(India 3 287 590 km²)
Population (2001)	1 830 330 people	(India 1 Billion)
Population distribution:	Younger then 14 years: 38.7%	- 19.5% Male
		- 19.18% Female
	15 – 64 years: 57.7%	- 28.9% Male
		- 28.8% Female
	65 years and over: 3.6%	- 1.6% Male
		- 1.9% Female

Unemployment	35%	(India 9.2%)

4. ICT Overview

What is ICT - Information Communication Technology (ICT) is the combination of computer, video and telecommunications technologies, as seen in the use of multimedia computers and the networks and services based upon them.

ICT is a vital catalyst for social change and economic development that is increasingly seen as an essential tool for developing countries. The effective use of ICT by enterprises can result in greater productivity leading to greater competitiveness and thus sustainable economic growth, a precondition for poverty reduction. IT is the Information Technology part of the Information and Communication Technology sector and can be is used in expanding the possibilities of developing economies to participate in international markets.

The Internet is dramatically changing the way goods and services are produced, delivered, sold and purchased. It leads to an ever-growing number of people and businesses connected digitally, ready to participate in and contribute to the knowledge economy. The use of the Internet empowers weak players in the global economy, such as small business owners and rural farmers, by providing them with information, communication and knowledge they could not access before. In Namibia this area has a huge potential for growth, however this will require major input by the government and private sector, with the main challenge being too educate the community. Deplorably it is still evident that the majority of the rural community and various government officials belief ICT to be a luxury and not a necessity. It is envisaged that the introduction of Schoolnet in rural schools will assist in the task of educating these communities.

Trade in goods and service is expanding thanks to new technologies. Evidence shows that trade growth in IT goods and services has been higher than growth in total trade. In addition, IT enables trade in other sectors by enhancing market access and broadening the customer base, facilitating customs, transport and

logistics. Most importantly, IT plays an economic role by changing production processes within firms leading to associate costs both in terms of investment and in terms of transformations of labor markets.

The use and implementation of IT is accompanied by structural changes in production processes and therefore resisted by change often hampered by social conflict resulting from deficient social dialogue. Therefore policies must cope with the structural transformations associated with such changes. The costs of disseminating IT and ensuring an orderly adjustment of human resources should form part of any IT-related policy.

Development orientated IT applications can be used extensively for the elimination of poverty. The use of IT by Small and Medium Enterprise firms can foster innovation, realize gains in productivity, and reduce transaction costs.

In Namibia most of the more sophisticated applications that will allow local business to become internationally competitive are not in evidence. The lack of business-to-business applications and the corresponding lack of e-Government programs represent a barrier to progress that must be addressed.

5. Poverty and Information Technology

It is a historical fact that material poverty and lack of information go hand in hand. Poor people are not always lacking in knowledge, but it is harder for them than for a rich person to acquire information needed to improve their life. Poor people often live in isolation, being the last ones to know where there is work, where the cheap goods are sold, how to avoid usurers etc. In relation to their income, information gathering often becomes very expensive.

In less developed countries poor infrastructure makes information particularly hard to get. When telephones are lacking and with inefficient postal services, people have to travel to establish communication. This adds to the burden of the poor, who end up paying proportionally more for their actual connectivity than those with better incomes.

Most published books and papers dealing with the “Digital Divide” tell the same story. They all start by stating the well-known fact that poor countries have less ICT, and that social stratification works in the same way across all countries. High income leads to high education, which paves the way to managerial positions.

This is of course true regardless of if one looks at a rich or a poor country. At the bottom of the connectivity pyramid are the poorest people of the poorest countries. They live in rural areas or in shantytowns and have no access to any of the modern blessings of ICT. In most cases these communities rely on limited availabilities of radios. Often they lack most other basic things which the rich people take for granted such as, their health and security is bad, they have no jobs, and they are much more likely to be illiterate than others, and they are less likely to exercise their civic rights without interference.

When the new information society is interpreted, experts tend to look at what benefits the well-educated rich society can get from it. With almost universal usage among the well educated in the first world, emphasize is placed on what can be improved for these communities, better banking services, easier shopping and booking of services, access to useful information, and a great leap forward in written communication on the job and at home. None of this is even remotely relevant to the poorest people, as they have no access to the communication infrastructure that carries the content. In many cases these people must be within earshot of each other to communicate.

Radio is a suitable medium to reach illiterate people with facts and information, and it is used all over the world. There are many examples from Less Developed Countries (LDC) where for example information about government services such as elections, census activities, and agricultural advisory services are broadcast through private and public service channels. If radio services are included under the ICT umbrella, they can provide many examples where the poor actually benefit from an ICT application. In some countries access to airtime is strictly controlled by the government, and used mostly for political or commercial propaganda, neither of which would directly improve the lives of the poorest.

Fixed line telephony in Less Developed Countries is a privilege for a small elite. The poor have no phones. Mobile telephones have made a difference throughout the Less Developed Countries as the wireless technology covers an area with potential connectivity. The way in which cell phone traffic has increased in Less Developed Countries tells us a great deal about the economic value of connectivity. Almost all cell phones in poor areas are prepaid, and therefore the user has a very clear understanding of the cost of making a call. At almost every instance, the user will therefore be able to compare the cost of the call with the utility resulting from making it. The cell phones are mobile and personal, and it is also easy to share their use.

Village Phones can easily be organized by sharing a phone services through society. No specific studies about sharing have been made in African countries common sense suggests that it is widespread. Since a poor person by definition has very limited economic resources for gathering information, the value of information from a successful phone call is relatively greater than for a rich person. A “successful phone call” can be pragmatically defined as a situation where connectivity enables the person to avoid the time and expense of a long trip, or one that gives the person knowledge about the availability and location of cheap goods or services. In the first world, the arrival of cell phones and the Internet brought only marginal improvements to an already well functioning connectivity. In Africa, cell phones are the difference between no connectivity and some.

If and when African rural areas get wide area, wireless Internet coverage at low cost, this will lead to dramatic improvements of the connectivity. New poverty-alleviating effects will occur, more varied and more widespread, first through the immediate effects from email communication. The Internet will be much more effective than radio in disseminating advice and information, because of the ability to tailor advice to local, social and temporal differences between recipients and because of its interactive nature.

In most the reports written about Internet in poor countries, there is much worrying about the lack of relevant content for the poor. But the poor are not

users today, so they are not losing out anyway. Once the poor get connected through cheap, high quality telecom and Internet services, they will figure out how to use them. Before that, who ever tries to produce "relevant content" will just be second-guessing the poor for their real needs.

When connectivity becomes generally available with good wireless coverage, community communication centers will start to appear spontaneously in villages. Message delivery services will emerge, with local message runners delivering and recording voice messages or messages about received emails to individuals. Notice boards will inform people about emails to be collected.

In time, most people will have their own email addresses, and will pay for services just as at any Internet café today. The ability to send and receive voice messages via the Internet will create a totally new dimension in connectivity for poor and illiterate people.

Finally, the poor can get several indirect benefits from the application of modern ICT, but they are all dependent on lower connectivity costs. Interactive delivery of health information, as well as a functioning mechanism to order drugs and supplies from remote health facilities can improve rural health services to poor people.

The introduction of modern delivery systems for birth certificates, identity (ID) cards, driving licenses, school applications, company registrations and other civic services can also give the poor relative advantages through the removal of bribes, reduced costs and queues.

A rapid deployment of the wireless technology into poor rural countries in Africa will need substantial investments, and it requires active support of states in order to attract the necessary capital.

The states will have to make clear policy statements and decisions about the status of the new technology, and regulatory mechanisms will have to be developed to coordinate technological development. Donor agencies around the world should actively assist in reducing some financial risks, thereby speeding up the allocation of capital needed to build the networks.

6. Network Access in Namibia

Fixed line telephone and mobile phone usage continue to increase, with mobile units passing fixed lines in 2001. Growth is not as rapid as in other African countries, however, probably due to lack of competition, but also the small dispersed population of Namibia.

There is healthy competition among Internet Service Providers encouraging growth in dialup customers and increasing numbers of leased line/vpn access for businesses. Only one Tele-center is available with many Internet Cafés throughout the country. Access times during peak hours are very long.

Local call rates are reasonable compared with other African countries, but still charged per minute, rather than flat rate. Internet Service Providers who obtain their connectivity via the incumbent data access provider offer national dialing and a discount of 20% on voice call rates. The incentive is there but cost remains an inhibitor to Internet usage.

Despite being a monopoly, the incumbent Telecom has invested steadily and substantially in its network and the countrywide fiber-based digital backbone is of high quality and reliability. Outgoing bandwidth for data transmission remains at 2Mb and incoming at 6Mb this result's in congestion for Internet usage. Telecom Namibia has been instructed by the government of Namibia to proceed in finding a strategic technical partner who will invest in the organization. The aim of this move is to improve the already first world standard technology applied by Telecom to new heights.

There is also a large amount of "dark" fiber owned by the transport and power parastatals, which could be utilized once competition is allowed. All hardware and generic software is imported, often directly rather than through local distributors.

Nonetheless there are concerns about the number of intermediary traders prices are quite high. There is competition among the major IT providers who are starting to offer outsourcing capabilities. Mainline installation takes a few days and problem resolution is quick. Technicians and other IT professionals are

concentrated in Windhoek, but branches and independent IT Small and Medium Enterprises exist in several locations throughout the country.

7. Internet in Namibia

As is the case in most SADC countries (Angola; Botswana; Democratic republic of Congo; Lesotho; Malawi; Mauritius; Mozambique; Namibia; Seychelles; South Africa; Swaziland; Tanzania; Zambia; Zimbabwe), in Namibia there is currently little evidence of sophisticated new technology products and services such as electronic commerce, distance learning, multi-media, etc. Such aspects result from a complex of factors, many of which are not directly technology-related, but which combine to make a country 'ready' for the new economy. The ability of a country or region to participate in this 'Networked World' has received much attention over the past few years, and various models have been developed to try to assess the state of a country to participate in this development.

Internet Commercial Services were established in Namibia during late 1995 early 1996. Since then Namibia has seen the introduction of several Internet Service Providers (ISP's) into the market. All Internet Service Providers operate from the fixed line infrastructure provided by Telecom established within the country and outside the countries borders. Telecom has established Infinitum, a wholly owned subsidiary "wholesaler" of bandwidth, this organization has aggressively entered the corporate leased line and virtual private network market as well as providing access to Internet Service Providers.

There are four major and several smaller Internet Service Providers in Namibia with various Internet cafes in all major towns. Namibian Internet users hold a vast number of websites, with most presented in English but many tourist sites are published in German.

Listed below are the main Internet Service Providers in Namibia:

- UUNET Namibia: UUNET is part of UUNET Technologies Inc. Their backbone with 4mbps international capacity via South Africa is purchased

from Telecom and is resold to their clients. The company is mainly company network focused and supplies bandwidth and services to about 300 points in the corporate market in Namibia.

- Africa On-line: Supplier of dial-up and leased line connectivity but mainly focused on non-leased line clients, providing users with access primarily to email
- Mweb: Supplier of dialup and a few leased line connections to their clients via the Internet. Additional services include Web hosting, domain registrations, and email access.
- IWAY: The result of a United Nations Project (UNOPS) to allow for the spreading of Internet facilities within the Republic of Namibia. IWAY is a fully owned subsidiary of Telecom Namibia. They rent services from Telecom Namibia and have grown rapidly over the last two years.
- Additionally there are also smaller Internet Service Providers such as NamibNet and Cyberhost.

The total annual revenue in the Internet industry is estimated at USD 7 million per annum. As regards international bandwidth, Telecom has 2mb up and 6mb down via satellite and UUNET has a 4mb fiber link to South Africa. All Internet Service Providers obtain their connectivity from these sources. Telecom and UUNET entered into a peering arrangement, which is saving several hundred kbps of unnecessary international traffic.

Despite positive outcomes derived at from a special survey conducted for the establishment of multi-purpose community centers (MPCC) throughout Namibia and government's stated intentions to roll-out at least one multi-purpose community center in each of the thirteen regions by 2004, none has been established, thus depriving the people of Namibia with Internet Services through public access points. This shortage however has developed into the emergence of additional Internet cafes, which are presented at least in every regional capital. The Corporate market includes multinational companies with local presence linked permanently to their host country. The business Internet market is estimated to comprise out of some 15 000 to 20 000 active workstations.

Government, via the Office of the Prime Minister (OPM) operates as an Internet Service Provider in the support of Government ministries/offices, which are obliged to use their services. The estimated total number of government users is 2 000. Because of slow access speeds and unsatisfactory service, government departments and State Owned Enterprises have converted to Internet services from the private sector. This is achieved by holding dual accounts, with the Office of the Prime Minister and with a private Internet Service Provider.

Other (dial-up) users of the Internet are estimated to amount to 18 000, including small business, home users and an increasing number of schools, resulting in an estimated total of 40 000 Internet users in Namibia.

8. The Use of IT in Namibia's Rural Areas

In Namibia, there is widespread rural poverty throughout the Northern regions, in the Omaheke region, and in towns throughout the country. Most poor rural households try to make a living from growing mahangu crops in the north, and from cattle farming elsewhere. Agricultural conditions are difficult throughout Namibia, and there is not much ICT can do to increase rainfall, improve soil fertility or reverse bush encroachment on grasslands. A reduction of rural poverty must eventually mean that higher incomes be generated through a shift from agriculture to other occupations.

Improved connectivity can, however, change the cost structure of rural households in ways that have been discussed above. Access to mobile phones and wireless Internet will first reduce the connectivity costs, and also make other rural activities more cost effective and competitive.

Since Independence, there has been a rather phenomenal economic growth in the area around Ondangwa and Oshakati. Large investments in infrastructure have been made. Nampower's supply of electricity has tripled, roads, schools and health facilities have been built, and both fixed and later mobile telephone coverage has increased dramatically. Private investments in real estate,

commerce and industry have followed, and Oshakati has been transformed to a vibrant commercial and employment center. ICT resources are vital in this new economic situation. The most effective application of ICT in Namibia is to overcome the enormous distances in this vast country.

Schoolnet's deployment of a wireless Internet network for schools in Namibia is one of the first large scale wireless Internet networks in the developing world. If it works as expected, it will dramatically reduce connectivity costs and Internet capacity for a large number of schools and rural communities in Namibia.

9. Schoolnet Namibia

The Human Resources available within the IT sector is limited, with particular reference to the 'education pipeline' from primary school through to secondary school and then on to further academic and vocational training. Schoolnet Namibia is a Non Governmental Organization initiative to assist all schools in Namibia in getting access to computers and the Internet.

The organization is an association with membership open to individuals, corporations and institutions with an interest in information technology and its application in the field of education. It was started on a modest scale in 1999, and began to receive financial support from the Swedish International Development Agency (Sida) in 2001.

Extracts from Schoolnet's Constitution:

- *To explore and implement creative ways of ensuring the sustainability of school networking activities, low-cost and appropriate solutions that extend the democratization of access, especially to rural areas.*
- *To develop local applications and educational content, and encourage the critical role of ICT champions and mechanisms to ensure sustainability;*
- *To monitor and evaluate the impact of the use of ICT on education, increase awareness and understanding of the potential of ICT in*

education, share information on best practices in school networking and in developing partnerships, and to encourage relationships and build trust among the key players that enable such networking.

Schoolnet's members come from all parts of Namibia's public and private lives. The organization is rapidly expanding its activities to a large number of schools in Namibia. The general idea is to connect as many schools as possible in the rural areas to the Internet by means of Schoolnet, using volunteers as trainers and facilitators in installing and starting up computer and communication facilities.

Additionally the program will become host to information for rural communities. Teachers and students that have been trained through Schoolnet will jointly assume the role of information facilitators by providing needed information in their societies.

Schoolnet has connected more than 200 schools, with approximately 2000 installed computers. All computers have been donated to Schoolnet by Namibian organizations, or through international Non Governmental Organizations. Most schools have a Linux server connecting a varying number of Personal Computers in a Local Area Network. At present, in most cases the Internet connection is via dial-up telephone modems, but this solution is proving too expensive for most schools and Internet performance is also too slow for realistic access to the web. Wireless network solutions have been tested and installed in the Ondangwa / Oshakati area. The aim of wireless solutions is to improve performance and lower the costs of connection.

For schools without electricity, the installation of solar power is under consideration with about seventy-five schools identified. A solar power solution has been selected and successfully tested by Schoolnet now being in the installation process for those rural schools without power. This system will add substantial resources for the expansion of Schoolnet to more rural schools, as well as supplying ICT skills to a large number of Namibian teachers.

Schoolnet is a rapidly growing organization that plans to include additional schools and deploy a substantial number of computers over the years to come.

This presents a big logistic and management challenge for a Non Governmental Organization that relies primarily on voluntary human resources. Even if the rate of growth has to slow down, it is still a remarkable achievement.

With increasing volumes, Schoolnet will face a growing demand for support and maintenance from the schools, and more resources will be needed for the management of its business. Initially, the responsibility for building the wireless Internet Provider network should stay with Schoolnet, but it must be realized that the management and support of a communication network with thirty transmitters and at least 600 schools is a big task, requiring considerable resources on a regular basis therefore Schoolnet must quickly be transformed into a business mode of operations. The voluntary contributions by young students to Schoolnet are and have been a key to its success, and ways have to be found to keep it that way. It will be a great challenge to strike a balance between the needs of good and professional management, and the enthusiasm and energy coming from its members.

Experts within the IT industry maintain that the biggest shortcoming within Schoolnet is the fact that it operates on a Linux based system. This hampers the general IT organizations from getting involved and secondly it teaches students to operate with a system not extensively used in the IT industry within Namibia.

10. ICT in Education

Networked Learning is undergoing rapid change with educational access being evident at all levels. The funded SchoolNet program has rolled out computer labs in more then 200 high schools, collectively making up 2000 computers.

The University of Namibia has an active ICT program and offers Masters level degrees in IT since 2003. The Polytechnic of Namibia offers diplomas and degrees in IT and is embarking on an aggressive campaign to make all its students computer literate. However Internet access remains very slow throughout the system. The Namibian National Institute for Educational

Development (NIED) is introducing IT studies in the colleges of education throughout Namibia. The use of computers for education lags behind in available facilities. Few teachers are computer literate, teacher training has not been emphasized and there is little evidence of incorporation of computers and the Internet in the learning process. This could change quite rapidly, with the National Institute for Educational Development taking the lead in promoting ICT in education in cooperation with a consortium of donors.

There are many face-to-face and online opportunities for professional training in ICT, often through local branches of South African institutions. The usual product-specific training courses such as SAP, CISCO and Microsoft are readily available.

Internet awareness is at a high level in Windhoek and most of the developed areas, with active dialup and business usage. Internet awareness is spreading further a field thanks to the SchoolNet project and the tertiary institutions, although large segments of the rural population will not have heard about it. Young males still dominate as users. There is some advertising of Internet addresses in the traditional press. Namibia Open Learning Network (NOLNet) and Namibia College of Open Learning (NAMCOL) are spearheading opportunities for online learning and distance education, but those aspects have yet to take off.

Public telephones are widely available, but probably dwindling in importance as mobile phones spread. Internet Cafés are represented in most of the towns and draw many people in particular the younger generation into ICT usage. Large numbers of employees in the private and public sectors in Windhoek in particular, have email and Internet access with many making extensive use of these facilities.

11. The Government and IT

The government IT budget is on average USD 4 million, which is mainly used to

serve its 80 000 employees it has some 5000 computers (including laptops) with 3 500 in Windhoek. Most offices and Ministries have Local Area Networks (LANS), comprising of about 50 LAN servers fitted with an assortment of various types. Government has standardized on the Microsoft range of products, but Lotus, Notes and other related products are also used. There is some presence of Unix, Linux and Novell, but this is minimal.

Internet links are provided to each ministry, and in some cases directly to directorates and departments through the Department of Information Technology within the Office of the Prime Minister. From those points services are distributed to the people connected to the network. There are approximately 2 000 Internet users with email accounts.

Listed below are the ministries that have fully operational IT units under the control of the OPM:

- Ministry of Agriculture, Water Affairs and Rural Development
- Ministry of Works, Transport and Communication
- Ministry of Trade and Industry
- Ministry of Education (both Higher and Basic)
- National Planning Commission

Some of these ministries have become more or less unattached in their IT activities with the central group servicing the smaller ministries with IT.

The lack of IT in Education particularly in primary and secondary schools represents an opportunity. Trying to improve the learning environment without the use of IT, given the legacy of under-funding within education, provides seemingly insurmountable obstacles. IT does have a leverage effect that could be exploited in a well-conceived program.

Political circles in Namibia have a strong drive to decentralize the government activities with two main objectives associated with this drive:

- To improve the quality of service delivery, and
- To improve communication channels between the people on Namibia and the Namibian government.

Improved government IT resources and systems could enhance the achievement

of these objectives drastically. Unfortunately the government is hampered by slow development within its IT and ICT capacity. Given the relatively good ICT capacity and infrastructure in Namibia, it is a pity that IT in Government has not received sufficient attention.

There are several basic systems that could greatly enhance service delivery capacity within the government. One such system is a national population register. The issuing of national identity cards is in crisis, and it can also be very difficult to obtain birth certificates and passports. The current systems are a mixture of manual and computer based, access to registers is uncertain and cumbersome and data quality is questionable. There have been several proposals for new systems over the years, but no known comprehensive project has been started. There is also no national register for land and property (land in the communal areas is not formally adjudicated and registered). There is no national computer based company register, and there is consequently no coordination or data interchange between systems for population, companies, property and the systems for taxation in the Ministry of Finance.

IT systems can be used to enhance efficiency in all fields of administration within the government. This will include simple projects up to very involved systems. In the drive to combat corruption IT should be the number one preventative measure installed by all organizations private and governmental.

As a result of all this, the Government is suffering from low efficiency and high transaction costs. This has direct consequences for the services offered to the public, as they are slow, expensive, cumbersome, bureaucratic and vulnerable to corruption, and they are not available where the citizens need them.

Namibia’s extreme physical distances and its good ICT infrastructure make’s the proposed decentralization particularly attractive. The government has been working to create an “Intranet” to connect central and local government offices. Such a system would open up the use of some central systems so that transactions could be made from remote locations. It would also allow email communication throughout the government sector, and also with the general public. As a result, transaction costs and delays would be reduced and the level

of efficiency could be improved. However, decentralized delivery of national services requires particularly reliable national solutions.

If the citizens in Oshakati find it difficult to obtain passports, the solution is not a local passport register for Oshakati, but a reliable national system that is available in Oshakati trough secure and functioning ICT services. Availability in this context also means affordable, which brings attention to the monopolistic market situation in the telecom area. A rapid implementation of the telecommunications Act is therefore a necessary condition for a successful decentralization.

The awareness throughout the Government sector of the benefits of additional ICT investments seems low, and budget allocations to ICT projects through the regular budget have been insufficient since Independence. The current ICT policy document does not sufficiently stress the necessity of large ICT investments to create a more efficient public sector in Namibia, and neither is it prominent in the National Development Plan 2 (NDP2). The IT unit in the Office of the Prime Minister is running at half strength, and its attempts to coordination are counteracted by investments made by individual ministries. The creation or upgrading of several national ICT systems should be given national priority and be allocated sufficient resources for implementation.

In summary, central and local government institutions should be upgraded to deliver low cost, fast and good quality services to the Namibian public. In Namibia's case much of it can be rectified with a comparatively small investment and in a relatively short time. In order to start the process, a national conference on the use of ICT in Government should be convened with the objective to rally civil servants, politicians and citizens behind a drive for an efficient e-government.

12. IT in Business (including Parastatals)

The Namibian economy is not yet "knowledge based" only a few organizations

see ICT as strategic. Expert's claim that there is a demand for IT professionals in Windhoek, however it is not known whether there is a real brain drain or whether IT people are seeking employment outside Namibia due to a lack of work within Namibia.

E-commerce is embryonic in Namibia with the most prominent sectors being mining, banking and tourism. Business websites are in general static and behind in updating. Apart from the banking and tourism sector, Business-to-Business (B-2-B) e-commerce is minimal in Namibia.

Tariffs on ICT goods and services are low and there are no specific restrictions on e-commerce. However, there are no cyber laws in place, resulting in some uncertainty as regards e-commerce. Over the last few years it can distinctively be seen that in general there has been a shift in the Namibian society in becoming a more developed information society.

Fishing, Manufacturing, Mining, Tourism and Agriculture, remain the largest sectors in the Namibian economy with government being by far the biggest employer. The following sections briefly examine these sectors, for which some IT data has been obtained.

Many local corporate firms are effectively branch offices of South African companies and much of the control and processing of information takes place there, therefore these organizations are directly linked to their South African counterparts, although most of these organizations are registered in Namibia under the Company Registration act.

The manufacturing sector is dominated by a selected few companies ranging from meat, fish and other basic food processing companies to brewing. The larger and more important companies in the food processing industry include:

- Namibia Breweries Ltd, which has a state of the art process, controlled brewing plant and exports 50% of its production to South Africa and further abroad.
- Namib Mills, processors of cereal and cereal related products, with three different milling facilities and ten depots around the country
- Namibia Diaries a bulk processor of dairy products in Namibia.

- Meatco a world-class beef processing organization that prides itself in marketing the natural wholesome beef produced on Namibian farms dominates the meat industry.
- Approximately five major companies exporting processed fish to Spain for distribution into European Union member states dominate the fishing industry.

A new addition to the Namibian economy is the manufacture of apparel goods. This industry has been established as a direct result from the African Growth and Opportunities Act (AGOA) initiated by the United States too assist third world African countries in development. Ramatex, a Malaysian company dominates the industry, with a limited lifespan until the expiration of African Growth and Opportunities Act. The government of Namibia has adopted a long-term vision of having Namibians trained whilst working for Ramatex, to become self sufficient in the apparel industry once Ramatex has left.

Additionally the manufacturing sector consists out of many smaller manufacturing firms supplying products to the building industry such as bricks, door and window frames, and paints. Other manufacturing organizations consist of manufacturers in cleaning products, leather and plastic products.

The sector employs about 70 000 people and uses an estimate of 2 000 Personal Computers, only the bigger organizations are making intensive use of computers within the production process, whereas the smaller firms mainly have computers for administrative purposes. In view of Vision 2030 where Namibia will become an industrialized nation, this sector holds the biggest growth potential for the IT industry.

The mining sector employs some 12 300 people and uses about 3000 Personal Computers. It is the most developed sector with regard to IT and all staff members who require access to computer systems have a Personal Computer available to them. State of the art equipment has been installed. Internet usage is very high with e-mail being used extensively. There are communications links to South African mining operations, and operations further abroad.

The main organizations in this sector are:

- Namdeb Diamond Corporation is the biggest employer in this sector employing over 3 200 people. The organization is the leading diamond mining company build on a smart partnership between the Namibian Government and de Beers. The company has invested recently in a technically advanced diamond cutting and polishing factory in Okahandja.
- Anglo Gold Ashanti Namibia or better known to the Namibian Nation as the Navachab Gold Mine is Namibia's premier gold mine producing well over 2 tones of gold per year.
- Ongopolo Mining and Processing is a globally competitive copper producer through the application of World Class Practices.
- Scorpion Zinc Mine situated in the Southern parts of Namibia is a fairly new edition in the mining industry.
- Rössing Uranium Mine a company who has battled through the ups and downs experienced within the uranium market today stands as the fourth largest uranium producer in the world.

Namibia has a sophisticated banking system, with a large network of about 150 Automatic Teller Machines installed throughout the country. The banks support and issue most major credit cards and are linked to major international communication networks such as SWIFT. Banking over the Internet has been introduced in Namibia. Most of the banks are closely associated with South African banks are therefore linked into their networks and systems, which are largely mainframe-based. The individual banking ATM networks in Namibia are linked to each other and also to South Africa, so that access to a bank account can be obtained from any terminal. There are an estimated 1700-plus Personal Computers installed within the sector.

The Central Bank of Namibia is extensively computerized. A fully automatic clearing system was introduced in 2001, and the BoN web site is currently the best source for financial and economic data about Namibia on the web.

Official statistics are not maintained on the Tourism Industry per se, but rather on

individual components such as Hotels and Restaurants. Namibia has a well-developed infrastructure to accommodate tourists, including urban hotels, game parks and a burgeoning bed-and-breakfast sector. Some 170 establishments large and small can be found on the Internet, although fully-fledged e-commerce is not yet possible.

The transport and communications sector is dominated by State Owned Enterprises as the most influential organizations. Air Namibia the national airline company is linked to various international computerized reservations systems. Transnamib owns an extensive fiber and microwave communications network that it uses for internal communications throughout Namibia. Its internal computer systems are out of date with an extensive plan to refurbish and upgrade.

The Walvis Bay Corridor Group has completed large investments in handling capacity, which include a considerable IT component for cargo handling and documentation.

Nampower the monopoly provider of electricity to Namibia has a sophisticated internal computer set-up and also an extensive fiber network for communications extending across the border into South Africa.

13. IT Services and Organizations

Industry estimates the total number of Personal Computers in Namibia at 25 000 with sales of 6000-7000 per annum. At present no hardware is manufactured in Namibia and little tailor-made software development takes place in the country. The IT Industry has standardized on generic software products such as the Microsoft range, with a small Novell and Unix installed base, some Indian products have been found in the market.

All hardware is imported from international sources, with the main supplier being South Africa. Most South African companies consider Namibia to be part of their distribution channel and are reluctant to open offices in Namibia because of the size of the local market, however many of these suppliers work on the basis of

agency agreements with Namibian partners.

Almost all distribution is via direct marketing done by smaller IT Service provider companies, however bigger retail chains like Incredible Connection, Hi-Fi Cooperation and Game are present in Namibia.

Sales revenue for the total distribution channel is estimated at USD 23 million, with Business Connexion and ASTGijima holding approximately 60% of the market share. According to industry experts there are about 170 IT companies in Windhoek alone, and well over 200 in the country as a whole. Most of these companies employ less then five persons, leading to an estimated 1 000 persons being employed in this sector.

Although registered in Namibian with the Ministry of Trade and Industry both companies, Business Connexion and AST Gijima are South African based companies represented in Namibia and elsewhere in the world. These companies supply hardware, software development, software and networking to their clientele.

The bigger Namibian owned companies are:

- PC Center
- Orbit Data Systems
- Schoemanns Office Systems
- Logical Networks

14. Conclusion

The ICT situation in Namibia in comparison to the rest of Africa is a very favorable one. The infrastructure has been tremendously improved in the fifteen years after Independence, the number of fixed lines has doubled, the mobile network covers most of the population, and the Internet can be accessed throughout the country.

IT competence is widespread, several large companies in the modern sector operate sophisticated enterprise software, and practically all tourist operators,

lodges and guest farms can communicate via email and the Internet. However the majority of the population lives outside of the modern sector, and except for access to mobile phones, they are not touched by the ICT revolution. Therefore Namibia still has a long way to go in building the human capacity to accelerate its development as a networked society, specifically the mainstream educational system. There is, however, some movement in the National Institute for Educational Development and this initiative should be strongly supported.

The University of Namibia and the Polytechnic of Namibia are both making strong moves to enhance their technical capabilities in order to change educational offerings and offer their educational products via distance learning. At school level, Schoolnet is growing and expanding into new areas, its wireless Internet Provider network may change network competency, as many schools may become local communication centers as they get connected in the next few years. Compared with all other available options, this is clearly the most realistic approach towards more universal access.

There are a number of problems with Internet use in Namibia. Internet access is slow because of local, regional and international congestion, largely caused because there are too many users sharing the available capacity. High prices for bandwidth force many organizations to make do with too little. Monopolistic behavior by Telecom Namibia and its subsidiary Infinitum constrains the supply of International bandwidth. It is very likely that increased telecommunication competition would add capacity at all levels, and that this would lead to lower connectivity prices.

In all fairness, Telecom Namibia has acted as a responsible public utility company, investing large amounts in modern technology and expanded capacity, as well as expanding the fixed network and public access through pay phones into the densely populated areas in the north of Namibia. Namibia needs with immediate effect a large addition to its international bandwidth. More bandwidth would immediately translate into lower prices for fixed lines.

The government is a big user of ICT in Namibia, with a government IT center under the Office of the Prime Minister, in charge of maintaining a number of

legacy systems for central government, such as state budgeting and accounting, and the government payroll. New IT technology has moved IT decisions away from central systems; they are now made at the ministerial and departmental levels. The IT center has made attempts at coordinating IT technology decisions and purchasing, but apparently with little success. In this respect, the development in Namibia is not different from other countries. The technical infrastructure is inadequate as there are too many users sharing the facilities within the government domain, and access to the Internet other than for email is in practice not available.

Many offices allow Internet access from separate Personal Computers only. The problems are mainly due to the lack of finances allocated through budgets. The provision of adequate communication facilities has not received priority among all other needs of the young state. To a large extent it is a question of attitude towards the very modernity of IT. Some ministers and politicians regard computers as a “luxury”, as they are competing with more “real” needs like health and education for scarce government resources, therefore there is a great need to “market” ICT as a tool to enhance the capacity of the civil service through improved communication.

The amount of extra money required to upgrade the government’s communication network to a well functioning one is probably not very large. For example an additional allocation of ten million Namibian dollars over a two-year period would make a big difference. This would allow for the upgrading of a number of servers and redesign of the connectivity network.

In evaluating Namibia’s “readiness for the networked world,” it is noticeable that the country’s exploitation of IT in business and government lags behind the actual technological capabilities of the country.

There are untapped opportunities for Namibia to take stronger advantage of worldwide trends towards increased tourism through full use of e-commerce in the business-to-consumer arena. Trading opportunities can be widely enhanced through full use of business-to-business (e-commerce) systems. Exploiting such opportunities can of course be left to the marketplace, but government could well

play an important facilitating role by creating incentives for more effective exploitation of ICT and creating a more secure business environment for e-commerce through appropriate legislation.

Market Summary:

Total Estimated Personal Computers (PC's) in use	25 000
Annual Personal Computer (PC) Sales	7 000
Total Hardware and Software Sales	USD 23 million
Total Internet Sales and Services	USD 7 million
Biggest ICT Consumer	Government

With the knowledge and expertise of IT, within the industry maintained by Indian organizations the "Sky is the Limit" in opportunities in Namibia. The market is hampered by relative low turnovers due to the small population and IT literacy levels of the general population. To develop this industry sector within Namibia the problem must be addressed from the bottom by educating the majority of the population in understanding the power of IT, especially the rural poor.

Annexure 1

Discussion Paper for 2005 Cabinet Retreat

Economic Growth and Sustainable Development

ICT extraction from GRN Retreat November 2005

Success in promoting democracy, socio-economic development, international cooperation, trade and commerce require access to information and the ability to use that knowledge effectively. In this respect the Government is well aware of its crucial role in sustaining the right environment for the development of a true Information Society in Namibia through the use of ICT.

Namibia's Information and Communication Technology (ICT) sector has developed over several years into a modern infrastructure that includes a wide range of fixed and mobile telephones services, as well as Internet access throughout the country but with a limitation on rural community services. Government and the educational sector have embarked on several policy processes aimed at helping to shape the use of ICTs. Government need to adopt further policies that address, in an integrated manner, issues of liberalization, universal service and access, the need for affordable services, and the need to create an environment that will allow business to participate in the global information society by encouraging competition and stimulating investment.

The ICT sector has the potential to become a principal source of new jobs, especially for young people, mostly in smaller and medium size firms. Similar trends are evident in developing countries. For example, in 1999 India exported over $2 billion worth of e-business services. The almost one million Indians now employed in e-business and related sectors in the US virtually matches the

number back home. Namibian SMEs constitute the most suitable business category capable of exploiting electronic commerce. In this respect call centers that take advantage of advances in technology have the potential to employ hundreds of thousands in well paying jobs. Small-scale producers of existing products will also benefit by marketing their products on the Net.

- *Special attention should be given to building skilled ICT human resource and to ensure that all participate actively in, and benefit fully from the use of ICTs;*

- *The rule of law and a regulatory framework should be used to create a dynamic enabling environment. It is important that Government finalize the Namibian Communications Bill and the Electronic Communications and Transactions Bill;*

- *Concrete international approaches and regional cooperation, including financial and technical assistance should be pursued to build a robust and inclusive. ICT sector;*

- *A national implementation plan for E-Government must be developed that will look at important ICT projects and a time frame for completion e.g., 3 to 5 years. A national portal must be developed that will bring all these together (Namibia Portal). Once this is achieved Community Information Centers or will be more effectively utilized to offer E-Government services, E-Learning, E-Health services and many more services; and*

- *Government should encourage smart partnership with local business sector (Public Private Partnership) to reach the last mile to provide ICT services to the citizens by outsourcing some of the implementation activities whereby government formulate a Service Level Agreement (SLA) and monitor the progress.*

An efficient and modern telecommunication network creates an environment that enables and stimulates economic growth in all sectors of the economy, promotes socio economic development of the country and provides the linkage with the rest of the world facilitating trade and integration.

Telecom Namibia obtained the sole mandate to provide telecommunications infrastructure in Namibia from the Government. The most important mandate for Telecom Namibia is to help reducing the so-called digital divide which will hit the society and the economic sectors in different ways if they are not addressed accordingly. It has accomplished a major milestone in 2000, by ensuring the availability of efficient, reliable and affordable telecommunication services through out the country. In particular rural and remote areas that were under-served earlier were covered with a state-of-art network.

This means in fact that Telecom Namibia is ready to expand service to any area in the country were development is directed and where power supply will be available at the same time. Any potential business venture whether in the primary, secondary or tertiary sector and regardless of the regional area will be promptly provided with state-of-the-art telecommunications infrastructure. This fact also finds its positive reflection in world-competitiveness statistics where Namibia's telecommunications sector ranges on the forefront of competitive advantages in order to attracting foreign investors. It is – naturally – warmly welcomed by investors in the mining, manufacturing or tourism industry and last but not least remote communities.

Telecom Namibia is particularly proud of having provided Wireless Solutions to many schools especially in the North. The 'SchoolNet" project was one step to nurture and grow the ICT sector and offer access to the 'information-highway' for young community members. Early access to 'new economy' services will enable transfer of know-how and knowledge creation thereby stimulating innovative

activity, which is an important driver for economic growth. Telecom Namibia will also support and offer specific training programs to up-skill current and future employees to acquire urgently needed IT-skills.

Telecom Namibia is also ready to take on the lead-role in pushing the modernization of the entire economy. Venturing into new business fields such as e-commerce and e-Government and the expansion of latest IT-technology and services to the commercial sector especially to SME's, will all help to make the domestic economy more competitive leading to economic growth.

As a result, new jobs will not only be created in the IT sector and all IT-related activities but could also be created with the opening of call-centers or contact centers. As a positive side-effect of the introduction of latest technology layers on the networks, services can be offered at cheaper rates making them much more affordable to all Namibians. This will either lead to more growth in the sector or to a cost saving for both, the private and the business sector which could be used for investment or consumption both ultimately leading to further economic growth.

Telecom Namibia must explore strategic partners and shed off at least two-fifth (2/5) of its assets to such partner(s). The proceed there from could be used to expand rural services and high technological development.