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Open Source Software Perspectives in the Southern African Network it@ab

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Commentaries and suggestions about this report please remit to pcabero@gmx.net

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Abbreviations

B2B	Business-To-Business
BSD	Berkeley Software Distribution
FS	Free Software
FSF	Free Software Foundation
GNU	GNU's Not Unix
GPL	General Public Licence
HW	Hardware
ICDL	International Computer Driving Licence
ICT	Information and Communication Technology
InWEnt	Internationale Weiterbildung und Entwicklung gGmbH (Capacity Building International)
ISP	Internet Service Provider
IT	Information Technology
LGPL	Lesser/Library General Public Licence
MPL	Mozilla Public License
MSE	Medium and Small Enterprise
OEMs	Original Equipment Manufacturers
OSI	Open Source Initiative
OSS	Open Source Software
SADC	Southern African Development Community
SMEs	Small and Medium Enterprises
SW	Software
VARs	Value Added Resellers
WBT	Web Based Training
WWW	World Wide Web

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it@ab - the Southern African Knowledge Network on "Information Technology in African Business" is an institution with a broad mission in the African continent. The network integrates relevant aspects for the integration of ICTs into the social and economic development in the SADC region.

The presence of the network in seven countries – i.e. Angola, Malawi, Mozambique, Namibia, South Africa, Zambia and Tanzania – and its 25 members configure an interesting business scenario in the IT area. Within the it@ab members are universities, consultancies, IT-training institutions, internet providers and trade promotion organizations.

Goal of this report is to propose general guidelines for the introduction of open source software (OSS) in the business portfolio of the it@ab network; taking in account research in the literature, the actual situation of the network and the results of a survey about this alternative.

An analysis about the OSS alternatives for enterprise is necessary in order to get an understanding about the open source philosophy, which is different to the normal commercial software and represent an extension in the software market. In this sense, on one hand this work concentrates in the open source business models and explains briefly different aspects, like market segment, channel distributions, actual situation on the global market, main characteristics, etc.

Open source presents more challenging business models, because the licenses of this kind of software allow third parties freely copy and distribute the software¹. For this reason on the other hand, the present document introduce to the fundamental license models, i.e. GNU General Public Licence (GPL), GNU Lesser/Library General Public Licence (LGPL) Berkeley Software Distribution (BSD), Mozilla Public License (MPL).

The distribution licenses enclose different criteria and conditions, which play an important role for the business models. In the praxis the business models have been adapted to the different conditions of the license scope.

According to Spiller², the open source business models have a distinction between product-related businesses (distributors and retailers) and service-related businesses. The first classification includes the Linux and specialty OSS distributors, retailers of OSS distributions

¹ Smith (2002): The future of Software: Enabling the Marketplace to Decide, p. 74

² Spiller et al. (2002): Basics of Open Source Software Markets and Business Models. P. 41

and complementary products, and the producer of appliances. On the other hand the service-related businesses comprehend the service and support providers.

The later part of this report analyses open source business alternatives for the it@ab network. In this context three alternatives for the network are identified and discussed.

- it@ab can provide service and support in open source products,
- it@ab can retail of OSS distributions and complementary products,
- and it@ab can produce appliances

The last alternative entails a more technological level but at the same time represents an interesting option for the future, for this reason it is a possibility for the middle-term or long-term, but it@ab must define a strategy now in order to get the necessary skills. The other two alternatives can be implemented in the short-term. In this case taking into account the core competence of the members and the situation in the SADC region are imperative.

Additionally this report provides such data in the form of the results from a survey about the use of OSS in the it@ab members, about their motivations for using OSS, and about the benefits they derive from its use. This year during the Namibia conference the survey was conducted and senior managers of the it@ab members filled the corresponding questionnaires.

This survey took in account concrete aspects of OSS – i.e. the internet infrastructure, the skills of the employees, the position of the OSS in the business portfolio and the open source perspectives in the SADC region and its impact of the it@ab network.

Final conclusions regarding to the introduction of open source software in the it@ab network are:

- On one hand it@ab requires the definition of a general strategy at network level.
- On the other hand it is important that the members introduce open source in its business for the development of the required skills at organisational and technical level.
- The definition of promoters within the member organisations and the active participation in open source projects represent the base for the expansion of open source within the members and in the network itself.

CHAPTER 1

INTRODUCTION

it@ab is a Southern African Knowledge Network on “Information Technology in African Business”. The mission of this network is to support the participation of small and medium sized companies, institutions and governmental bodies in global e-commerce and e-business developments.

In this context, there has recently been many discussions about the benefits and challenges relating to the introduction of OSS in a commercial way. Increasingly, companies are using open-source as a business strategy to seek out new ways of generating revenues and reducing costs³.

The present work analyses the perspectives of it@ab in relation to the introduction of Open Source Software (OSS) in the network. The report traces the results of a research in the literature about the open source alternatives in enterprises and the analysis of the it@ab network. However the scope of the empirical investigation in the network does not make the definition of a whole strategy possible; for this reason the final examination presents general guidelines that constitute a reference for future strategies.

Since the it@ab foundation in 2001, InWent has been supporting the network. InWent - Internationale Weiterbildung und Entwicklung - is an organization of the German Federal Government, that supports sustainable economic, social and environmental development worldwide in transitional and developing countries and aims to shape the future by promoting worldwide co-operation and understanding.

³ Krishnamurthy (2003): An Analysis of Open Source Business Models. S 2

The research has been done in cooperation with project managers of InWent, who work with the African network. Their collaboration constitutes an important contribution for the results achieved.

The second chapter introduces the main characteristics of the open source arena with special attention given to the licensing model and its repercussion for the business models which has emerged in recent years. In addition the author will discuss their advantages and disadvantages.

The Chapter 3 introduces the it@ab Network, its partners and its constitution. Likewise an analysis of the region is traced, in order to get a better understanding of the regional situation with regard to Information Technologies (IT). Finally the results of a survey, which examines the possibilities of open source software in the network, are presented.

The last chapter proposes guidelines for the introduction of open source software in the business portfolio of it@ab. These guidelines take into consideration the literature researched, the actual situation of the network and the results of the survey.

OPEN SOURCE SOFTWARE IN ENTERPRISES

2.1 INTRODUCTION

Despite the free code exchange was already realised in the 1960s years, the term of Open Source Software comes into being with the foundation of the Open Source Initiative (OSI) in 1998⁴. The denomination “free” software comprehends the freedom principle associated with software, in other words; “Free software is a matter of freedom: people should be free to use software in all the ways that are socially useful”⁵.

The free availability of the source code, allows a large number of developers to work on the product. This way of thinking has made reality a new form of software development, different than the traditional software engineering procedure.

Raymond distinct the organizational structures between a proprietary software project and an open source project; he denominates those two forms like “cathedral” and “bazaar” respectively⁶. The development of proprietary software is comparable with the careful and planned construction of a cathedral, which has time targets and fixed responsibilities. The second form, “Bazaar”, presents the chaotic interactions of an oriental bazaar during the development. A rigorous and central management in contrast with an informal organisation of developers works in projects apparently without any relation with each other.

The internet makes possible this form of software development⁷. The actual communication technologies has demonstrated that is possible to achieve a high collaboration level on the software programming, where the developers are dispersed

⁴ Brügge et al. (2004): Open Source Software eine ökonomische und technische Analyse, p. 18

⁵ See O.V. “Philosophy of the GNU Project” in GNU Project Web Server. URL www.gnu.org/philosophy. Accessed: 13 May 2005

⁶ Raymond(1998): “The Cathedral and the Bazaar” in: First Monday, March, Nr. 3. – URL http://www.firstmonday.org/issues/issue3_3/raymond/index.html. Accessed: 20 April 2005

⁷ Feller et al. (2002): Understanding open source software development, p. 125 - 126

worldwide and they must not necessarily have a direct authority or a formal hierarchy. In this way for example Linux was arisen.

Open Source presents likewise interesting approaches in the economical aspect. In its development, are involved for example many experts, who however, are not paid for their work. In this sense open source represents a cooperative approach of product development and therefore, is more of a technology model⁸.

Within the open source movement, there is a strong developer orientation. Since the developer has modification privileges for the programs he can distribute the final version again.

On the other hand, there are enterprises that are addressing open source as an important market⁹. In this sense different business models has been driven with success through different corporations like Red Hat, SuSe or MySQL.

The next pages synthesize possibilities of open source in an enterprise environment. In order to get a better understand, an introduction in the license scope of open source is explained. At the end of this chapter advantages and disadvantages of the use of open source in companies will be discussed.

2.2 LICENSE MODEL

The Open Source Initiative (OSI) defines different characteristics, in order to protect software under the title "open source". The criteria do not correspond to an autonomous License; it is more a „certification mark“, which is conform to the open source definition of OSI¹⁰. The open source definition version 1.9 nominates explicitly the following requirements for the open source software¹¹ and they are briefly listed in the Annex 1.

1. Free Redistribution
2. Source Code
3. Derived Works

⁸ Krishnamurthy (2003): An Analysis of Open Source Business Models, p. 2

⁹ Feller et al. (2002): Understanding open source software development, p. 120

¹⁰ Kooths et al. (2003): Open Source-Software eine volkswirtschaftliche Bewertung, p. 39

¹¹ Open Source Initiative (2003) : The Open Source Definition. 2003. – URL <http://www.opensource.org/docs/definition.php> –Accessed: 04 May 2005

4. Integrity of The Author's Source Code
5. No Discrimination Against Persons or Groups
6. No Discrimination Against Fields of Endeavour
7. Distribution of License
8. License Must Not Be Specific to a Product
9. License Must Not Restrict Other Software
10. License Must Be Technology-Neutral

Within these requirements are defined different licenses, they are distinguished with each other in three aspects: annexation of the source code in the software's binary code; the right to produce and distribution of copies and the right to modify and to distribute the derivate software¹².

The certification of a new license take place when¹³:

1. OSI publishes a list with licenses that the open source definition satisfies. New Licenses, which are not listed but are conform to the definition, can be sent to license-approval@opensource.org for evaluation.
2. In order to use an „OSI certified“ mark for a software distribution, the software muss have a published OSI license. This certified mark is valid only for the software self.

The next sections explain the features and differences between the most important OSS Licenses.

2.2.1 GNU General Public Licence (GPL)

The stone of this license is the Copyleft concept: “we give everyone permission to run the program, copy the program, modify the program, and distribute modified versions - but not permission to add restrictions of their own”¹⁴. Under these conditions a GPL Software neither can be liked with proprietary software nor can distributed the modifications like proprietary software.

¹² Grassmuck (2002): Freie Software zwischen Privat- und Gemeineigentum, p. 279

¹³ Köppen et al. (2000): Open Source: Strategien für die Beratung, p. 235

¹⁴ See Stallman (2001): The GNU Project. In The GUN project server URL: <http://www.gnu.org/gnu/thegnuproject.html>. Accessed: 10 Nov 2004

GPL is the most popular license between the open source projects - 43,742 independent projects are hosted at the SourceForge website alone¹⁵. Originally the license was formulated for Richard Stallman and the GNU project in mid-1980¹⁶; today is generally considered as a restrictive license for commercial aims, but reflects the ideological underground of the open source movement.

2.2.2 GNU Lesser/Library General Public Licence (LGPL)

This license is oriented to libraries and fulfils, the free principles of the GPL license, with the exception that a LGPL library can be linked with other programs other routines that are not themselves available under an open source license and the result does not need to change the license to LGPL¹⁷. But if the library is modified, the new version should be protected under LGPL.

This license is formulated in order to ensure the integrity of the OSS products in other platforms and in this sense is more flexible than GPL.

2.2.3 Berkeley Software Distribution (BSD) or Artistic License

This license is unrestrictive, because it is possible to run, to copy, to modify the program but the difference is that the modified versions can turn on proprietary software, without the respective distribution¹⁸. In this case the unique condition is to give credit to the University of California for the underlying code in the documentation of any derivative version.

This license has been adopted for well-known projects like are MIT, Apache, W3c, Python and Zope and it is a popular alternative for commercial aims.

2.2.4 Mozilla Public License (MPL)

This license is formulated after that, Netscape released the source code for Communicator 5.0 Netscape navigator. MPL brings special privileges to the original

¹⁵ O.V. (2005): License: OSI-Approved Open Source in SourceForge.net, URL http://sourceforge.net/softwaremap/trove_list.php?form_cat=14. Accessed: 17 May 2005

¹⁶ Lerner et al. (2002): The scope of open source licensing, p. 4

¹⁷ Grassmuck (2002): Freie Software zwischen Privat- und Gemeineigentum, p. 290 and see Lerner et al. (2002): The scope of open source licensing, p. 5

¹⁸ Brügge et al. (2004): Open Source Software eine ökonomische und technische Analyse, p. 22

owner and content a legalistic language that is different in tone from “the community-bred”¹⁹. But MPL represent the first adoption of OSS for a large company.

The Table 2.1 summarizes the differences between the most important OSS licenses.

FEATURES	LICENSE			
	GPL	LGPL	BSD	MPL
Source Code can be read, modified, and distribute without restriction	X	X	X	X
Source code can be linked and distributed with proprietary software without OSS-Licence		X	X	X
Modifications in OSS source code can turn on proprietary software in distribution case			X	
Source Code can be read, modified, and distribute without restriction				X

Table 2.1: Features of OSS Licenses

Source: Brüggge et al. (2004): Open Source Software eine ökonomische und technische Analyse, p. 23 according to Perens 1999

The choice of license of a new open source project, in fact, is an important factor for its future success. There are many aspects that must be considered and the election depends on the essence of the project and the intention or goals of the licensor (a programmer, a group of programmers or a company)²⁰.

For example the open source projects subsist from the programmer’s contributions, therefore the license must motivate the programmers to contribute in the project; in this case is important to consider the license of similar projects.

Likewise the choice of license signifies an important question to the licensor with commercial interests and in general for enterprises. In the praxis the business models have been adapted to the different conditions of the license scope.

2.3 OPEN SOURCE IN ENTERPRISES

In our analysis, the application of open source in companies is divided in the use of open source within of the company and on the other hand business models that are

¹⁹ Feller et al. (2002): Understanding open source software development, p. 21

²⁰ Lerner et al. (2002): The scope of open source licensing, p. 8 - 10

purely based on OSS (See figure 2.1). Additionally there is a distinction between product-related businesses (distributors and retailers) and service-related businesses.

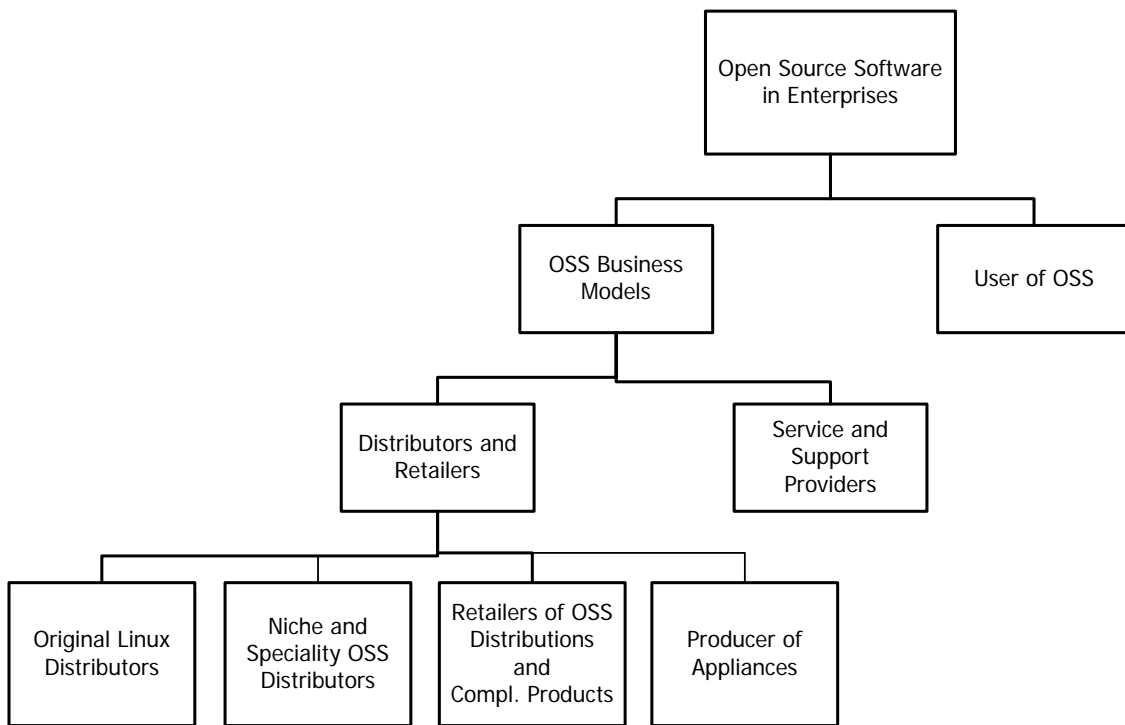


Figure 2.1: Open source in enterprises

Based on Spiller et al. (2002): Basics of Open Source Software Markets and Business Models. P. 41

2.3.1 User of free Software

The company uses open source solutions either as a whole solution for all the processes and systems, or in combination with proprietary software. Possible advantages for the company by the use of open source products are flexibility, stability, a possible better investment and to reduce dependence of the software supplier²¹.

When a company decides to switch to open source products takes in account the product performance. In many cases, open source products have been evaluated and adopted for their technical merits and their ability to meet stringent requirements²².

²¹ Grassmuck (2002): Freie Software zwischen Privat- und Gemeineigentum, p. 340

²² Krishnamurthy (2003): An Analysis of Open Source Business Models, p. 17

Another important aspect for the decision is the evaluation of the total cost of ownership of the open source products, which represents the compilation of investments, operation costs and indirect costs of a system during its life cycle²³. If the total cost of ownership is lower with open source products, the company will be able to change. The total cost of ownership is sensitive to the nature of the organization and should be evaluated by each organization as such²⁴.

It is necessary to note that the use of open source products by intern process can carry some problems. If the code related with intern process can be opened (for example under GPL license), competitors can benefit with the use of the code or they could have a deeper insight in business process or recognize weak points in the software.²⁵

2.3.2 Open Source business models

In the last time there are more and more entire companies that are being formed around the open source concept. In 1996 Jim Kingdon describes already five successful ways of making money in the open source arena, which are; by providing custom work for ports and new features, support contracts, training, consulting/customization, and telephone support²⁶.

This, in fact, has been the guideline for important international corporations, which in the last years are founded. Examples among others are Red Hat, Suse, Apache, MySQL, or O'Really. These corporations use the mentioned ways as a combination in its business portfolio and their main business is concentrated in marketing and distribution of products, a major portion of their income is based on additional services such as consulting and support²⁷.

The present section discuss about the general scope of business model in order to have a whole perspective. In chapter 4 the relevant alternatives for the it@ab Network will be discussed.

²³ Brügge et al. (2004): Open Source Software eine ökonomische und technische Analyse, p. 116

²⁴ Krishnamurthy (2003): An Analysis of Open Source Business Models, p. 17

²⁵ Brügge et al. (2004): Open Source Software eine ökonomische und technische Analyse, p. 108 - 109

²⁶ Kingdon (1996): Free Software Business Models in Stromian Technologies URL:

<http://www.stromian.com/bizmod.html>. Accessed: 21 May 2005

²⁷ Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 41

2.3.2.1 Distributors and Retailers

Within the distributors and retailers there are following three categories:

- Original Linux Distributors
- Niche and specialty OSS Distributors
- Retailers of OSS distributions and complementary products
- Producer of Appliance

a. Original Linux Distributors

The Linux distributors package and sell their own version of the Linux operating system. Examples for original Linux distributors are Red Hat, SuSE, MandrakeSoft, Caldera, Turbolinux, and Slackware.

The distributors collect the newest Linux release; they test, optimise the programs related and ensure the performance and reliability for their own version. Finally additional routines for installation, interfaces and the respective documentation are prepared²⁸.

The distributors work in cooperation of the Linux community and normally the new version of Linux is returned to the OSS community; although the distributors can keep core components as proprietary (e.g. the administration software "yast" of SuSe Linux)²⁹.

In this model there are two market segments: the mass market with standardised packages (professional or customer version) offered to SMEs and private consumers. The other segment is the market for individual solutions, which are offered to medium or large corporate customers³⁰.

The Linux-distributors have three possible distributions channels: Direct selling in internet; sales and distribution through are retail chains (in particular bookstores) and VARs (Value Added Resellers), finally is through the association with computer producers.³¹

²⁸ Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 42

²⁹ Leiteritz (2004): Open Source-Geschäftsmodelle, p. 141

³⁰ Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 43

³¹ Leiteritz (2004): Open Source-Geschäftsmodelle, p. 143

Since Linux's license is GPL, the margins per unit sold are low. That is why distributors must be able to create a differentiated branding and shift towards solutions and consulting³².

b. Niche and specialty OSS Distributors

In this case, the enterprises are specialized in different OSS but no operating Systems, their products include applications, development and administrative tools. Examples are Zope, Sendmail.com, Covalent Technologies, Cygnus, Precision Insight, MySQL, ActiveState, and CollabNet.

These companies work in close coordination with the correspondent OSS project and its community, and the community ensures the development and support of the product³³. Mainly of these OSS projects work in a model No-GPL, i.e. the BSD license or an own license.

Important distribution channels in this business model are VARs (Value Added Resellers) and OEMs (Original Equipment Manufacturers), which sell optimised hardware-software bundles or develop and sell embedded products³⁴.

Other profits are also generated by consulting, service of system implementation and integration, support and training.

c. Retailers of OSS distributions and complementary products

Documentation is a complementary product outside the OSS community, since the community do not take in charge this task; "developers write any documentation" is almost among the community a rule.

Proprietary software companies provide documentation about its product, but in open source there is nobody in charge. From this reality, retailers of OSS distributions are emerged. In this sense retailers either sell the distributors' software products or they provide and sell additional documentation and information on OSS products or merchandise³⁵.

³² Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 43

³³ Brügge et al. (2004): Open Source Software eine ökonomische und technische Analyse, p. 107

³⁴ Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 45

³⁵ Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 46

Their market segment is broad; they can sell their products to companies, to specialists and also to public in general. A key factor in this business model is the distributions channels.

O'Reilly is successful in this brand, the combination of its OSS knowledge with publishing knowledge has established a brand for OSS books³⁶.

d. Producer of Appliances

The customers in this market are typically special device producers, such as cell phones and set-top boxes. "Appliances" are the devices composed hardware, software and an operative system. This is a classical B2B market as the end user has no direct relationship with the embedded software provider.

The provider develops, additional the kernel of the operative system, applications for interfaces to user³⁷. The digital video recorder „TiVo“ and Sharps PDA „Zaurus“ present known examples. In part, some components can be licensed under proprietary license.

Normally the appliance providers have a complete portfolio of solutions; however specialization of a determinate high-quality solution plays an important role on the market³⁸.

Appliances are mass products and are normally distributed trough partner. The producer, in this case, profits for maintenance contracts and customer support.³⁹

OSS has many advantages in this segment – including availability of source enabling vendors to customize the software, the low price and the availability of technical skill. OSS related services and support

2.3.2.2 Service and Support Providers

With the growing popularity of open source products, increase also the demand of services like consulting, installation system implementation and integration, support, training, etc. In this sense the expansion in this direction represent a chance to cover a necessity on the market and to promote the customer loyalty.

³⁶ Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 47

³⁷ Leiteritz (2004): Open Source-Geschäftsmodelle, p. 150

³⁸ Leiteritz (2004): Open Source-Geschäftsmodelle, p. 151

³⁹ Weerawarana et al. (2004): Open Source in Developing Countries, p. 23

Technological capabilities and knowledge about open source products are requisite in this case. Likewise, it is essential to have process knowledge in how to provide a service related to IT in general. This can be knowledge in IT consulting, systems integration, IT-training or IT-recruiting, around others.⁴⁰

Indirectly Linux distributors, niche and specialty distributors as well as independent OSS service companies belong also to this category. The figure 2.2 shows this correlation, product support requires product know how and for strategic consulting is important the process and methodology know how.

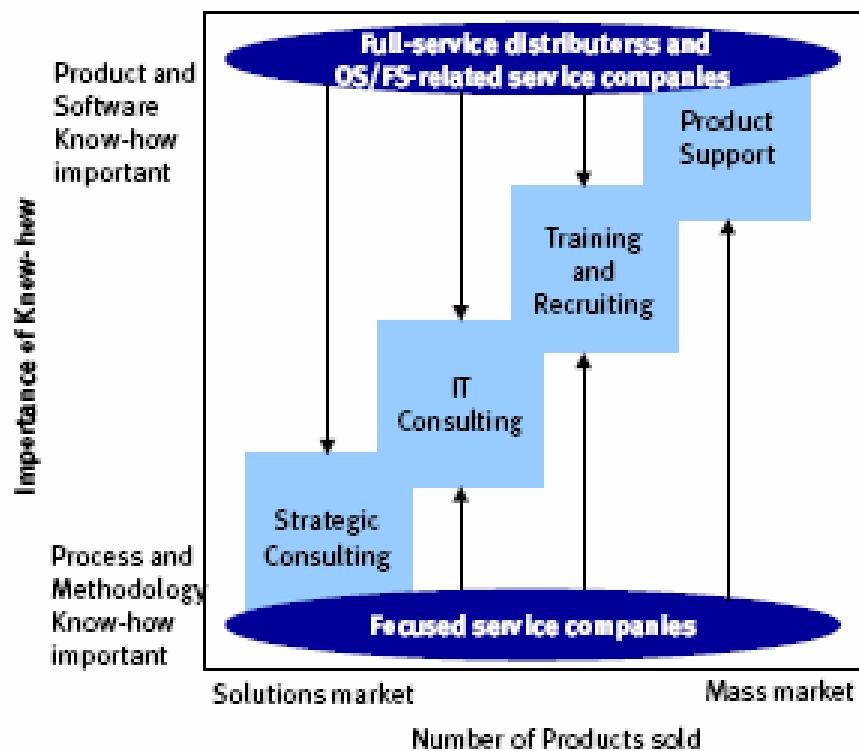


Figure 2.2: Areas of success in the OSS-related service business

Source Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 50

Commercial support gives businesses the possibility to have their OSS products supported without getting involved with the developer community culture support. The following points are variation of support contracts⁴¹.

- Contract categories: installation support (for a limited time after installation), support packages (price per call), annual support contracts.

⁴⁰ Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 48

⁴¹ Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 49

- Way of support: telephone hotline, e-mail hotline.
- Level of support: 1st level (smaller problems, end-user targeted), 2nd level (administrator), 3rd level (developer targeted, sometimes including source code changes) support definition and coverage.
- Coverage hours and days: 10x5 to 24x5 or 24x7, working days only or all 365 days/year.
- Reaction time: from 1 hour in the best case to 8 or 16 hours (or “next business day”).
- List of supported products: hardware and/or software.
- Personalisation – inclusion of individual consultancy and auditing.
- Patch- and update management (in case of new version).
- Supported infrastructure type, from desktop-PC to mainframe.

2.4 ADVANTAGES AND DISADVANTAGES OF OPEN SOURCE

Open source presents different alternatives for an enterprise, for an initial evaluation is important that managers take in account, from a managerial perspective, its advantages and disadvantages. In this section an extract about this aspect from the excellent summary in “A managerial overview of open source software” is included⁴².

2.4.1 Advantages

Robustness

Even a company willing to devote resources to product testing may not be able to accurately simulate all the conditions under which it will be used. Therefore, the product does not go through a rigorous enough testing process, which makes it less reliable. The open source method could potentially lead to a more robust product, because there is a continuous exchange among a considerable number of developers during the development of the product.

Flexibility to user

Since the user has access to the source code, he has the flexibility of “mixing and matching” the systems and in this form to get a customized solution.

⁴² Krishnamurthy (2003): A managerial overview of open source software

Support from a community

However, this advantage is not available to all OSS products. Building a community of developers/testers is a challenge for newer products that may get lost in the mix.

2.4.2 Disadvantages

Version Proliferation

A tendency in open source software is to have a proliferation of versions. This is certainly true for Linux, according to some research at least with 65 different versions⁴³.

Managers may have to choose one group over the other, exposing themselves to the potential risk of product failure. This makes it very difficult for the end-user to identify the best version of the product. Companies such as Red Hat, play an important role here by selecting one version to support.

Usability

Open source software is oriented mainly to the high-end technical user. The mainstream user wants performance and features over reliability, one easy-to-use suite rather than a choice, and probably does not care about access to the source.

⁴³ Krishnamurthy (2003): A managerial overview of open source software, p. 52

CHAPTER 3

it@ab KNOWLEDGE NETWORK

it@ab - The Southern African Knowledge Network on “Information Technology in African Business” was founded in 2001 in order to support the participation of Small and Medium Sized Companies, Institutions and Governmental Bodies in global e-commerce and e-business developments.

InWent Capacity Building International within the scope of the department “Development, Infrastructure and Communications” promoted the foundation and has supported development of the network.

Today more than 20 institutions in seven member states of the Southern African Development Community (SADC) are already connected under the umbrella of it@ab. The new knowledge network is dedicated to providing state of the art e-commerce knowledge, experience and international contacts.

Within the it@ab members are Universities, Consultancies, IT-Training Institutions, Internet Providers, Internet Application Providers and Trade Promotion Organizations in Angola, Malawi, Mozambique, Namibia, South Africa, Zambia and Tanzania.



Figure 3.1: it@ab Cooperation in a Network

This chapter trace the structure of the it@ab network, i.e. its mission, vision business fields and the actual members. Since the it@ab network is present in the SADC Region an analysis about current situation of the information technologies in this area is explained. The later part of the chapter focuses on the position of open

source software and exposes the result of a survey realized among the senior managers of it@ab in this year.

3.1 IT@AB VISION AND MISSION STATEMENT

The information in this section is published in the it@ab Network homepage (<http://www.it-ab.net/>) and it is presented in this work, without modification.

it@ab's mission is

it@ab – excellence in ICT

in order to promote the use of local resources and capacities in the SADC region and to disseminate and monitor international best practices in the ICT field.

3.1.1 The it@ab Vision

- Global and regional business opportunities exist for enterprises in SADC through the innovative application of ICTs and networking
- A supportive environment for ICT-related business activities and ICTs are integrated into the social and economic development
- ICTs are used as business tools and ethical business standards are applied in the digital economy.

On the basis of this Vision, it@ab will provide state of the art know-how in e-commerce and e-business in the whole SADC region and thus, open e-business opportunities to small and medium sized enterprises, to institutions and to governmental bodies. it@ab promotes local business development as well as regional business cooperation. On an international level, it@ab offers business contacts and cooperation opportunities with companies and institutions in South East Asia and Europe.

3.1.2 Mission Statement

The vision will be set by:

- Sharing business-related information
- Leveraging and developing the skills and expertise in the network
- Creating and selling knowledge products

- Using the network to magnify our own business activities Forming consortia to respond to business opportunities attracting financing for capacity and project development for a sustainable eMarket environment
- Attracting investment for eBusiness development for SADC Facilitating the development of regional and global business linkages
- Building internal capacities through training of it@ab consultants

3.2 INFORMATION TECHNOLOGIES IN THE it@ab NETWORK REGION

In general, the telecommunication infrastructure in Africa is poor and not enough to support the expansion of internet for the total population. The access to the IT technologies is restricted and expensive, and sadly the rural areas are the most affected, these do not have the infrastructure or the economical resources.

The Southern African Development Community (SADC) groups 14 southern countries of the continent together. In June 2002 SADC set up an ICT Task Force in order research the e-readiness⁴⁴ status of member states. Next important results and conclusions of this task force are summarized⁴⁵.

The task force defined three overlapping levels of e-readiness. These levels were used to cluster the different countries according to the scores achieved during the research. The three levels are:

1. Fundamental level: it focuses on the absolute ground level of an infrastructure to enable the technology to be of use. Examples are electricity, education, access to media, i.e. television and radio etc., and basic access to telecommunications.

⁴⁴ E-Readiness defines the grad of the use of information and communication technology. e-Readiness take in account three central aspects i.e. ICT-infrastructure, competence in the use of ICT and the regulatory framework

⁴⁵ This information is published in SADC, SATCC-TU Task Force (Jun 2002): SADC e-Readiness Review and Strategy: Recommendations of the SADC e-Readiness Task Force. World Bank.

2. Middle level: The middle level involves the next step in the technology adoption and involves access to higher level telecommunications services, PC penetration and maps out the first stages of an ICT infrastructure, with specific focus on priority applications like e-government, e-education, and e-health.
3. Advanced level: The advanced level involves the latter stages of a higher level of ICT infrastructure and applications, and implies the use of the Internet for global trade and other e-commerce activities, which implies the foundational requirement, well-developed banking infrastructure and other commercial and legal support frameworks.

First of all, the research carried out a primary in-country research focused in the information recollection of the e-Readiness. Secondly policy and regulatory frameworks regarding to the ICT topics has been evaluated. Figure 3.2 summarizes the final results obtained.

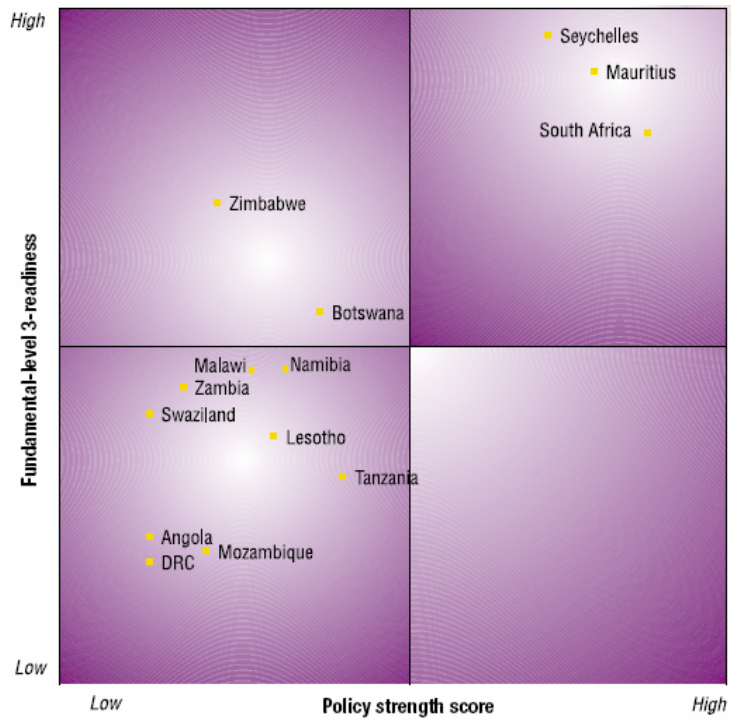
The it@ab network has actually members in Angola, Malawi, Mozambique, Namibia, South Africa, Tanzania and Malawi. The results of ICT Task Force demonstrate that the reality vary significantly between and within the country members of the it@ab network.

While South Africa obtained a relative good position in each level, Mozambique and Angola show low results among the three levels. By comparison with them and the other countries, i.e. Malawi, Zambia and Tanzania, show a better position in the fundamental level; however, they muss address towards the two other levels. Finally Namibia has a relative superior position, where the policy strength score is, in the three scales, better than the e-readiness level achieved.

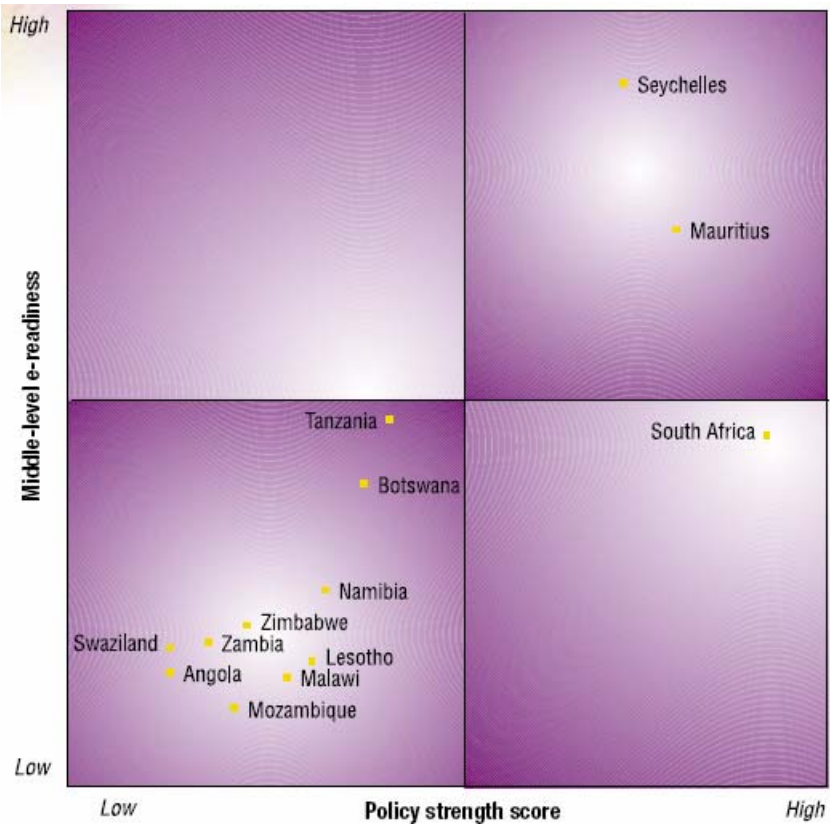
In the annex 2 there is a summary per country with the most relevant aspects.

At the end of the evaluation, the task force recommend the fortification of the basic communication and electrification infrastructure, to increase personal computer (PC) penetration and the internet access, finally the development of the banking and e-commerce infrastructure. And on the other way, it is important to consider, the human resource development and capacity building, as well as the cultivation of awareness and positive attitudes, in order to set and obtain towards ICT and the development of an internet culture.

Fundamental Level



Middle Level Performance



Advanced Level

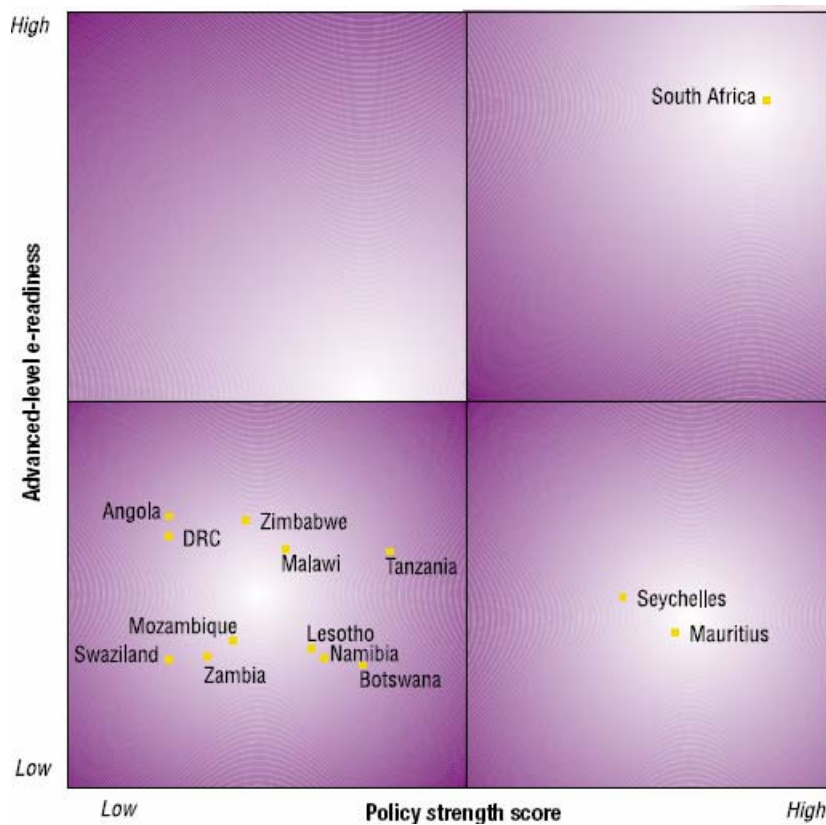


Figure 3.2: e-Readiness Levels in the SADC region

Source: SADC, SATCC-TU Task Force (Jun 2002): SADC e-Readiness Review and Strategy

According to the it@ab mission, the activities of the network contribute with the expansion and the improvement of e-readiness in the SADC region. The next section introduces to the it@ab members and their business fields.

3.3 THE it@ab MEMBERS

The it@ab network is actually constituted for twenty six organisations from seven SADC countries (i.e. Angola, Malawi, Mozambique, Namibia, South Africa, Zambia and Tanzania)

In particular the it@ab members are Small and Medium Enterprises (SMEs) specialized Information Technologies (i.e. IT – Consulting, Internet Provider, IT – Training). The participation of seven universities through their faculties and computer centres is an important stone of the it@ab network.

On the other hand, it@ab has as member three Digital Villages, of which their mission is to bring support to poor areas in information technologies. Last but not least, IT and trade promotion organisations are also member of the it@ab network.

Through its multi-structure it@ab integrates different relevant aspects for the expansion of an environment for ICT-related business activities, and for the integration of ICTs into the social and economic development.

The table 3.1 give an overview of these organisations and mayor information is available on www.it-ab.net.

Area	Country	Institution	Home Page
IT- Consulting	Malawi	Bumas	http://www.bumas.com
IT- Consulting	Mozambique	Matrix Group LDA	N/A
IT- Consulting	Namibia	BITS	http://www.bits.com.na/Default.aspx
IT- Consulting	South Africa	T-Net IT-Service	www.tnet-it.co.za
IT- Consulting	Tanzania	Infosys IPA (T) Ltd.	http://www.infosys.co.tz
IT- Consulting / Internet Provider	Malawi	Epsilon & Omega Limited	http://www.eomw.net/
IT- Consulting / Internet Provider	Malawi	Nico Technologies	http://www.nico.malawi.net/
IT- Consulting / Internet Provider	Tanzania	Agumba Computers Limited	http://www.agumba.com
IT- Promotion	Angola	Cenapati	http://www.uneca.org/aisi/nici/Angola/angola.htm
IT- Promotion	South Africa	Lehlaka Technologies	http://www.lehlaka.co.za/
IT- Promotion	Sambia	Southern African Network for Training and Research in Environment (SANTREN)	http://www.santren.com/
IT- Training	South Africa	Southern African Non-Governmental Organisation Network (SANGONeT)	www.sangonet.org.za
IT- Training	South Africa	Soweto Digital Village	N/A
IT- Training	Zambia	Massi Computing College	N/A
IT- Training	Zambia	Thomro Investment Ltd.	http://www.thomro.co.zm
IT- Training	South Africa	Emdeni Digital Village	N/A

Area	Country	Institution	Home Page
Telecommunication Company	Namibia	Telecom Namibia	http://www.telecom.na
Trade Promotion Organization	Tanzania	Board of External Trade	http://www.bet.co.tz
University	Malawi	University of Malawi, Chancellor College	http://www.chanco.unima.mw/
University	Malawi	University of Malawi, The Polytechnic	http://www.poly.ac.mw/poly/
University	Mozambique	Eduardo Mondlane University	www.uem.mz
University	Namibia	University of Namibia	http://www.unam.na
University	Tanzania	Dar es Salam Institute of Technology	www.dit.ac.tz
University	Tanzania	University of Dar es Salam, Computing Centre	http://www.udsm.ac.tz
University	Zambia	University of Zambia, Computer Centre	www.unza.zm

Table 3.1: it@ab Network – Members Overview

Source: O.V. "it@ab Members" in it@ab Homepage. URL www.it-ab.net. Accessed: 13 May 2005

3.4 BUSINESS PORTFOLIO

The business portfolio can be divided between the it@ab network services as an institution and the palette of services corresponding to the individual members.

Last year in the Maputo conference the senior managers of the it@ab organisations discussed about the definition of actual business and perspectives for new business. The preliminary outline of this meeting is traced in the following sections

3.4.1 Products and services of it@ab Members

The diversity of the it@ab members is reflected consequently in a variety of services in the ICT area. The it@ab members are able to offer different services and products, few organisations have a concrete specialization.

During the work shop in Maputo the participants have been classified, the main business fields and the products/services of the networks members (see table 3.2). Over this base, the participants worked on the definition of a product/service matrix, which summarized the information per member.

Business Fields	Products and services
Training	ICT Training, Training of Exporters, Professional and Management training,
International Computer Driving Licence (ICDL)	ICT Testing Centre, ICDL Training
eLearning	eLearning courses, Content Development
Software (SW) and Internet Development	Software Development, database services, web design and development, eGovernment and online trade portals, workflow development, platform customization
Network/ Hardware (HW) Services	Security and monitoring services for networks, hardware maintenance
Internet Services	Hosting Services, internet service provider, internet cafes
IT Consultancy	Business and IT Consulting, Business Process Re-Engineering
Trade Consultancy	WTO Reference Centre, Organize trade fairs, market research and development

Table 3.2: it@ab Network – Business Fields

Source: According to Maputo Workshop Report – Nov 2004

The table 3.3 illustrates a summarized version of this matrix.

According with this information, almost all of the it@ab members offer services related with training and complementarily to this field, e-Learning represent a potential for most of the it@ab organisations.

Apart from the pure training organizations, the services of IT-Consultancy are present on the rest of the it@ab network. However, the trade consultancy field has a reduced presence in the network; the services related with this field are offered for only five organisations.

The other business fields, i.e. Software / Internet Development, Network/ Hardware Services and Internet Services, are either already a part of the portfolio or considered as potential business.

ORGANISATIONS	BUSINESS FIELDS							
	Training	eLearning	ICDL	SW/Internet Development	Internet Services	Network/HW Services	IT Consultancy	Trade Consultancy
Malawi Polytechnic	A	P	P	A	F	F	N	N
T-Net IT-Service	A	A	P	A	P	F	P	N
Lehlaka Technologies	A	P	N	A	F	F	P	N
Matrix	A	P	N	A	P	A	P	P
BUMAS	A	N	P	F	F	F	A	N
University of Zambia	A	F	N	P	A	F	A	N
Emdeni Digital Village	A	A	P	N	A	N	N	P
University of Namibia	A	P	A	N	P	N	F	F
Massi	A	P	F		F	F	F	N
EPSILON & OMEGA	F	N	N	A	A	N	N	N
Agumba Computers Limited	F	P	F	A	A	F	F	N
Infosys IPA (T) Ltd.	F	P	N	A	F	F	F	N
University of Dar es Salam	F	A	A	F	F	A	F	N
SANTREN	F	A	N	P	N	P	N	F
Thomro Investment Ltd	F	A	F	P	P	F	F	F
SOWETO Village	F	P	P	N	F	N	P	N
BITS	P	A	F	A	N	F	A	N
Telecom Namibia	P	P	P	F	A	F	N	N
Nico Technologies	P	F	N	F	A	F	F	N

All of services are offered A Potential P Fraction of services are offered F No offered N

Table 3.3: it@ab Network – Product/Service Matrix
Source: According to Maputo Workshop Report – Nov 2004

3.4.2 Products and Services of the it@ab Network

The goal of the it@ab network as institution is the participation in tenders for projects larger than a typical project for individual members. For example the it@ab through its secretariat participates in calls for proposals and identifies project ideas for and with international and national donor organisations. This will then be implemented by it@ab partners.

On the other hand, it@ab has produced blended learning programmes (combination of web based and face-to-face training) with ICT topics.

An important rule among the network is that services and products marketed by at least two it@ab members jointly are defined as it@ab service or products

In order to strengthen the brand name of it@ab, it is planned the implementation of databases with the product and service matrix of the network and its members, an expert database and a project reference database.

3.5 ACTUAL POSITION RELATED TO OPEN SOURCE SOFTWARE IN it@ab

This section provides data in the form of results from a survey about the use of Open Source software in the organisations member of it@ab, about their motivations for using OSS, and about the benefits they derive from its use. During the Namibia Conference, last April 2005, the survey was conducted and it was addressed to the senior managers of the it@ab network; in this occasion 13 senior managers filled the questionnaires.

This survey has been done with the collaboration of the project managers of InWent, who have been working with the it@ab network since three years ago. Their opinion and recommendations have been a relevant contribution to the analysis of the survey results.

The survey questionnaire is divided in five parts

- **Use of OSS in general:** with questions about the use OSS products and the participation in OSS projects
- **Internet Infrastructure:** Internet enables the open source use, for that it is important to establish the degree of access to internet of the organisation and their employees.
- **IT-Staff:** questions related to the open source skills of the employees and the importance of them in the organisation
- **Open Source and the Business Portfolio**
- **Open Source perspectives:** The opinion about the importance of open source in the SADC region and its impact of the company and in the it@ab network has been asked in this part.

The full questionnaire is reprinted in the annex 3 of this report.

The investigation enabled to gain a better understanding about the position of the it@ab network in relation of open source technologies; the following points trace the final results, they are organized in function of the above explained distribution.

3.5.1 Use of OSS in general

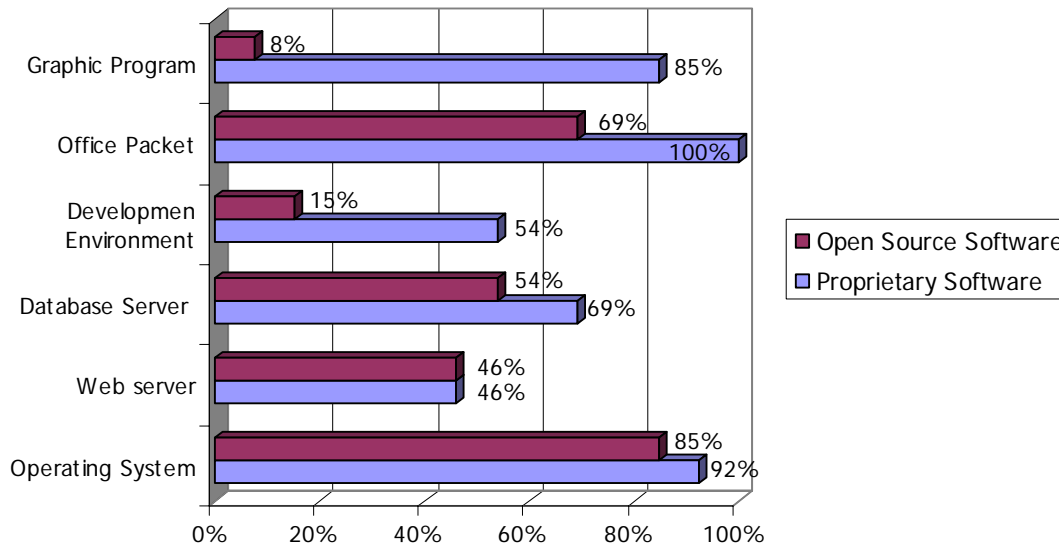


Figure 3.3: it@ab Network - Proportion the use of proprietary and open source products

Source: Survey results

Figure 3.3 shows the proportion of the use of proprietary software is mayor by comparison with the open source products in all of the researched fields. The proprietary products dominate completely in the fields: the integrated development environment, office packet and graphics programs. But the differences are less pronounced by the field operating system, web server and database server.

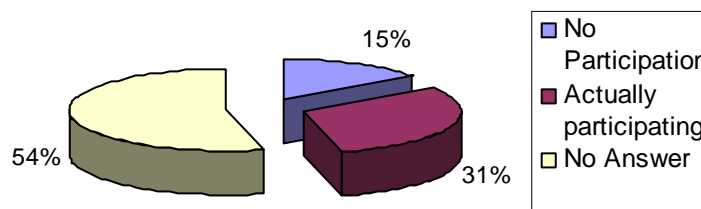


Figure3.4: it@ab Network - Participation in OSS projects

Source: Survey results

On the other hand, the Figure 3.4 illustrates that only 30 percent of the organisations are actually taking part in open source projects. Projects like Fossfa, Wisenamibia, Wiseafrica,

African Digital, Zambia OS and Tafossa have been mentioned. These projects correspond to Africans initiatives

3.5.2 Internet infrastructure

All of it@ab members have access to internet. In some cases they use two different connection forms; however, the online connection is the most used form (see figure 3.5).

The use of email is generalized on all of the members and additionally some of them have implemented also collaborative tools like chats and forums.

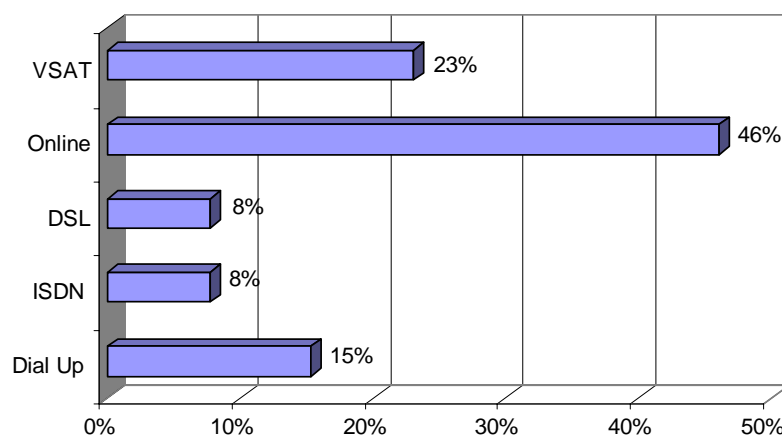


Figure 3.5: it@ab Network – Internet Access

Source: Survey results

3.5.3 IT-Staff

The answers in this section indicate that the organisations under the it@ab umbrella are extremely diverse; it@ab group organizations count with around 1500 employees (as universities or telecommunications companies) and also organizations with only 8 employees. The it@ab members have also, around to each other, different internal structure and of course different priorities.

For all these reasons, it is not possible to give definitive conclusions about the statistics of the employees in the IT-Staff or about the employees involved in open source tasks. But in general the results of the survey show that on average 30 percent of the employees of these organisations have access to internet and 5 percent of them are actually involved in open source activities.

Not all the organisations have internal policies in order to support and motivate the interest of the IT-Staff in OSS topics, for example only 30 percent of the organisations offer seminars to the employees with open source topics.

3.5.4 Open source and the Business Portfolio

IT - Consulting and Software-Web development are considered the most important business fields. The following position corresponds to training; and after all are situated Network services and it@ab products.

Linux represents the key open source product in the it@ab network. Linux is mainly used for training and network services. While PHP and MySQL support the Software and Web Development field.

Other open source products are not mentioned in the answers.

Finally 38 percent of the organizations consider to have made profit from OSS products and services so far (see figure 3.6). These profits represent between 1% and 30 % of the monthly average profit.

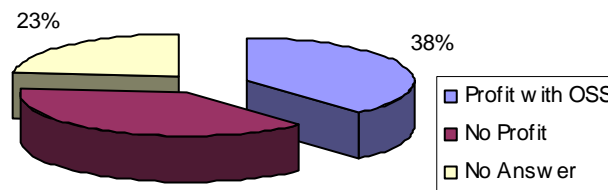


Figure 3.6: it@ab Network – Profit with OSS products

Source: Survey results

3.5.5 Open Source strategy and perspectives

To the question:

How do you evaluate the market for OSS products and OSS services in general in your country and in SADC? (Actual situation, perspectives, risks)

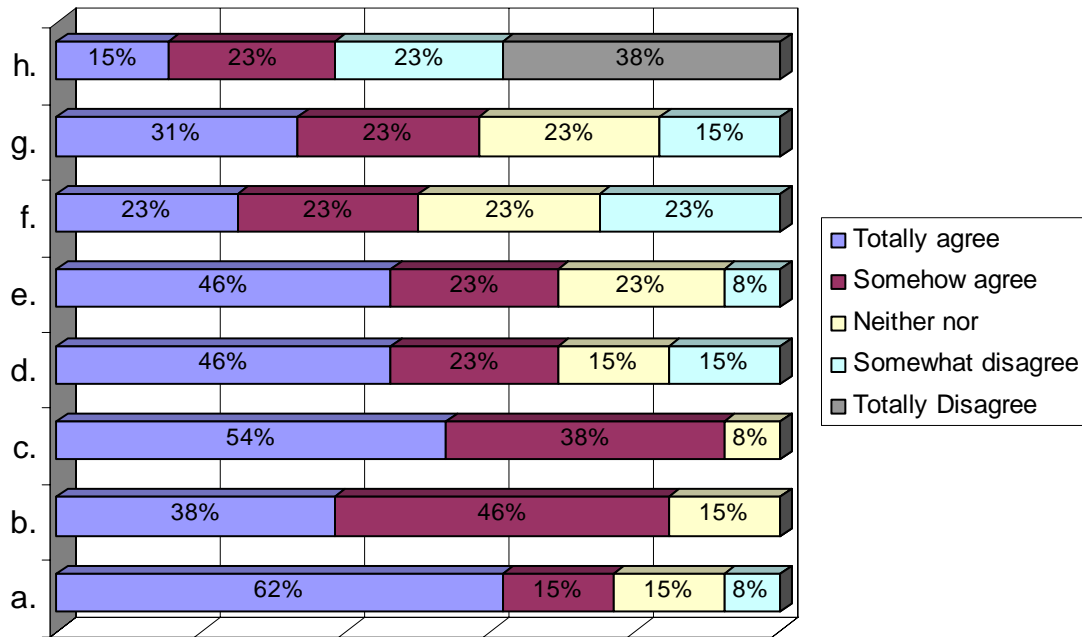
There are many interesting opinions which make sense with the previous analysis.

In opinion of the senior manager, OSS is not adequately promoted in Africa but the situation is changing, there are new initiatives and their impression is OSS forums are coming in place (e.g. www.tafossa.or.tz) and it is positive for the expansion of the OSS.

At the same time, the answers reveal knowledge about the strong demand of Microsoft products; since Microsoft organizes aggressive campaigns; it has an

important presence on the African market. According to some survey respondents, Microsoft ensures also its position by giving donations to governments⁴⁶.

Finally, with regard to the initial question, the seniors are also aware of that open source implies a large wise process in Africa and that there is a lack of knowledge and understanding regarding OSS. Likewise they recognize that the government policies in the SADC region are changing in favour of OSS.



- a. An interesting alternative of the company internal processes
- b. An opportunity for offering innovative trainings and for our the IT-Consultancy service
- c. A strategic component for the networking service
- d. The business alternative for the large-term
- e. A very new technology for the employees
- f. A growing demand of our actual customer
- g. A opportunity to make international business
- h. OSS product represent for our costumer not trustworthy alternatives

Figure 3.7: it@ab Network – Attitude to Open Source
Source: Survey results

⁴⁶ See "Microsoft's software donation to South African Government Schools" in Microsoft Homepage URL: <http://www.microsoft.com/southafrica/education/>. Accessed: 29 May 2005

Respecting to the attitude to open source within the it@ab network, the position of the survey respondents, in general, is positive. As the figure 3.7 illustrates, they agree in the use of open source for internal processes, innovative trainings, IT-Consultancy and networking service. The attitude concerning to the customers position do not show a clear tendency.

The last aspect is the strategy directions. The option of training in OSS product is the favourite with 92 percent (see figure 3.8). According to the seniors, „the it@ab members can participate in the effort to spreads the message of OSS, and in this form, accelerate the adoption of OSS in our countries“. eLearning can be important in this context.

Linux is the unique concrete open source product mentioned in the answers. Linux is viewed as a product requested on the market for its reliability and for its flexibility to the customer requirements.

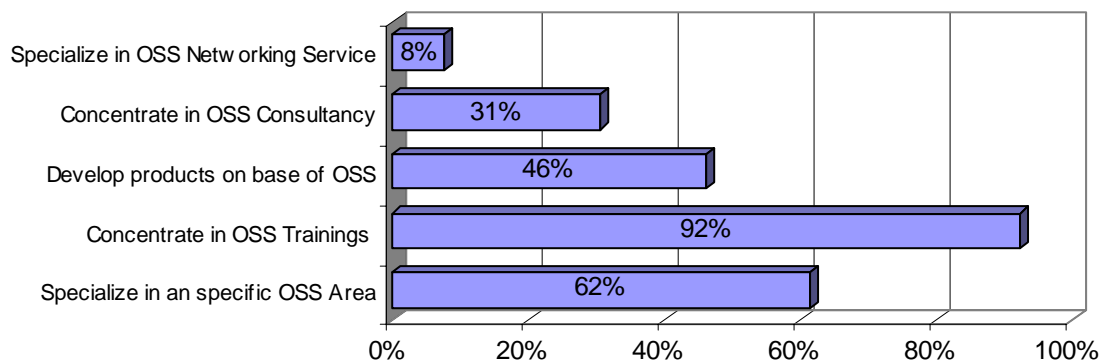


Figure 3.8: it@ab Network –Strategy directions

Source: Survey results

Some survey respondents mentioned the necessity to offer enterprise solutions based in open source products. Hybrid solutions, the combination between proprietary and open source software is in this case an alternative.

Finally it is considered that a change on the manager level managers is required in order to introduce open source products on the African market.

The conclusions and recommendation about the results obtained in the survey are traced in the next chapter.

CHAPTER 4

GUIDELINES

Software service companies, like the it@ab members, are within a very dynamic market place because there is a very low entry barrier. The service business demonstrates a high pace of innovation as the software products market demands such a pace⁴⁷.

Open Source software shows in its approach a cooperative way to obtain innovative products and its principles support the development of information technologies in a wider context; in this sense they represent an optional strategy for building, maintaining and changing the rules that govern information flows in the economy⁴⁸.

In accordance with it@ab's mission (section 3.1), the network should disseminate the best international practices in the ICT field in order to promote the local resources and capabilities. From this perspective, the open source approach can be useful in the achievement of the network mission.

The results of the survey (summarized in section 3.5) illustrate that the senior managers are aware of this possibility, however in general the open source presence among the members is very low; for example in the research it has been established that a minority of it@ab members are actually participating in open source projects.

The next pages trace a set of guidelines for the promotion and for the introduction of the open source approach within the it@ab members. The author distinguishes two action levels. First the concrete guidelines for the whole network are explained, followed by the guidelines relating to the it@ab members. Both levels are complementary to each other, that means guidelines at the member level support the guidelines at the network level and vice versa.

⁴⁷ Weerawarana, Weeratunge (2004): Open Source in Developing Countries, p. 23

⁴⁸ Weerawarana, Weeratunge (2004): Open Source in Developing Countries, p. 5

4.1 GUIDELINES FOR THE IT@AB NETWORK

Open source approach represents interesting chances for a reorientation of the actual business among the it@ab members. The actual business areas (detailed in section 3.4.1) can be complemented and improved with the introduction of open source, and offer to the customer additional alternatives and facilities.

Likewise open source exposes new alternatives to it@ab itself. The network are looking for tenders for large projects (see section 3.4.2), in this sense it@ab can also be well suited to exploit outsourced and offshore manufacturing and services of OSS products at an international level.

4.1.1 Steps to follow

In order to make timely use of this opportunity it@ab must follow the next steps:

1. Define a general strategy around open source, according to its mission and vision;
2. Define a strategy for a certain business area. The next section analyses concrete alternatives for the it@ab network.
3. Draw the functional sub strategies, oriented to the market and to the technology.

The scope of the present work does not permit delineation of the mentioned strategies; the achievement of these steps requires the active participation of the it@ab members, and they can define clearly the future direction of the network in conjunction with open source.

During the implementation of the mentioned steps it is important to take into account the following aspects:

- The introduction open source in developing countries requires the essential IT infrastructure⁴⁹. Since the it@ab members are specialized in IT-Services, they have the required IT infrastructure; and moreover, according to the results of the SADC Task force (see section 3.2), such infrastructure constitutes a business opportunity in the region.

⁴⁹ Weerawarana, Weeratunge (2004): Open Source in Developing Countries, p. 26

At the same time it is important to take into account that the countries, where it@ab is present, have among themselves different levels of e-Readiness (see section 3.2) and that has an influence for the institution of open source in the network.

- The diversity of the it@ab members itself represent an opportunity, in order to cover different business areas within the open source arena. After the definition of the business area, it is important to distribute the tasks and responsibilities related according to the core competences of the members.

The interaction within the members and with possible cooperating partners (like open source communities) around open source can generate synergy, the exchange of experiences, new ideas, etc. and in this sense can contribute positively to the future perspectives of the network.

- Finally the human capital is the key success factor in open source; therefore the skills of the employees in relation to open source play an important role. Measures oriented to promote and support the acquisition and development of these skills represent a challenge for the it@ab network. Propositions related to this point are explained in section 4.2.2.

4.1.2 Open Source Business Model for the it@ab Network

In this section the author examines the viable open source business models (discussed in section 2.3.2) for the it@ab network in respect to the local market as well as the export market. The explained considerations can support the definition of the strategy for business areas.

Linux distributions are covered for multinational corporations. In this sense it@ab has few possibilities of making profit with this business model. On the other hand there are already African initiatives like NGOMA Linux, which is a distribution customised to meet specific African ICT needs⁵⁰.

Niche and speciality distributors are already related with specified products and OSS communities, moreover they have a branch name. For these reasons taking

⁵⁰ O.V. (2004): Nogma Linux in Free and Open Source Software Foundation for Africa (FOSSFA). URL: <http://www.fossfa.net/fossfa-db.php?view=project&id=47>. Accessed: 2 Juni 2005

part in this model can be difficult. That could, however, be possible when it@ab develops a new product with the adequate license model (see section 2.2).

The model of **Retailers of OSS distributions and complementary products** represent an interesting opportunity. Many members of it@ab already offer training and e-learning courses (see section 3.4.1). This experience can be used in order to produce material in the form of books or CDs.

The retailers are not involved in the software development process. Instead, their core competence is distribution or, in some cases, publishing⁵¹. In this sense, the presence of it@ab in different countries facilitates the definition of distribution channels. Likewise the participation of the universities with their academic contribution ensures the quality of the products.

Another alternative and possibility in this business model is the organisation of OSS conferences and fairs at regional level, although profits margins are not high because the organiser cannot demand high entrance fees⁵².

The next model, **producer of appliances**, requires a high technological level and a determinate specialisation degree. For this reason, if it@ab wants to joint in this business model, the network must define an appliance field, and then generate a concrete strategy in order to achieve the necessary knowledge and capabilities.

Here it is important to make contact with the device producers and also with the open source communities related to the selected appliance field. The selection of the license (see section 2.2) for appliances represents a success factor in this business model.

The use of mobile devices (like cell phones, set-top boxes) increases constantly and shows a growth tendency for the next years. In this sense this models provides interesting future perspectives, which could be to the advantage it@ab members, if they define a concrete strategy for the future.

Finally **Service and Support Providers** as a business model is relevant for the it@ab network. Since many members are involved in IT- Consulting and also in software development (see section 3.4.1), it is relatively easy for them to join in this business model. They have already the substantial process know-how in the

⁵¹ Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 45

⁵² Spiller et al. (2002): Basics of Open Source Software Markets and Business Models, p. 47

services sector among the SADC region and in order to take advantage in this business model, they need to build open source skills.

In conclusion the business models: retailers of OSS distributions, service and support Providers, and producer of appliances represent a concrete opportunity for it@ab. However, it is necessary to implement measures oriented to ensure the development of the required open source skills among the members. The next sections provide guidelines in this aspect.

4.2 GUIDELINES FOR THE IT@AB MEMBERS

In the survey it has been established that the influence of proprietary products are generally strong in the business fields of the it@ab members (see section 3.5.1 and 3.5.5). Switching to open source implies a new structure in the organisation, for this reason it is not possible to expect that the members are able to switch to open source immediately.

Before that, from a managerial perspective, the alternatives as user of open source must be taken in account (see section 2.3.1), a possible introduction of open source in their business (see section 2.3.2), and at the same time, possible advantages and disadvantages regarding the open source software (see section 2.4).

The it@ab members must analyse these aspects individually. After that they have to define concrete measures in order to introduce open source in their business. It is important that these measures are in accordance with the strategy at network level.

The next section traces different scenarios in switching from proprietary (or closed) software to open source, this approach is an extract from A. Köppen and Nüttgens, M. (2000): Open Source: Strategien für die Beratung. The later part of the section refers to the promotion of the development of open source skills among the it@ab members.

4.2.1 Closed and Open Source - Action frameworks

Figure 4.1 illustrates the strategic action frameworks of the IT – Consulting regarding to proprietary and open source software. These frameworks encompass two dimensions; firstly enterprises have either a substantial product and technology knowledge, or substantial process know-how in a branch or sector. Second, the company can be specialized in either close (proprietary) solutions or open solutions.

Under this considerations following action frameworks are defined⁵³

1. Introduction and customisation of proprietary software systems
2. Introduction and customisation of open source systems
3. Development of technical/organisational solutions under close software
4. Development of technical/organisational solutions under open source software

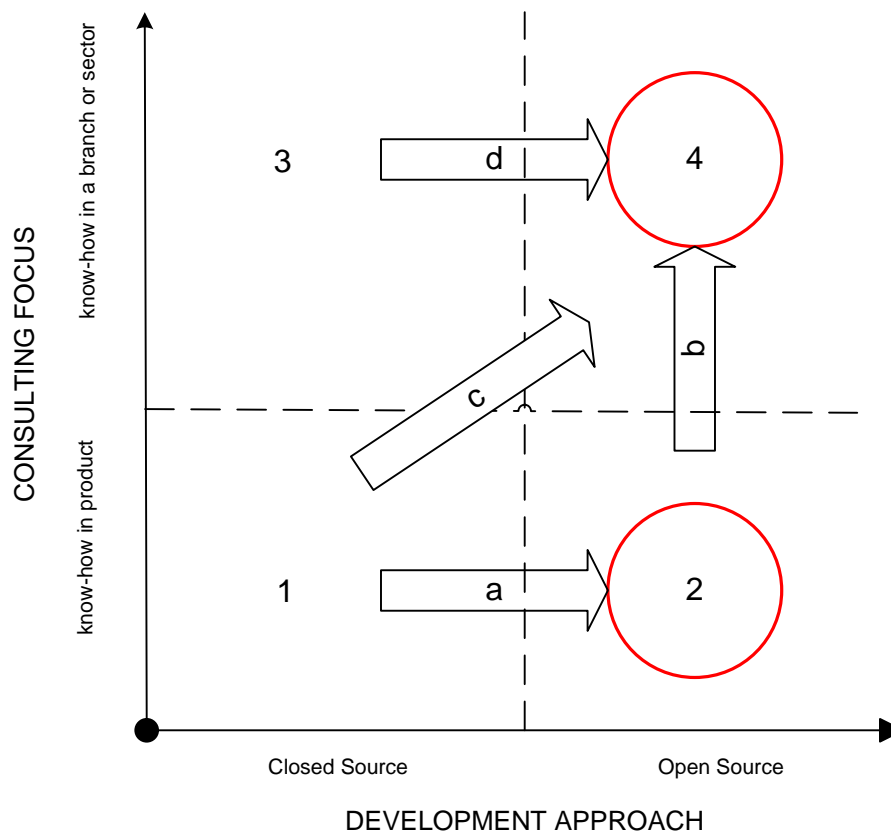


Figure 4.1: Strategic action frameworks of IT-Consulting

Source: Köppen et al. (2000): Open Source: Strategien für die Beratung, p. 238

The arrows on the figure 4.1 show the alternative ways of switching on open source, i.e.⁵⁴

⁵³ Köppen et al. (2000): Open Source: Strategien für die Beratung, p. 238

⁵⁴ Köppen et al. (2000): Open Source: Strategien für die Beratung, p. 239 - 240

- a. Constitution of technical open source competence
- b. From a technical open source competence to the constitution of a branch or sector competence
- c. Constitution of a technical open source competence and branch or sector competence
- d. Constitution of technical and general open source competence.

The it@ab members should define in which action framework they are currently situated and to which field they want to switch; this in accordance with their business fields and their strategies.

Finally on this basis, it can be possible to determinate the actual position of the whole it@ab network and define its future direction. That will ensure the coherence and synergy between the strategy at network level and at member level.

4.2.2 Definition of “OSS promoter”

Since open source implies a relevant change in the organisation in different aspects like the business orientation, technical capabilities, demand of new skills to the employees, etc., the introduction of open source in a company can be compared to an innovation process.

In fact, to switch to open source can represent risks and uncertainty for the organisation and that can generate resistance against it. To overcome this resistance innovation management recommends:⁵⁵

- That the success of innovation is clearly related to highly motivated persons. So-called promoters as leading supporters are needed.
- Cooperation with external partners

The **definition of open source promoters** in the it@ab organisations is convenient, in order to impulse the introduction of open source as a key technology among the members.

⁵⁵ Hausschildt (1997): Innovationsmanagement, p. 106 - 109

The promoter should initiate the process and should support it actively and intensively. A Coalition of Promoters by Know-how and by Hierarchical Power represent the model most successful⁵⁶.

The promoter through power has access to material resources, legitimizes projects, influences personnel decisions, blocks opposition, protects promoters by organizational know-how and influences priorities and schedules⁵⁷. While the promoter through know-how develops technical alternatives, knows critical technical details, evaluates external solution proposals, implements concepts and solves problems.⁵⁸

When the promoters role are played by different persons it is important that their relationship is based on mutual respect and trust, an open dialogue, exchange of arguments and mutual cooperation during the process.⁵⁹

On the other hand, the open source nature ensures the **cooperation with external partners** through the developers communities. However in accordance to the survey results, the it@ab members are actually participating in few open source initiatives (section 3.5.1).

Membership in open source communities represents an advantage that must be taken by the it@ab members. Moreover, the active participation in different open source projects signifies an important channel of knowledge transfer and guarantees the realisation of the proposed guidelines.

⁵⁶ Witte (1998): Das Promotoren-Modell, p. 26 - 40

⁵⁷ Witte (1998): Das Promotoren-Modell, p. 16

⁵⁸ Witte (1998): Das Promotoren-Modell, p. 17

⁵⁹ Witte (1998): Das Promotoren-Modell, p. 18

REFERENCES

- Brüggel, et al. (2004): Open Source Software, eine ökonomische und technische Analyse. Springer-Verlag Berlin, Heidelberg, New York.
- Feller and Brian (2002): Understanding Open Source Software Development. Addison-Wesley, Great Britain.
- Free Software Foundation (2004): "Philosophy of the GNU Project" in GNU Project Web Server. URL www.gnu.org/philosophy. Accessed: 13 May 2005.
- Grassmuck (2002): Freie Software zwischen privat- und Gemeineigentum. Bundeszentrale für politische Bildung, Bonn.
- Hausschildt (1997): Innovationsmanagement. Vahlen. München.
- Kingdon (1996): Free Software Business Models in Stromian Technologies URL: <http://www.stromian.com/bizmod.html>. Accessed: 21 May 2005.
- Kooths et al. (2003): Open Source-Software eine volkswirtschaftliche Bewertung, In MICE Economic Research Studies, Vol 4, Ed. Dieckheuer and Kooths, Münster.
- Köppen and Nüttgens (2000): Open Source: Strategien für die Beratung, in: Scheer, Köppen: Consulting – Wissen für die Strategie-, Prozess- und IT-Beratung, Saarbrücken, p. 231-242.
- Krishnamurthy (2003): A managerial overview of open source software. In Business Horizons Year 2003 Volume 46 Issue 5, Pages 47 – 56.
- Leiteritz (2004): Open Source-Geschäftsmodelle, In Open Source Jahrbuch 2004 Zwischen Softwareentwicklung und Gesellschaftsmodell, Ed. Gehring and Lutterbeck, Berlin, Lehmanns Media, p. 139 – 170.
- Lerner and Tirole (2002): The scope of open source licensing in negotiation, organizations and markets, Harvard NOM Research Paper No 02-42.
- O.V. (2005): License: OSI-Approved Open Source in SourceForge.net - software development web site, URL

http://sourceforge.net/softwaremap/trove_list.php?form_cat=14. Accessed: 17 May 2005.

- Raymond, Eric S. (1998): "The Cathedral and the Bazaar" in: First Monday 3 (1998), March, Nr. 3. – URL http://www.firstmonday.org/issues/issue3_3/raymond/index.html. Accessed: 11 Nov. 2004.
- SADC, SATCC-TU Task Force (2002): SADC e-Readiness Review and Strategy: Recommendations of the SADC e-Readiness Task Force. World Bank.
- Smith Bradford (2002): The future of Software: Enabling the Marketplace to Decide, In Government Policy toward Open Source Software, Ed. Hahn Robert, AEI-Brookings Joint Center for Regulatory Studies, Washington D. C., p. 69 – 86
- Spiller and Wichmann (2002): Basics of Open Source Software Markets and Business Models in Free/Libre Open Source Software: Survey and Study. Berlecon Research. Berlin.
- Stallman (2001): The GNU Project. In The GNU Project Server URL: <http://www.gnu.org/gnu/thegnuproject.html>. Accessed: 10 Nov 2004.
- Weerawarana and Weeratunge (2004): Open Source in Developing Countries. SIDA, Sweden.
- Witte (1998): Das Promotoren-Modell, In Promotoren Champion der Innovation Ed. Hauschildt and Gemünden, Wiesbaden and Gabler, p. 9 – 42.

THE OPEN SOURCE DEFINITION – VERSION 1.9

This annex presents the original text of the Open Source Definition¹.

Bruce Perens wrote the first draft of this document as "The Debian Free Software Guidelines", and refined it using the comments of the Debian developers in a month-long e-mail conference in June, 1997. He removed the Debian-specific references from the document to create the "Open Source Definition".

Introduction

Open source doesn't just mean access to the source code. The distribution terms of open-source software must comply with the following criteria:

1. Free Redistribution

The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The license shall not require a royalty or other fee for such sale.

Rationale: By constraining the license to require free redistribution, we eliminate the temptation to throw away many long-term gains in order to make a few short-term sales dollars. If we didn't do this, there would be lots of pressure for cooperators to defect.

2. Source Code

The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost—preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such as the output of a preprocessor or translator are not allowed.

Rationale: We require access to un-obfuscated source code because you can't evolve programs without modifying them. Since our purpose is to make evolution easy, we require that modification be made easy.

¹ See Open Source Initiative (2003): The Open Source Definition. 2003. – URL <http://www.opensource.org/docs/definition.php> – Accessed: 04 May 2005

3. Derived Works

The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.

Rationale: The mere ability to read source isn't enough to support independent peer review and rapid evolutionary selection. For rapid evolution to happen, people need to be able to experiment with and redistribute modifications.

4. Integrity of The Author's Source Code

The license may restrict source-code from being distributed in modified form only if the license allows the distribution of "patch files" with the source code for the purpose of modifying the program at build time. The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software.

Rationale: Encouraging lots of improvement is a good thing, but users have a right to know who is responsible for the software they are using. Authors and maintainers have reciprocal right to know what they're being asked to support and protect their reputations.

Accordingly, an open-source license **must** guarantee that source be readily available, but **may** require that it be distributed as pristine base sources plus patches. In this way, "unofficial" changes can be made available but readily distinguished from the base source.

5. No Discrimination Against Persons or Groups

The license must not discriminate against any person or group of persons.

Rationale: In order to get the maximum benefit from the process, the maximum diversity of persons and groups should be equally eligible to contribute to open sources. Therefore we forbid any open-source license from locking anybody out of the process.

Some countries, including the United States, have export restrictions for certain types of software. An OSD-conformant license may warn licensees of applicable restrictions and remind them that they are obliged to obey the law; however, it may not incorporate such restrictions itself.

6. No Discrimination Against Fields of Endeavor

The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.

Rationale: The major intention of this clause is to prohibit license traps that prevent open source from being used commercially. We want commercial users to join our community, not feel excluded from it.

7. Distribution of License

The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.

Rationale: This clause is intended to forbid closing up software by indirect means such as requiring a non-disclosure agreement.

8. License Must Not Be Specific to a Product

The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution.

Rationale: This clause forecloses yet another class of license traps.

9. License Must Not Restrict Other Software

The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open-source software.

Rationale: Distributors of open-source software have the right to make their own choices about their own software.

Yes, the GPL is conformant with this requirement. Software linked with GPLed libraries only inherits the GPL if it forms a single work, not any software with which they are merely distributed.

10. License Must Be Technology-Neutral

No provision of the license may be predicated on any individual technology or style of interface.

Rationale: This provision is aimed specifically aimed at licenses which require an explicit gesture of assent in order to establish a contract between licensor and licensee. Provisions mandating so-called "click-wrap" may conflict with important methods of software distribution such as FTP download, CD-ROM anthologies, and web mirroring; such provisions may also hinder code re-use. Conformant licenses must allow for the possibility that (a) redistribution of the software will take place over non-Web channels that do not support click-wrapping of the download, and that (b) the covered code (or re-used portions of covered code) may run in a non-GUI environment that cannot support popup dialogues.

IT@AB - E-READINESS PER COUNTRY

This annex presents the original resume per country incorporated in SADC E-READINESS: REVIEW AND STRATEGY, the final document for the ICT SADC TASK FORCE. Additionally are included ICT at a Glance tables published for the Worldbank¹

1 MALAWI

Malawi shows fairly limited development with regard to e-readiness. It is clear that the Malawi community has not yet had decent exposure to the world of technology. One of the greatest challenges is the fact almost 90% of the community live in the rural areas.

The ICT sector has experienced some development over the last five years. The telecommunications industry has also exhibited some growth, which increased the teledensity from 0.35 in 2000 to 0.46 in 2001. The Internet market in Malawi does not show strong growth. There are a small number of Internet access points, which limits the growth, awareness, and usage of the Internet.

Only 10% of the total households in Malawi have electricity. The lack of electricity makes it impossible to have access to PCs and the Internet.

The access to information and knowledge in Malawi is also very limited. There are only 20 cyber cafes in the entire country, with a population of over 10 million. It costs an average of US\$6.30 an hour to have access to the Internet.

The charges are too expensive for the majority of the community. The low level of education is also a strong limitation. Only 30% of the population received primary school education, 20% secondary school education and a mere 8% of the population received tertiary level education.

Malawi does not have an appropriate institutional framework, in terms of granting sufficient powers to the regulatory authority to enable it to function properly. Malawi also does not yet

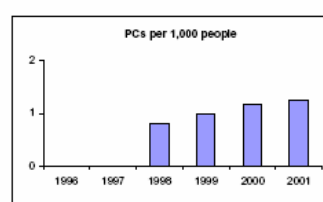
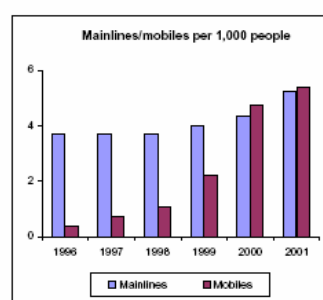
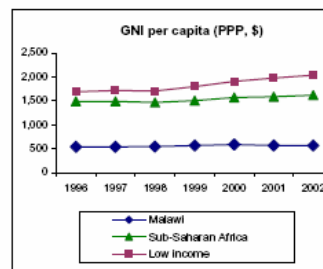
¹ Worldbank (2003): "ICT at a Glance tables" in Data and Statistics per country. URL: <http://www.worldbank.org/data/countrydata/ictglance.htm>. Accessed: 5 Jun 2005

have appropriate policies aimed at developing infrastructure for ICT, maximising benefit, or clarifying rules of the market place.

ICT at a glance Malawi

10/3/2003

	Malawi		Sub-Saharan Africa	Low income
	1995	2002	2002	2002
Country background information				
Population, mid year (millions)	9.2	10.7	688.0	2,495.0
Poverty (% of population below \$1 a day)	..	41.7	..	..
Adult literacy rate (% ages 15 and over)	55.9	61.8	63.3	62.7
Urban population (% of total population)	13.1	15.5	32.9	30.5
GNI per capita (Atlas method, \$)	170.0	160.0	450.0	430.0
GNI per capita (PPP, \$)	510.0	570.0	1,620.0	2,040.0
GDP growth (1990-95 and 1995-2002, %)	1.6	2.7	3.1	3.9
Scientists and engineers in R&D (per mill. people)	..	..	..	..
Expenditures for R&D (% of GDP)	..	..	..	..
ICT infrastructure & access				
	1995	2001	2001	2001
Telephone mainlines				
Per 1,000 people	4	5	14	26
In largest city (per 1,000 people)	32	41	33	130
Waiting list (thousands)	25	20	1,295	3,663
Revenue per line (\$)	394	625	1,082	258
Cost of local call (\$ per 3 minutes)	0.02	0.02	0.06	0.05
Mobile phones (per 1,000 people)	0	5	27	10
International telecommunications				
Outgoing traffic (minutes per subscriber)	220	435	245	114
Cost of call to U.S. (\$ per 3 minutes)	..	0.06	5.15	5.27
Daily newspapers (per 1,000 people)	3	..	12	40
Radios (per 1,000 people)	269	499	198	139
Television sets (per 1,000 people)	2	4	60	91
Computers & the Internet				
	1995	2001	2001	2001
Personal computers				
Per 1,000 people	..	1.3	9.9	5.9
Installed in education (thousands)	..	..	..	..
Internet				
Users (thousands)	..	20.0	5,299.9	15,332.3
Monthly off-peak access charges				
Service provider charge (\$)	..	..	35.6	33.8
Telephone usage charge (\$)	..	0.25	0.53	0.36
ICT expenditures				
	1995	2001	2001	2001
Total ICT (\$, millions)	..	..	..	..
ICT as % of GDP	..	..	..	..
ICT per capita (\$)	..	..	..	..
ICT business & government environment				
<i>(ratings from 1 to 7; 7 is highest/best)</i>	1995	2002	2002	2002
Broadband internet access availability	..	..	..	..
Local specialized IT services availability	..	..	..	..
Competition in ISPs	..	..	..	..
Government online services availability	..	..	..	..
Laws relating to ICT use	..	..	..	..
Government prioritization of ICT	..	..	..	..
Secure servers	..	..	552 ^a	234 ^a



Notes: Figures in italics refer to an earlier year. ^a Data refer to 2001.

Sources: Country background information, UNESCO and World Bank; ICT infrastructure and access, ITU and UNESCO; Computers and the Internet, ITU and WITSA; ICT expenditures, WITSA; ICT business & government environment, World Economic Forum's *Global Competitiveness Report 2002-2003* and *Global Information Technology Report 2002-2003* (ratings) and Netcraft (secure servers). See Definitions and Sources for more complete information.

Development Data Group, World Bank

2 ANGOLA

Angola holds vast potential for development, which could be driven by oil and precious metal exports, together with associated investor funding. It is vital that Angola make use of this potential. The country must build its capacity to produce the oil and metal wealth for the whole community to benefit from it. Currently, the level of readiness is very low and will require a number of years of comprehensive infrastructure roll out and an even longer time to achieve adequate education levels, before the country could begin to participate in the electronic world to any meaningful extent.

The Angolan PC penetration rate is higher than some SADC countries. However the ICT industry of Angola is in a poor condition. There are few Internet users in the country and this, coupled with a high dial-up fee, results in Internet access being a relative luxury.

In the telecommunications arena, a digitisation drive is underway to upgrade the existing telecommunications network and a second mobile network operator – Unitel – was introduced into the market in April 2001. Fixed-line traffic has been expanding exponentially, growing almost tenfold between 1995 and 2000, which is indicative of the high pent-up demand for telecommunications in that market.

The government of Angola is taking the initiative in spearheading an IT drive in the country. The government has also begun to set in place a future educational framework geared for participation in the e-world. An e-learning policy has been adopted, but is experiencing some difficulties because of the lack of PCs available.

Five commercial banks operate in Angola, but none of them offer either Automatic Teller Machines (ATM) or online banking services to clients. There are also a limited number of credit card users in Angola.

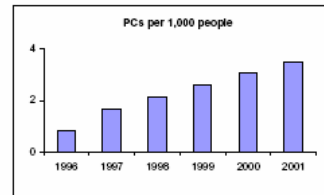
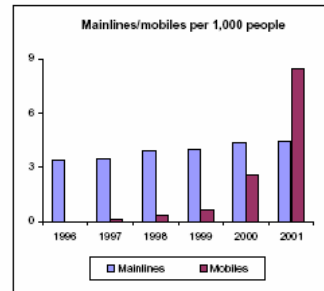
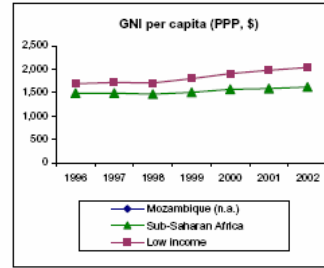
The Angolan society is ill prepared to participate fully in the electronic world. Greater exposure to sources of information and relevant knowledge is needed, in order to achieve a smooth transition into the new paradigm.

Angola does not have an appropriate institutional framework and further has not established a ministry and an independent regulatory authority with appropriate powers to enable it to function properly. There are no policies aimed at developing sufficient infrastructure for ICT. There are also no policies aimed at maximising benefits brought about by the digital economy.

ICT at a glance Mozambique

10/3/2003

	Mozambique		Sub-Saharan Africa	Low income
Country background information				
	1995	2002	2002	2002
Population, mid year (millions)	15.8	18.4	688.0	2,495.0
Poverty (% of population below \$1 a day)	..	37.9	..	..
Adult literacy rate (% ages 15 and over)	38.5	46.5	63.3	62.7
Urban population (% of total population)	26.2	34.3	32.9	30.5
GNI per capita (Atlas method, \$)	140.0	210.0	450.0	430.0
GNI per capita (PPP, \$)	..	..	1,620.0	2,040.0
GDP growth (1990-95 and 1995-2002, %)	3.2	8.9	3.1	3.9
Scientists and engineers in R&D (per mill. people)	..	..	..	..
Expenditures for R&D (% of GDP)	..	..	..	..
ICT infrastructure & access				
	1995	2001	2001	2001
Telephone mainlines				
Per 1,000 people	3	4	14	26
In largest city (per 1,000 people)	17	24	33	130
Waiting list (thousands)	14	21	1,295	3,663
Revenue per line (\$)	1,059	1,319	1,082	258
Cost of local call (\$ per 3 minutes)	0.05	0.07	0.06	0.05
Mobile phones (per 1,000 people)	..	8	27	10
International telecommunications				
Outgoing traffic (minutes per subscriber)	209	246	245	114
Cost of call to U.S. (\$ per 3 minutes)	..	..	5.15	5.27
Daily newspapers (per 1,000 people)	5	2	12	40
Radios (per 1,000 people)	42	44	198	139
Television sets (per 1,000 people)	3	5	60	91
Computers & the Internet				
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Personal computers				
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ICT per capita (\$)
ICT business & government environment <i>(ratings from 1 to 7; 7 is highest/best)</i>				
	1995	2002	2002	2002
Broadband internet access availability	..	..	..	..
Local specialized IT services availability
Competition in ISPs
Government online services availability
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Government prioritization of ICT
Secure servers	552 ^a	234 ^a



Notes: Figures in italics refer to an earlier year. a. Data refer to 2001.

Sources: Country background information, UNESCO and World Bank; ICT infrastructure and access, ITU and UNESCO; Computers and the Internet, ITU and WITSA; ICT expenditures, WITSA; ICT business & government environment, World Economic Forum's *Global Competitiveness Report 2002-2003* and *Global Information Technology Report 2002-2003* (ratings) and Netcraft (secure servers). See Definitions and Sources for more complete information.

Development Data Group, World Bank

3 MOZAMBIQUE

Mozambique's economy, communications infrastructure and educational system emerged in a ravaged state after almost 20 years of armed conflict. However, strong economic growth and attractive investment opportunities are gradually restoring the basic foundations needed for successful participation in the electronic world. As the level and quality of education improves and the communications infrastructure expands, Mozambique is likely to quicken the pace of adoption of ICT services and begin catching up with the ICT leaders of SADC.

Mozambique's ICT industry continues to be in a bad state. There are 0.9 PCs per 1000 people and a small proportion of the population uses the Internet. The dial-up fees for Internet connection are not very high, but when the UN rates Mozambique as the poorest country in the world, the rates may be unaffordable for the people of Mozambique. Only 7% of households in Mozambique have access to electricity. This effectively limits any kind of electronic transaction.

Reforms in the telecommunications sector have not kept pace with reforms in other sectors of the economy and are only now beginning to be implemented. The market consist of one fixed line and one mobile operator, both majority state-owned, as well as one Wireless Local Loop operator in Maputo. However, two more mobile licenses are on the auction block and the government has started considering at least partial privatisation of the fixed line operator at some point in the future. A number of mega-projects which have taken place over the past few years will have a positive effect on the growth of the telecommunications sector.

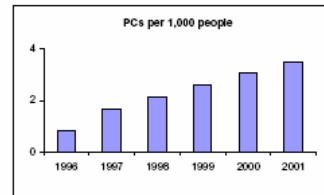
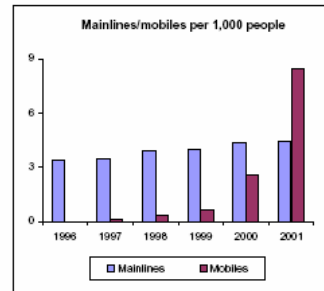
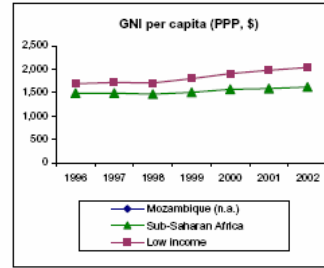
Twelve commercial banks operate in Mozambique and an ATMs network. A third of the banks provide online banking facilities to their clients. A small number of credit cards are available to selected individuals, but with no significant way to effect spending patterns amongst consumers. Limited banking infrastructure, combined with very low PC penetration rate, are factors hindering faster adoption of electronic transactions. The skills level of the population to participate in the electronic world from a general educational viewpoint is mediocre. There are a few schools that have access to the Internet which do not impact on the future of e-readiness in Mozambique. Mozambique has a few serious challenges to overcome but shows some potential to be e-ready for the future.

Mozambique has a rudimentary ICT policy and regulatory framework. It does not appear to have sufficient policies for infrastructure development. There are extensive projects aimed at maximising benefits but they are not aimed at delivering services through ICT applications.

ICT at a glance Mozambique

10/3/2003

	Mozambique		Sub-Saharan Africa	Low income
Country background information				
	1995	2002	2002	2002
Population, mid year (millions)	15.8	18.4	688.0	2,495.0
Poverty (% of population below \$1 a day)	..	37.9	..	..
Adult literacy rate (% ages 15 and over)	38.5	46.5	63.3	62.7
Urban population (% of total population)	26.2	34.3	32.9	30.5
GNI per capita (Atlas method, \$)	140.0	210.0	450.0	430.0
GNI per capita (PPP, \$)	..	..	1,620.0	2,040.0
GDP growth (1990-95 and 1995-2002, %)	3.2	8.9	3.1	3.9
Scientists and engineers in R&D (per mill. people)	..	..	..	..
Expenditures for R&D (% of GDP)	..	..	..	..
ICT infrastructure & access				
	1995	2001	2001	2001
Telephone mainlines				
Per 1,000 people	3	4	14	26
In largest city (per 1,000 people)	17	24	33	130
Waiting list (thousands)	14	21	1,295	3,663
Revenue per line (\$)	1,059	1,319	1,082	258
Cost of local call (\$ per 3 minutes)	0.05	0.07	0.06	0.05
Mobile phones (per 1,000 people)	..	8	27	10
International telecommunications				
Outgoing traffic (minutes per subscriber)	209	246	245	114
Cost of call to U.S. (\$ per 3 minutes)	..	..	5.15	5.27
Daily newspapers (per 1,000 people)	5	2	12	40
Radios (per 1,000 people)	42	44	198	139
Television sets (per 1,000 people)	3	5	60	91
Computers & the Internet				
	1995	2001	2001	2001
Personal computers				
Per 1,000 people	..	3.5	9.9	5.9
Installed in education (thousands)	..	..	..	..
Internet				
Users (thousands)	..	15.0	5,299.9	15,332.3
Monthly off-peak access charges				
Service provider charge (\$)	..	..	35.6	33.8
Telephone usage charge (\$)	..	..	0.53	0.36
ICT expenditures				
	1995	2001	2001	2001
Total ICT (\$, millions)	..	..	..	..
ICT as % of GDP	..	..	..	..
ICT per capita (\$)	..	..	..	..
ICT business & government environment <i>(ratings from 1 to 7; 7 is highest/best)</i>				
	1995	2002	2002	2002
Broadband internet access availability	..	..	..	..
Local specialized IT services availability	..	..	..	..
Competition in ISPs	..	..	..	..
Government online services availability	..	..	..	..
Laws relating to ICT use	..	..	..	..
Government prioritization of ICT	..	..	..	..
Secure servers	..	..	552 ^a	234 ^a



Notes: Figures in italics refer to an earlier year. a. Data refer to 2001.

Sources: Country background information, UNESCO and World Bank; ICT infrastructure and access, ITU and UNESCO; Computers and the Internet, ITU and WITSA; ICT expenditures, WITSA; ICT business & government environment, World Economic Forum's *Global Competitiveness Report 2002-2003* and *Global Information Technology Report 2002-2003* (ratings) and Netcraft (secure servers). See Definitions and Sources for more complete information.

Development Data Group, World Bank

5 NAMIBIA

Namibia showed strong growth in the ICT sector in 2001. The infrastructure is reliable and the community does have access to the ICT infrastructure. However, there are major challenges facing the government, e.g. the number of households without electricity remains at 66.3%.

With a population of 1.8 million there are 45 PCs for every 1,000 people in the country – comparing favourably with neighbouring countries. There are 38 IT related companies in Namibia, all situated in the capital, Windhoek.

There are a total of 12 licensed ISPs in the market. The year 2001 showed a year-on-year growth of 50%, taking the total number of dial-up accounts to 18,000 at the end of 2001. This implies that there are 1,500 dial-up accounts per ISP.

The average monthly tariff for a dial-up account holder is between US\$10 and US\$20. This makes Namibia one of the countries in the SADC region where Internet connectivity is more affordable than other countries. It is also affordable to make use of an Internet café. On average, it will cost a person between US\$2 and US\$4 to spend an hour online in an Internet café.

As mentioned, only 33.7% of the households in Namibia have access to electricity. The electricity supply in Namibia is however reliable, with only 5% downtime per annum

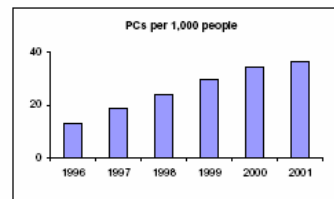
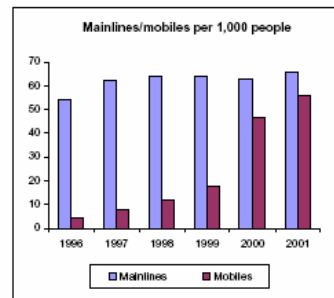
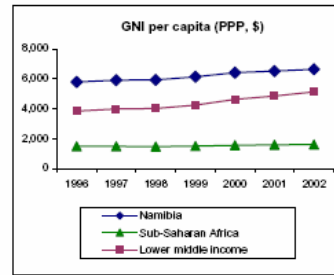
Namibia's teledensity grew from 6.2 to 6.3 from 2000 to 2001. On average, a total of 67 minutes per subscriber is spent on mobile phone calls per month. With regard to fixed line, an average of 400 minutes is spent per subscriber per month. Only 43% of the population has a primary education level, 29% a secondary qualification, and 2% a tertiary qualification.

Namibia's institutional framework grants appropriate powers to the regulatory authority to enable it to function properly, although it does not refer to regulations of the ICT. However, Namibia does not have the requisite policies for the development of ICT Infrastructure. And, Namibia has extensive policies on maximising benefits through increasing access to basic telephony and addressing skills and human resource development. Appropriate policies to clarify rules of the market place are not yet in place.

ICT at a glance Namibia

10/3/2003

	Namibia		Sub-Saharan Africa	Lower middle income
Country background information	1995	2002	2002	2002
Population, mid year (millions)	1.6	1.8	688.0	2,410.7
Poverty (% of population below \$1 a day)	34.9	..	..	..
Adult literacy rate (% ages 15 and over)	78.5	83.3	63.3	86.6
Urban population (% of total population)	28.6	31.9	32.9	49.4
GNI per capita (Atlas method, \$)	2,310.0	1,780.0	450.0	1,390.0
GNI per capita (PPP, \$)	5,670.0	6,650.0	1,620.0	5,130.0
GDP growth (1990-95 and 1995-2002, %)	6.2	3.3	3.1	3.7
Scientists and engineers in R&D (per mill. people)	..	..	..	807.5
Expenditures for R&D (% of GDP)	..	..	..	0.9
ICT infrastructure & access	1995	2001	2001	2001
Telephone mainlines				
Per 1,000 people	51	66	14	146
In largest city (per 1,000 people)	253	157	33	524
Waiting list (thousands)	7	2	1,295	27,675
Revenue per line (\$)	939	756	1,082	283
Cost of local call (\$ per 3 minutes)	0.04	0.03	0.06	0.04
Mobile phones (per 1,000 people)	2	56	27	110
International telecommunications				
Outgoing traffic (minutes per subscriber)	651	512	245	58
Cost of call to U.S. (\$ per 3 minutes)	..	4.28	5.15	4.50
Daily newspapers (per 1,000 people)	19	19	12	..
Radios (per 1,000 people)	136	141	198	346
Television sets (per 1,000 people)	30	38	60	292
Computers & the Internet	1995	2001	2001	2001
Personal computers				
Per 1,000 people	..	36.4	9.9	28.1
Installed in education (thousands)	..	..	..	..
Internet				
Users (thousands)	0.1	45.0	5,299.9	68,936.9
Monthly off-peak access charges				
Service provider charge (\$)	..	..	35.6	16.7
Telephone usage charge (\$)	..	..	0.53	0.23
ICT expenditures	1995	2001	2001	2001
Total ICT (\$, millions)	..	..	..	..
ICT as % of GDP	..	..	..	..
ICT per capita (\$)	..	..	..	..
ICT business & government environment	1995	2002	2002	2002
<i>(ratings from 1 to 7; 7 is highest/best)</i>				
Broadband internet access availability	..	3.9	..	3.6
Local specialized IT services availability	..	5.7	..	4.3
Competition in ISPs	..	4.1	..	4.2
Government online services availability	..	3.3	..	3.1
Laws relating to ICT use	..	3.6	..	3.3
Government prioritization of ICT	..	4.3	..	4.0
Secure servers	..	3 ^a	552 ^a	2,769 ^a



Notes: Figures in italics refer to an earlier year. a. Data refer to 2001.

Sources: Country background information, UNESCO and World Bank; ICT infrastructure and access, ITU and UNESCO; Computers and the Internet, ITU and WITSA; ICT expenditures, WITSA; ICT business & government environment, World Economic Forum's *Global Competitiveness Report 2002-2003* and *Global Information Technology Report 2002-2003* (ratings) and Netcraft (secure servers). See Definitions and Sources for more complete information.

Development Data Group, World Bank

7 SOUTH AFRICA

South Africa PC penetration rate is 58 PCs per 1,000 people. The IT sector is very well developed with many companies offering a wide range of services. There are a large number of ISPs in the country to cater for the 2.4 million Internet users.

At more than 10% teledensity is relatively high within the SADC region, and 4,042,000 (some 40% of total) households have access to electricity.

The telecommunications environment in South Africa has been characterised by managed liberalisation over the 7 year period since 1995. Although contested by some stakeholders, the latest telecommunications legislation has set the scene for the continuation of this process. The third mobile operator was licensed in November 2001 and the Second (National) Network Operator licence is due in 2002. Additionally, a number of regional telecommunications service providers may be established to provide telecommunications services to under serviced areas of the country. April of 2002 will also see the legalisation of satellite services for commercial purposes.

The financial sector is also well developed. South Africa has a large number of credit cards, debit card and smart card users. The vast majority of banks offer online banking to clients. A network of many ATMs provide for convenient banking.

Within the urban areas, South Africa has a relatively advanced skills base for participation in the electronic world, and a sophisticated education system. These South Africans have a relatively high level of access to infrastructure, and financial resources. Rural areas require much development to bridge the digital divide.

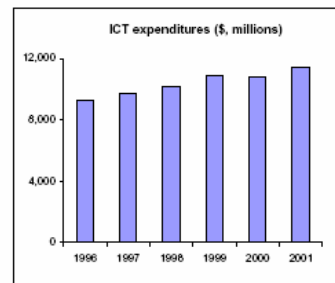
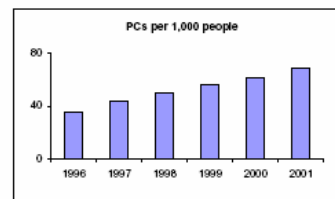
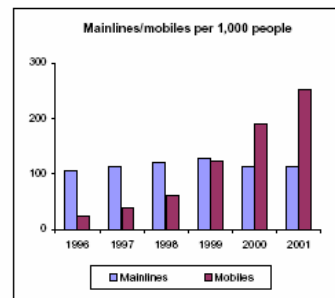
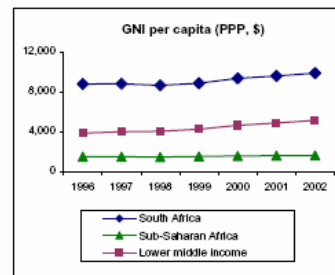
South Africa is at the forefront of the SADC region with regard to ICT development, although further development in the ICT, as well as the economic arena, must take place before South Africa can be compared to the developed countries, or some developing countries in Asia and South America. It can, however, immediately provide a role model to, and render assistance to, fellow member states in the SADC region.

South Africa has an appropriate institutional framework and has granted appropriate powers to the regulatory authority to enable it to function properly. South Africa also has appropriate policies for infrastructure development and adequate policies in South Africa exist for maximising benefits. South Africa has appropriate policies aimed at creating trust in the digital economy, reforming the legal systems to cope with paperless economy and recognising and protecting intellectual property in electronic data.

ICT at a glance South Africa

10/3/2003

	South Africa		Sub-Saharan Africa	Lower middle income
	1995	2002	2002	2002
Country background information				
Population, mid year (millions)	39.1	43.6	688.0	2,410.7
Poverty (% of population below \$1 a day)	7.1	..	..	..
Adult literacy rate (% ages 15 and over)	83.3	86.0	63.3	86.6
Urban population (% of total population)	52.6	58.4	32.9	49.4
GNI per capita (Atlas method, \$)	3,740.0	2,600.0	450.0	1,390.0
GNI per capita (PPP, \$)	8,480.0	9,870.0	1,620.0	5,130.0
GDP growth (1990-95 and 1995-2002, %)	0.8	2.5	3.1	3.7
Scientists and engineers in R&D (per mill. people)	992.5	..	..	807.5
Expenditures for R&D (% of GDP)	..	..	..	0.9
ICT infrastructure & access				
	1995	2001	2001	2001
Telephone mainlines				
Per 1,000 people	101	112	14	146
In largest city (per 1,000 people)	417	415	33	524
Waiting list (thousands)	137	50	1,295	27,675
Revenue per line (\$)	1,083	1,262	1,082	283
Cost of local call (\$ per 3 minutes)	0.06	0.07	0.06	0.04
Mobile phones (per 1,000 people)	14	252	27	110
International telecommunications				
Outgoing traffic (minutes per subscriber)	76	100	245	58
Cost of call to U.S. (\$ per 3 minutes)	..	0.58	5.15	4.50
Daily newspapers (per 1,000 people)	33	32	12	..
Radios (per 1,000 people)	335	338	198	346
Television sets (per 1,000 people)	132	152	60	292
Computers & the Internet				
	1995	2001	2001	2001
Personal computers				
Per 1,000 people	27.9	68.5	9.9	28.1
Installed in education (thousands)	92.8	364.7	..	..
Internet				
Users (thousands)	460.0	3,068.0	5,299.9	68,936.9
Monthly off-peak access charges				
Service provider charge (\$)	..	29.6	35.6	16.7
Telephone usage charge (\$)	..	0.33	0.53	0.23
ICT expenditures				
	1995	2001	2001	2001
Total ICT (\$, millions)	8,649.0	11,430.0	..	..
ICT as % of GDP	5.7	9.2	..	..
ICT per capita (\$)	209.7	268.7	..	..
ICT business & government environment <i>(ratings from 1 to 7; 7 is highest/best)</i>				
	1995	2002	2002	2002
Broadband internet access availability	..	3.7	..	3.6
Local specialized IT services availability	..	5.4	..	4.3
Competition in ISPs	..	4.3	..	4.2
Government online services availability	..	3.6	..	3.1
Laws relating to ICT use	..	4.0	..	3.3
Government prioritization of ICT	..	4.5	..	4.0
Secure servers	..	521 ^a	552 ^a	2,769 ^a



Notes: Figures in italics refer to an earlier year. a. Data refer to 2001.

Sources: Country background information, UNESCO and World Bank; ICT infrastructure and access, ITU and UNESCO; Computers and the Internet, ITU and WITSA; ICT expenditures, WITSA; ICT business & government environment, World Economic Forum's *Global Competitiveness Report 2002-2003* and *Global Information Technology Report 2002-2003* (ratings) and Netcraft (secure servers). See Definitions and Sources for more complete information.

Development Data Group, World Bank

8 TANZANIA

Tanzania showed remarkable growth over the last five years. There are however a number of challenges. Only 10% of households have access to electricity and more than half of the almost 40 million people in the country live below the poverty line. Given these facts, it comes as no surprise that Tanzania has a very low PC penetration rate (0.8%), as well as a low teledensity rate of 0.5% for fixed line and 0.72% for mobile.

Communication is regarded expensive in Tanzania, with the cost for dial-up subscribers of US\$70 per month. This may be one of the reasons for the low teledensity and the slow implementation of ecommerce and e-government. Only three banks provide online banking services.

The Tanzanian government is a long way from implementing e-government initiatives, such as eprocurement. Very few departments have a web site and only 63% have Internet access.

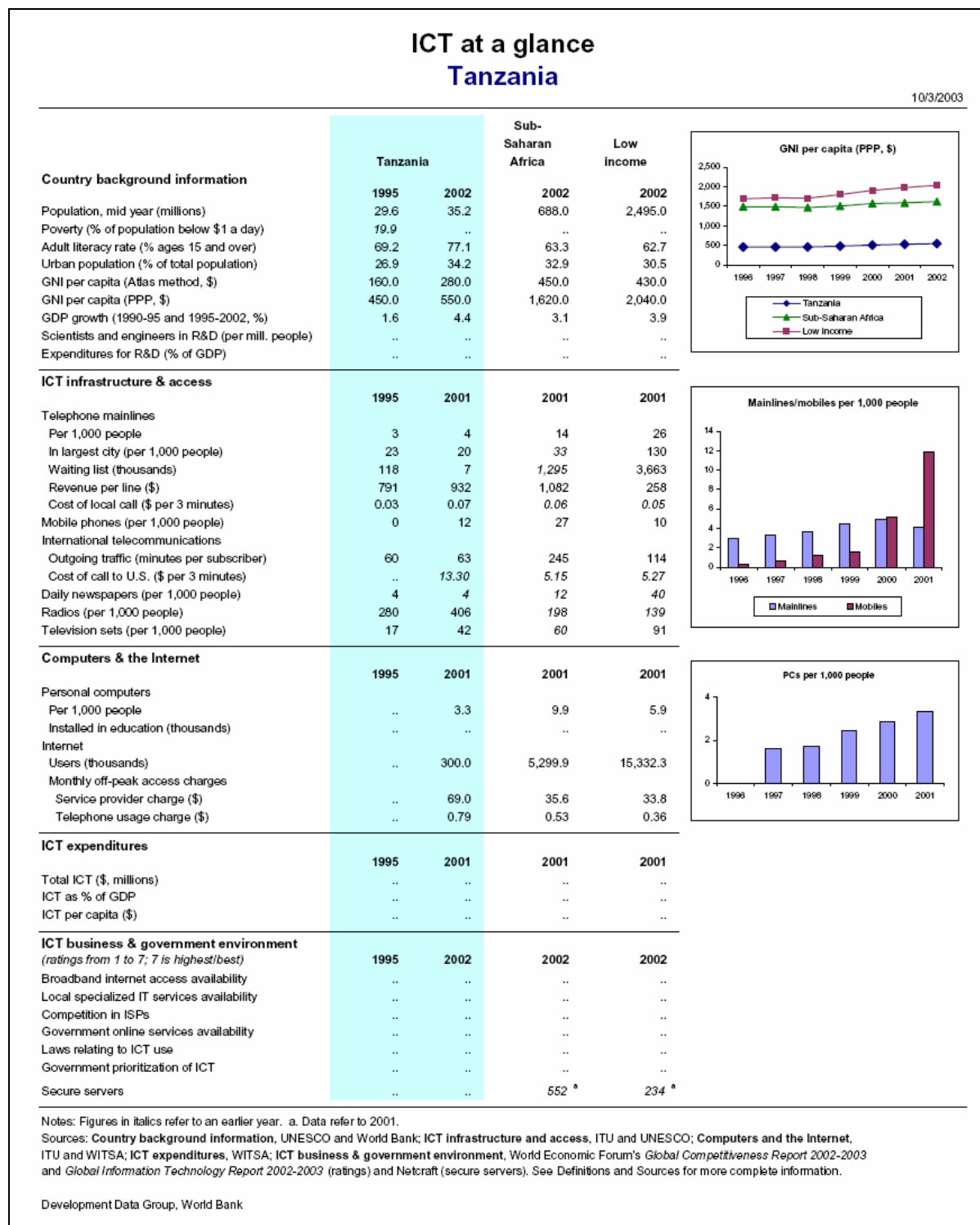
Given the high illiteracy and low skills rate, one would have expected the government to seriously address education in the country. Tanzania does not have an e-learning policy and only 2% of all schools have PCs on site. Very few people have a secondary school education, as more than 78% adults only have a primary school education. Mass media in Tanzania is also limited as only 16% of society owns TVs and 32% radios.

Tanzania has few initiatives in place to further e-readiness within the country, and does not compare favourably with other SADC countries. The population is far from being 'connected'. This is understandable, given the low GNP per capita for the country and the high illiteracy rate. The government needs to launch initiatives to educate and create a greater awareness of ICT in the country. It also needs to expose school-going children to computers and furthermore to drive the adoption of electricity more aggressively to its people to increase the chances of being connected.

Despite the shortcomings, Tanzania made good progress with regard to Internet access. The Internet population boomed in the country, due to the cyber café model. For this reason Tanzania forms part of the first group. The rapid Internet population growth in Tanzania can be used as a benchmark for other countries.

Tanzania's institutional framework is inappropriate insofar granting of appropriate powers and independence to the regulatory authority to enable it to function properly. Policies and legislation do not emphasise market liberalisation, nor development of infrastructure. There

are, however, extensive policies for maximising the benefits brought about by the digital economy through use by business and civil society. There is an absence of policy regarding government adopting the Internet and other ICT platforms for delivering service to the public. Tanzania does not yet have appropriate policies for clarifying rules of the market place.



9 ZAMBIA

Zambia is one of the less developed ICT markets in the SADC region, but does have the potential to develop quickly. The pace of future development depends to a large extent on the successful privatisation of the incumbent telco – Zamtel – which has attracted no suitors for the past two years. However, pent-up demand does exist in Zambia for all forms of communication and it will drive market growth in a competitive environment.

Zambia has a PC penetration rate of 1 per 1000. Five ISPs exist which serves 8,000 dial-up subscribers. Dial-up fees are fairly reasonable and the hourly rates of cyber cafés make it possible for the average consumer to afford Internet access.

Zambia's Rural Electrification Program is striving towards higher electricity access. At present, a small number of all households in the country have access to electricity. Areas that are provided with electricity experience little downtime. Power supply is stable, but the low level of access to electricity limits the e-readiness drive.

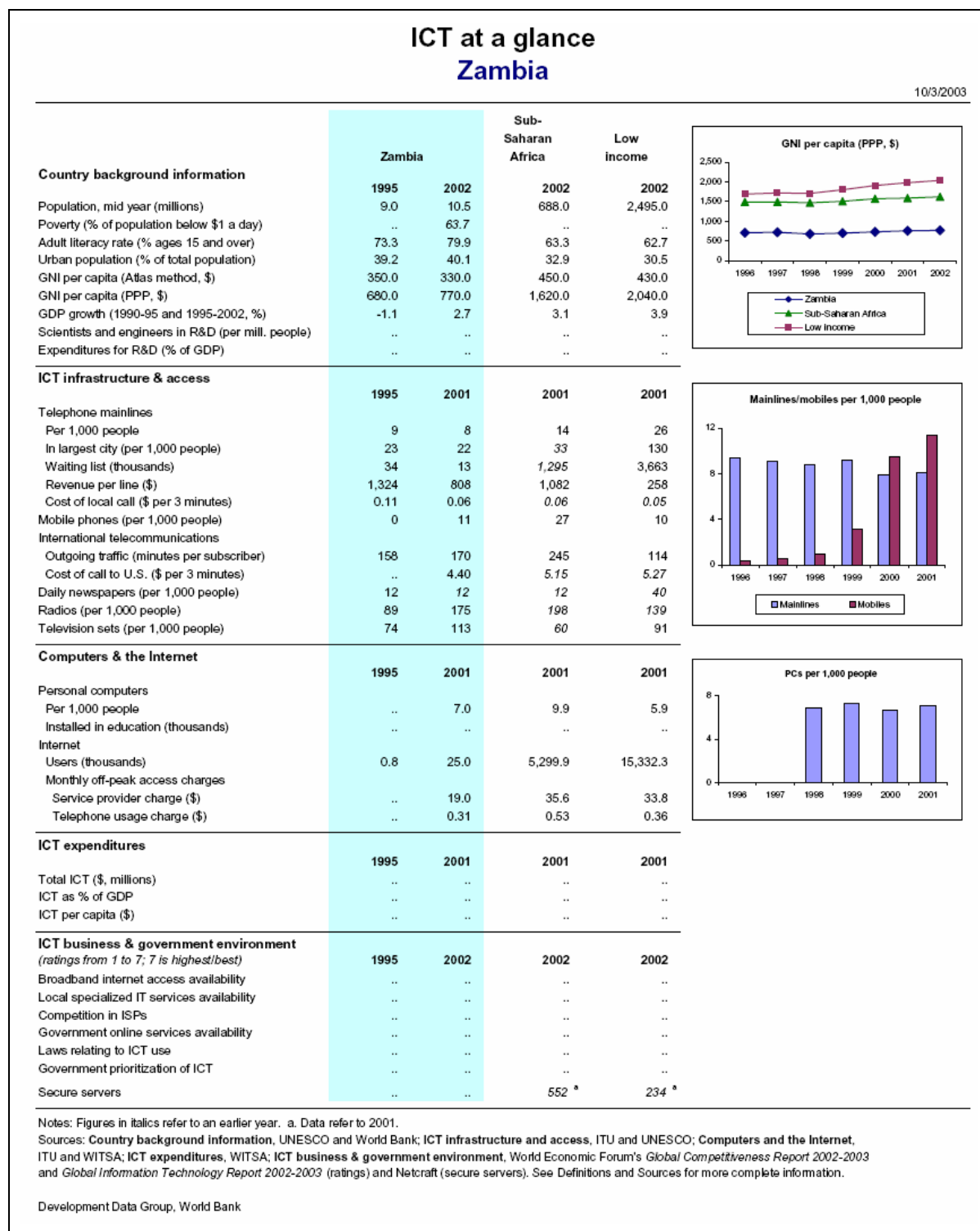
Zambian telecommunications market has been de jure liberalised, although in reality the incumbent Zamtel continues to hold monopoly in the fixed line market. The fixed line network is being upgraded to digital microwave links on intercity routes, although the local loop remains, in many places, in poor condition. The mobile market is about to become much more competitive after the introduction of a fourth GSM license, won by Vodacom International. Zamtel, which also holds a GSM licence, is planning on launching GSM operations in 2002.

Apart from the small PC penetration rate, online shopping is restricted by the limited usage of credit cards in the society. Only two banks offer credit card facilities. The number of credit card user in Zambia is very low (less than 1% of the society), and there are no debit or smart card users. Likewise, only two banks, out of a total of 16, have ATMs installed. The total number of ATMs in these cities amounts to 31 machines. Six banks, however, do provide online banking services for their clients.

Zambia has 18 institutions of tertiary level learning and 5,021 primary and secondary level schools, of which some 60% are located in rural areas. There are 23,300 learners enrolled at the tertiary level and 1,971,399 learners in schools. This translates into 50% of all school age children. The pass rate from primary to secondary level schooling is just over 30%.

The structure of Zambia's institutional framework seems appropriate however the powers of the regulatory are limited as it operates under the power of the Minister and has granted appropriate powers to the regulatory authority to enable him to function properly. Although

it would appear that the investigation did not gain access to all policies the preliminary findings are that Zambia does not have appropriate policies for developing infrastructure for ICT. From the information at our disposal, it would appear that Zambia does not have sufficient appropriate policies aimed at taking advantage of the opportunities by the digital economy. Zambia does not yet have any policies aimed at creating trust in the digital economy nor reforming the legal system to enable it to cope with a paperless economy.



Dear it@ab members,

We would like to define the actual state and the future perspectives for the use of **open source software technologies** in the it@ab network.

To achieve this objective we would kindly ask you to fill in this questionnaire as detailed as possible and return it at the end of the workshop.

QUESTIONNAIRE

General Questions

1. What products are actually in use in your company?

Area	Product	Version/Other
a. Operating System		
	Windows	[]
	Linux	[]
	Unix	[]
	Novell	[]
	Other	[]
b. Web Server		
	Apache	[]
	Internet Information Server	[]
	Other	[]
d. Database		
	SQL Server	[]
	PostgreSQL	[]
	MySQL	[]
	Oracle	[]
	Other	[]
e. Integrated Development Environment (IDE)		
	Visual Studio	[]
	Kdevelop	[]
	Eclipse	[]
	Jdeveloper	[]
	Other	[]
f. Office Applications		
	Microsoft Office	[]
	Open Office	[]
	Startoffice	[]
	Other	[]
g. Graphics		
	GIMP	[]
	Adobe Photoshop	[]
	Others	[]
h. Other		

2. Open Source Software (OSS) for you is:

(You can mark more than the one alternative)

- a. an Available Software without a fee or at a low cost
- b. a Software with open code and the users can modify a software product to better serve their needs
- c. a miracle of internet
- d. Allow the software distribution without compensation or even credit
- e. Other

3. In what OSS projects are your company actually participating?

Project	Level...		
	Enduser	Source Code Modification	Community Member
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.1 Are your company planning to be member of any OSS community?, Which?

A.

IT-Staff

1. How many people work in the in your company and in the IT-staff of your company?

	In your company	In the IT-Staff
Present		
3 years ago		

2. How many from the above mention are involved with OSS products/services?

	In your company	In the IT-Staff
Present		
3 years ago		

3. How many times a year your company organize trainings to introduce OSS to your IT-staff?. What topics are normally included?

A.

4. The expectations of the Junior IT Consultants that have been trained in Germany in your company are:

Importance for the company: very important less important

- | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. Juniors deal with all your inhouse ICT-needs (installation, training, system development, etc.) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Juniors provide consultancy services to outer organisations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Juniors implement the project/product that they developed in Germany | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Juniors actualize trainers in the skills they have acquired | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

5. Do your company have any policy to support and motivate the interest of the IT-Staff in OSS Themen?

[] YES - [] NO

5.1 In which form?

.....

Infrastructure

1.How is the access to Internet in your company?

(You can mark more than the one alternative)

Brandwide

- | | | |
|-----|---------|-------|
| [] | Dial Up | ..... |
| [] | ISDN | ..... |
| [] | DSL | ..... |
| [] | Online | ..... |
| [] | Other | ..... |

2. How many workers have access to internet? A.

3. Which collaboration forms are implemented in your company?

(You can mark more than the one alternative)

- eMail
- Chat
- Forum
- Other

Business Portfolio

1 Please order the next topics in accordance the structure of your business portfolio

(1 the most important; 5 the less important)

- a. Software-Web Development
- b. Networking
- c. IT-Consultancy
- d. it@ab Products
- e. Others

2. Which OSS products does your company normally offer?

Business Area	OSS Product	Product Licenz -Optional
Training		
Web/Software Development		
Networking Service		
IT-Consultancy		

3. Do you receive any profit from OSS products and services so far?

YES - NO

If YES: Of the monthly average profit that represents:

(Please choose only one alternative)

- 0-30 %
- 30-50 %
- 50-70 %
- 70% - more

Strategy and Perspectives

1. How do you evaluate the market for OSS products and OSS services in general in your country and in SADC? (Actual situation, perspectives, risks)

My country [please explain in brief]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

SADC [please explain in brief]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

2. In your company the OSS products represent

	<i>Agree</i>			<i>Disagree</i>	
a. An interesting alternative of the company internal processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. An opportunity for offering innovative trainings and for our the IT-Consultancy service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. A strategic component for the networking service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The business alternative for the large-term	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. A very new technology for the employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. A growing demand of our actual customer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. A opportunity to make international business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. OSS product represent for our costumer not trustworthy alternatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. In your opinion the orientation of it@ab strategy should:

- | | |
|--|---------------------|
| <input type="checkbox"/> Specialize in an specific OSS Area | Which area? |
| <input type="checkbox"/> Concentrate in Trainings of OSS Technologies | Which Topics? |
| <input type="checkbox"/> Develop products on base of OSS | Which kind? |
| <input type="checkbox"/> Concentrate in OSS Consultancy | |
| <input type="checkbox"/> Specialize in the application of OSS for the Networking Service | |
| <input type="checkbox"/> Other | |

Why?

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Thank you for your collaboration!