Internet cafés in Dar es Salaam:

Problems and Opportunities

Recommendations for eThinkTank Tanzania

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Executive summary

Internet cafés can potentially help break down some of the major barriers to development that are presently faced by low-income populations. They can provide *shared* access to information and communication technologies (ICTs) that can offer development services in a number of areas that can assist in the development process. Nevertheless, with obstacle such as poor infrastructures, high prices and inconsistent legislation still many challenges have to be faced.

This research is a Master of Science research for the Department of Technology Development Sciences at the Faculty of Technology Management, Eindhoven University of Technology, and is part of the Technology and Society program. *The main goal of this research is to determine the problems and opportunities with respect to Internet cafés in Dar es Salaam and to suggest recommendations for the eThinkTank Tanzania*. In order to reach this goal four baseline studies and two field studies (surveys) have been carried out. The field studies were performed in Dar es Salaam between January and June 2002, during which **45 administrators** and **346 users** of Internet cafés have been interviewed.

Based on the performed studies and surveys the following problems and opportunities with respect to Internet cafés in Dar es Salaam are identified:

➢ Since Internet cafés are the main access to the Internet in Tanzania, they could **provide basic access to services such as health and education**. Moreover, they could **provide relatively cheap and efficient way of communicating**, considering the limited purchasing power and poor infrastructure in Tanzania. Nevertheless**, increased interest in the Internet is not in line with increased awareness** in terms of using the Internet for educational, commercial, social or political purposes.

➢ **The existing business model of most Internet cafés is unsustainable and uneconomic.** This is due to the unrealistic charges for offered services, lack of reliable power supply, expensive bandwidth, connectivity down-time and high competition. **This will result in the closing down of Internet cafés in the future.**

➢ The current **provision of courses and training by Internet cafés in the use of computers and the Internet is very limited**. Considering the limited ICT personnel in Tanzania, these **cafés could be appropriate training centers** as they are already equipped with the necessary ICT facilities. Also **in the field of education Internet cafés could play a major part**, given the absence of computers in Tanzanian schools. Furthermore, **Internet cafés could be a good alternative to the subsidized telecenters** when connectivity is provided.

➢ Due to an absence of a national IXP **Tanzania lacks cheap and high capacity connections to the global Internet**. The high cost of Internet bandwidth is passed on to the Internet cafés. Even **though the price charged by these cafés for offered services is not extremely high, it could obstruct a certain group** with limited financial means from using Internet cafés, **hindering the further diffusion of the Internet**.

> **The inconsistent ICT policies, the monopoly in fixed-line services and the lack of compensation for suffered losses are undermining further development of Internet cafés**. This is also to the detriment of growth of the local ICT market.

On basis of these findings the following recommendations are suggested. These recommendations are primarily for the eThinkTank. Additionally, since the eThinkTank consists of members of various backgrounds, the recommendations are directed to the party best able to act on the problem or opportunity. These parties include: (**A**) *Internet café owners*, (**B**) *Internet café users*, (**C**) *ICT regulator*, (**D**) *Government officials*, (**E**) *Donors/NGOs*, (**F**) *Schools*, (**G**) *ISPs*, (**H**) *Electricity companies,* and (**I**) *Other companies*.

Recommendation	A	B	C	D	E	F	G	H	I
1. *Since the existing business model is unsustainable and uneconomic* **Internet café owners should rethink their strategy and reshape their business model**. Other parties could play a role here by supporting and providing information and training for Internet café owners on how to run their business in a profit-making and sustainable way in order to survive in the long run.	x		x	x	x		x		
2. **Internet users should be made aware of the potentials the Internet could have.** It is not for communication and entertainment only. Instead, *it is a powerful and cheap resource that can be used for learning, education, research, commerce, employment, discussions, exploring the world and other cultures and above all, to make oneself heard.* **Concerned parties should think of ways to increase the awareness among users in order to get the most out of the Internet**.	x	x	x	x	x	x	x		
3. *Very few know about the existence of the telecom regulator TCC and the Tanzania national website.* For that reason, **the regulator should propagate itself more strongly to the general public in order to build trust and to create an atmosphere of transparency and responsibility**. By doing so, *the gap between policymakers and the community could be reduced, which could initiate better and more efficient policymaking.*	x	x	x	x		x			
4. **The regulator should intervene and impose a strict deadline for all ISPs to set up a national IXP**. *By doing so, local Internet bandwidth could be increased and can be offered much cheaper.* These major benefits could provide and improve access to the Internet for reasonable costs, which could mean lower prices will be paid by Internet cafés for Internet access and eventually users will be charged less for surfing. *As a result the Internet could be used more frequently and moreover, more people could access it.*		x	x	x			x		
5. **More websites with Swahili and local relevant content should be designed** as *it might be an essential medium for the Tanzanian society to communicate.* Furthermore, it could be an efficient and cheap way for governments, NGOs, institutions, companies etc. to provide information on relevant topics such as health, poverty, education, politics, culture, and business.	x	x	x	x	x	x	x	x	x
6. **Internet cafés should join their forces and form a pressure group or representative who looks after their interests.** Negotiations could be opened with the regulator, the electricity company, ISPs and others about certain arrangements and compensation in case of, for example, suffered losses due to an electricity or Internet connection failure.	x		x	x			x	x	

Recommendation	A	B	C	D	E	F	G	H	I
7. *Since there is a shortage of ICT facilities at schools*, it might be an opportunity for these schools to cooperate closely with Internet cafés since the latter already have the necessary facilities. **Schools, Internet cafés and other concerned parties should discuss arrangements and develop methods on how to utilize these cafés for educational purposes**. For example, students might be given assignments which they carry out in Internet cafés. By doing so, students will not only get familiar with the Internet but also with its practical use such as for educational purposes.	x		x	x	x	x			
8. *Since there is a shortage of IT-skilled people and training centers in Tanzania*, **Internet cafés should be stimulated and encouraged to offer courses in the use of computers, applications and the Internet**. *This will also improve their financial situation*. Funds and resources must be sought in order to finance the necessary requirements.	x	x	x	x	x				
9. **Internet cafés, policymakers and other concerned parties should start discussions and share ideas and views about existing laws and policies regarding certain technologies,** such as Internet telephony.	x		x	x				x	
10. **Users as well as administrator of Internet cafés should be encouraged and stimulated to start up a discussion forum on the Internet** where they could express their concerns, share and discuss ideas about certain topics such as the Internet, policies, moral values, ethical issues and received services. In addition, *this forum could serve as an important medium to keep policymakers notified about current developments and views within the community*. Also, it might be used by policymakers themselves to inform the community about specific matters.	x	x	x	x	x				

These recommendations are represented in the following diagram in order to clarify their role and importance. Note that each recommendation is represented by its number as given in the table above. This diagram is based on the author's perception and is therefore subjective and open to criticism and discussion.
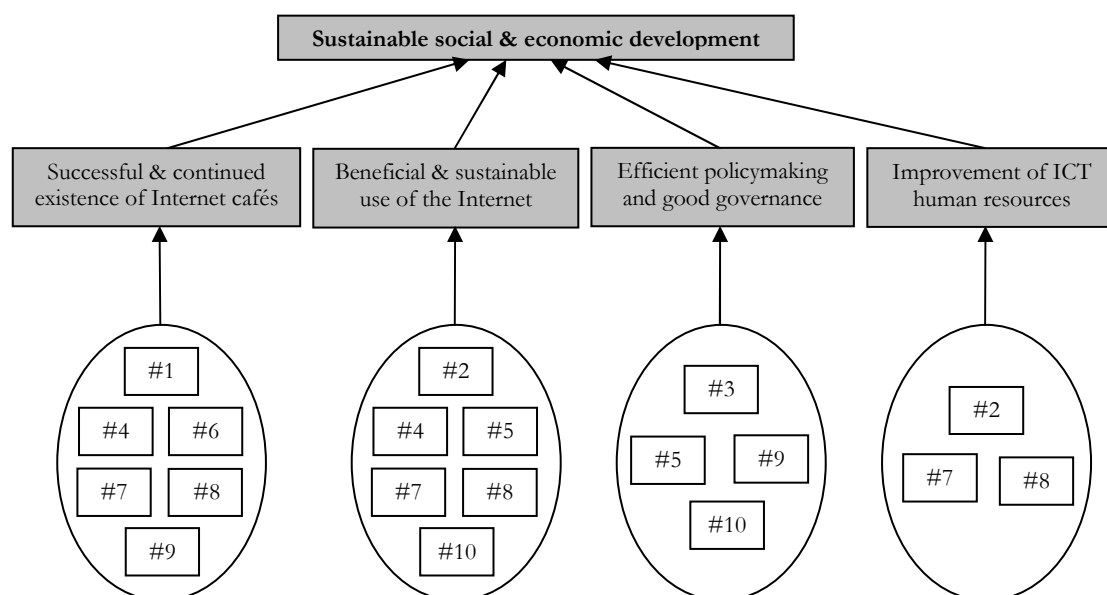
Foreword

This thesis covers a Master of Science research for the Department of Technology Development Sciences at the Eindhoven University of Technology (TUE)[1]. This department aims at the development of technology in developing countries. The University Computing Centre (UCC)[2] of the University of Dar es Salaam has provided the opportunity to perform this research.

I am grateful to many people without whom this research could not have been completed. I would like to thank my supervisors Herman Gaillard, Gert Brussaard and Emilia van Egmond for their coaching and comments during the carrying out of the research. I also would like to thank Jan Cranenbroek for bringing me in contact with UCC and for his practical support.

In Tanzania, my gratitude goes to all administrators and users of Internet café and members of the eThinkTank who provided me with valuable information for my research. Further, I would like to thank my dear friends and colleagues for their support and kindness towards me and making me feel at home in the beautiful Tanzania. I also owe many thanks to Professor Beda Mutagahywa, the director of UCC, who provided me with the necessary facilities and for his useful advice.

Finally I thank my dear friends, brothers and sister, my father and *yemma* for their unfailing patience and inexhaustible support.

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Eindhoven, the Netherlands
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[1] http://www.tue.nl/
[2] http://www.ucc.co.tz/

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Acronyms

COSTECH	Tanzania Commission for Science and Technology
DIT	Dar es Salaam Institute for Information Technology
GDP	Gross Domestic Product
ICT	Information and Communication Technology
IDRC	International Development Research Centre
IICD	Institute for International Cooperation and Development
ISP	Internet Service Provider
ITU	International Telecommunication Union
IXP	Internet Exchange Point
LAN	Local Area Network
NGO	Non-Governmental Organization
OECD	Organisation for Economic Cooperation and Development
TCC	Tanzania Communication Commission
TSH	Tanzanian Shilling
TTCL	Tanzanian Telecommunication Company Limited
UCC	University Computing Center
UDSM	University of Dar es Salaam
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
US$	United States Dollar
VoIP	Voice over Internet Protocol

A glossary of used ICT terms is given in appendix C.

1 Introduction

The Internet is central to the network revolution that is transforming the way people interact all over the world. In many parts of the world, societies are undergoing radical changes as a result of the rapid development of the information and communication technologies (ICTs). Access to ICT is essential for development, but in many developing countries, however, this access is still inadequate or non-existing.

In the last few years, efforts are being made to establish or strengthen access to and dissemination of technology for economic and social development. International communities in general have become interested in *telecenters* as a way to build sensible development strategies, consistent with the situation of poor countries and marginal areas. This strategy holds that there is no point in investing heavily in extending access to those areas, given their limited production capacity and purchasing power, but recognizes the potential impact that increased access could have on their development. "Universal service" to every home is too ambitious a goal in poor countries and low-income areas, but it is possible to have a significant impact through "universal access" by means of shared facilities in a relatively short period of time[3].

Before presenting the research aim for this research it should be noted that the focus here will be on *Internet cafés* rather than on *telecenters.* There are two reasons behind this. The first is to be more specific and to avoid ambiguity as a telecenter comprises also centers providing other telecommunication services than the Internet such as basic telephony, fax and photocopying. Instead, in this study the focus is on those *privately-owned* centers whose *main purpose is to provide public access to the Internet and to services available over the Internet.* Second, using the term *Internet café* is more practical as the centers are widely known by that name.

This research is a Master of Science research for the Department of Technology Development Sciences at the Faculty of Technology Management, Eindhoven University of Technology, and is part of the Technology and Society program. *The main goal of this research is to determine the problems and opportunities with respect to Internet cafés in Dar es Salaam and to suggest recommendations for the eThinkTank Tanzania.* The structure of this report is as follows:

Part I: Methodology
Chapter 2 presents the theoretical issues for this research, whereas *chapter 3* deals with the empirical issues.

Part II-A: Results of baseline studies
Chapter 4 provides a general line of thought on the ongoing international developments regarding ICT in general and the Internet in particular. *Chapter 5* gives an overview of some social and economic issues stemming from the Tanzanian national environment. Furthermore, the Tanzanian education system is examined in more detail, where the emphasis is placed on ICT-related education and training. *Chapter 6* provides an overview of the current status of ICT in Tanzania, while *chapter 7* deals with the current state of the ICT regulations.

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[3] Proenza, F. J. et al, *Telecenters for Socioeconomic and Rural Development in Latin America and the Caribbean*, FAO, ITU, IADB, Washington D.C., 2001.

Part II-B: Results of field studies
Chapter 8 presents the results of a survey on *administrators* of Internet cafés in Dar es Salaam, and subsequently, in *chapter 9* the results of a survey on *users* of Internet cafés are presented.

Part III: Conclusions & Recommendations
Finally, *chapter 10* provides a summary of conclusions of the chapters 4 to 9. Subsequently, the research problem will be answered here by the determination of the problems and opportunities with respect to Internet cafés in Dar es Salaam. On basis of this, recommendations are suggested in the last section of this chapter.

Part I

METHODOLOGY

2   Theoretical issues

2.1   Research relevance

Though the evidentiary record of the benefits derived by poor people from the Internet is expanding rapidly, the documentation of the impact of Internet cafés on economic and social development is limited and not very systematic[4]. There are many underlying reasons, but this is partly because the causal sequence from use to impact is complex and indirect. Nevertheless, an Internet café can potentially help break down some of the major barriers to development that are presently faced by low-income populations.

Internet cafés are generally agreed to be tools and not ends in themselves[5]. The end is usually stated as the support of services in areas such as education, health care, local democracy and small business support. They can provide access to ICT that can offer development services in a number of areas that can assist in the development process. This process is elaborated in the chain below. This is quite a complex chain and each stage is open to question.

Internet cafés → Access to ICTs → Provide services → Assist development

For a community an Internet café can have the following advantages[6]:
- It is a way of sending messages between relatives and friends residing at distant locations but enabled by virtual proximity to provide technical, material, cultural, social or moral support.
- It may mean access to open schools and universities, enabling people to study in areas where there are no facilities.
- It may mean access to books, which can be downloaded and printed.
- It may be a way to obtain urgent medical advice in areas where there is no doctor.
- It may mean a way to get support and information on agricultural projects, natural resource management and small business development.
- And it means being able to connect with government and other institutions: asking questions, raising concerns and sending complaints.

An Internet café can provide opportunities for different parties. Communities benefit because it gives them access to ICT. As noted above, this access has the potential to empower communities so that they can play a part in their own development and make their voices heard. Governments benefit because ICT can help reduce poverty by empowering communities. Governments can also use Internet cafés to deliver many services, such as health education. In addition, Internet cafés enable governments to stay in touch with people in remote areas. The private sector also benefits because ICTs meet development objectives, and integrate isolated communities into the mainstream economy and society in a sustainable way.

Though Internet cafés may have a positive impact on social and economic development there are some important issues which have to be considered. For example, in many low-income countries there is an

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[4] Proenza, F. J. et al, *Telecenters for Socioeconomic and Rural Development in Latin America and the Caribbean*, FAO, ITU, IADB, Washington D.C., 2001.
[5] Benjamin, P., *Does 'Telecentre' Mean The Centre is Far Away? Telecentre Development In South Africa And Around The World*, LINK Centre, South Africa, 2000.
[6] The African Connection: www.africanconnection.org/docs/telecomms/moreabout.html

absence of supporting technologies, lack of legal guidelines and appropriate legislation. And as noted before, the knowledge about the impact of Internet cafés is limited and not very systematic. Therefore, more research has to be conducted to acquire knowledge on experiences with these cafés and to identify their impacts on social and economic development.

Besides the above-mentioned relevance, research on experiences with Internet cafés in Tanzania also has a scientific relevance. It contributes to the knowledge on issues which determine the level of use and functioning of Internet cafés in low-income areas and the opportunities of providing access to facilities promoting these cafés. Furthermore, this research can provide a basis for other research concerning this topic in other areas in Tanzania and in other (developing) countries.

2.2 Research aim and problem

The main goal of this research is to *determine the problems and opportunities with respect to Internet cafés in Dar es Salaam and to suggest recommendations for the eThinkTank*. Here, specific emphasis is placed on *technological* (ICT sector), *regulatory* (ICT regulations) and *societal* (administrators and users) factors regarding Internet cafés.

As with the introduction of any broad societal innovation, there are a variety of potential barriers and stimuli to implementation, which can be technological, institutional, legal, or societal in nature. Furthermore, the importance and functionality of an Internet café depend on decisions of individuals or organizations, made within the constraints of the existing technical and legal environment. As a result a general picture could be drawn of the experiences with Internet cafés in Dar es Salaam and the factors stimulating or impeding the functioning of these cafés. Finally, on basis of the results certain conclusions will be reached and recommendations suggested.

In order to reach this goal the following research problem has been defined:

What are the problems and opportunities with respect to Internet cafés in Dar es Salaam?

To be able to tackle this research problem a number of research questions have been formulated. These questions are classified in six sub studies.

Sub study 1:   **International environment: ICT and development**
    Related research questions:
- What is ICT and what are its implication for development?
- What is the Internet and what is its state in developing countries?

Sub study 2:   **Tanzanian environment**
    Related research questions:
- What is the social and economic situation in Tanzania?
- What is the state of education, particularly ICT-related, in Tanzania?

Sub study 3:   **Tanzanian ICT**
    Related research questions:
- What is the current state of the Tanzanian ICT?
- What is the current state of the Internet in Tanzania?

Sub study 4: **ICT regulations**

Related research questions:

- What is the current state of the ICT regulations in Tanzania?
- What are the implications of these regulations?
- What are the policies regarding Internet cafés?

Sub study 5: **Survey on administrators of Internet cafés in Dar es Salaam**

Related research questions:

- What are the basic characteristics of administrators of Internet cafés?
- What are the characteristics of Internet cafés?
- What is the basic economic situation of Internet cafés?
- What are the purposes for which the Internet cafés are used?
- What is the administrators' perception of the quality of service provided by ISPs?
- What is the administrators' perception of the Tanzanian ICT, policies and other related issues?

Sub study 6: **Survey on users of Internet cafés in Dar es Salaam**

Related research questions:

- What are the basic characteristics of users of Internet cafés?
- For which purposes do users use Internet cafés?
- For which purposes do users use computers and the Internet?
- What is the users' perception of the quality of service provided by Internet cafés?
- What is the users' perception of the Tanzanian ICT, policies and other related issues?

2.3   Theoretical framework

Before presenting the theoretical framework for this research the used key concepts are defined to avoid ambiguity.

Text box 2-1: Definition of key concepts

International environment: ICT and development

In many countries ICTs have been a subject of discussion and more and more research is being performed to learn more about the implications of these technologies for social and economic development. Experiences with ICTs by these countries are – to some extent – international, and therefore also apply to Tanzania.

Tanzanian environment

Some social and economic issues stemming from the Tanzanian national environment will be explored, and selected statistical indicators (GDP per capita, birth-rate, life expectancy etc.) will be presented. This is of relevance to get an idea of the level of the socio-economic status in Tanzania. In addition, the Tanzanian education system will be examined in more detail, where the emphasis is placed on ICT-related education and training, in order to assess the ICT human resource situation in Tanzania.

Information and communication technologies (ICTs)

ICT is currently defined as the set of activities that facilitate by electronic means the processing, transmission, and display of information[7]. It covers a range of tools and techniques relating to computer-based hardware and software, to communications including both directed and broadcast, to information sources such as the Internet, and to

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[7] Asian Development Bank: www.adb.org/Documents/Policies/ICT/ICT.pdf

associated technologies such as robots, video-conferencing and digital TV. In this research the emphasis will be placed on the Internet.

ICT regulations

ICT regulations comprise all regulations and policies undertaken by national governments and local authorities to direct the development of ICT into a desired way.

Internet café

As noted in the introduction the term *Internet café* is used in stead of *telecenter*. The main service offered by the basic Internet café that is common in many countries, mainly in urban areas, is access to the Internet and often also to elementary software[8]. An Internet café may be defined as a "shared site that provides public access to ICTs." As mentioned before, the focus in this research will be on those *privately-owned* sites whose main purpose is *to provide public access to the Internet and to services available over the Internet.*

eThinkTank

The eThinkTank is the most prominent initiative which has been identified to develop a policy that addresses the whole Tanzanian ICT sector. It is a voluntary association on the Internet supported by UNDP and has more than 200 members. These members are experts of various backgrounds with an interest in the development of ICT in Tanzania. The eThinkTank involves senior executives and managers, but also government officials and donor organizations. In chapter 7 the eThinkTank will be discussed in more detail.

The theoretical framework for this research is illustrated in the figure below. Note that the parts of the framework are derived from the defined sub studies.
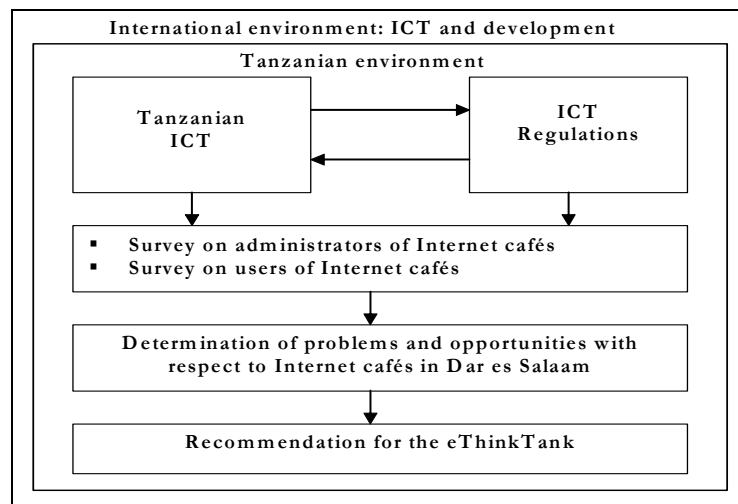

Figure 2-1: Theoretical framework

2.4 Operationalisation

The concepts used in the theoretical framework are translated into a list of measurable indicators which serves as a checklist. This checklist can be found in appendix A.

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[8] Proenza, F. J. et al, *Telecenters for Socioeconomic and Rural Development in Latin America and the Caribbean*, FAO, ITU, IADB, Washington D.C., 2001.

3   Empirical issues

In this chapter empirical issues are formulated and determined. These issues include the type and method of research, research setting, population, research units, sampling method, the methods of data collection and techniques of analysis.

3.1   Type and method of research

Since not much is known about the experiences with Internet cafés in Tanzania, this research will be mainly explorative. As mentioned before, a number of research questions have been formulated to tackle the research problem. These research questions are classified in six sub studies. The first four are mainly baseline studies, while the fifth and sixth are field studies (surveys).

3.2   Research setting

The field studies for this research were performed in Dar es Salaam over a period of six months. Dar es Salaam has an estimated population of 3.5 million, 547,000 households with an average size of 6.4 persons and 70% of the people live in 40 unplanned settlements[9]. In 2001, the city accounted for around 25 percent of the country's urban population[10]. The city region has been divided into three municipal districts; *Kinondoni*, *Ilala* and *Temeke*.

3.3   Population, sampling method and sample size

Because of time and money constraints it is impossible to involve the whole population in this research. Therefore, for the fifth and sixth sub studies a sample was derived from the population. Before being able to take a sample the population had to be identified. Because of an absence of a central registration for Internet cafés in Tanzania with data files and other relevant information different sources were consulted to gather information on these cafés in Dar es Salaam.

On July 2001, COSTECH embarked on project aimed to carrying out a national ICT infrastructure and e-Readiness assessments for Tanzania[11]. A survey on Internet cafés in Tanzania was one part of the main project. In Dar es Salaam, the survey team had to drive around searching for Internet cafés, during which names and locations of the found cafés were recorded. A total of 45 Internet cafés were located in Dar es Salaam. This list was complemented with other cafés from own observations and other sources (Internet, IT Vision, friends and colleagues). Finally, the list contained 61 Internet café names in total.

In order to reach a high statistical value the sample size had to be as large as possible. On the other hand, the sample size depended also on factors like the available time, money, assistance and other forms of support. Mr. Joseph, tutorial assistant at the Department of Sociology of the University of Dar es Salaam and experienced in collecting data, assisted in performing the interviews. Bearing in mind the available

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[9] Constantinides, G., *Final Draft Report – Cost Benefit Case Studies, GPA Strategic Action Plan on Sewage*, October 2000.

[10] Boyd, G., An Overview of Private Sector Participation in the Dar es Salaam Water and Sewerage Authority (DAWASA), June 2001.

[11] COSTECH, *Preliminary Results of Internet Café Survey in Tanzania, info*Dev Dar es Salaam, January 2002.

means, the survey aimed to perform 400 interviews over a period of 8 weeks. In the next two sub sections the populations, sampling methods and sizes for each survey are presented.

3.3.1 Survey on administrators of Internet cafés in Dar es Salaam
Population and research units

The population and research units are all administrators of Internet cafés in Dar es Salaam.

Sampling method and sample size

From the 61 cafés 50 were sampled for the survey in order to interview **50** administrators. The reason for starting with interviewing administrators is to acquire more reliable information in order to design a more complete list with the exact locations of the Internet cafés. In the box below the sampling for the administrators is discussed in more detail.

Text box 3-1: Sampling technique for the administrators

The sampling method used is the so-called *area sampling*. This method involves dividing the population according to country, city blocks or other well-defined geographical sections. From each section a *simple random sample* is taken. In this case the initial list of Internet cafés was divided into 3 sub-lists according to the three city districts, Ilala, Kinondoni and Temeke. From each district a number of Internet cafés were randomly selected, using the statistical program SPSS. The sample size for each district is determined as follows: the number of Internet cafés in Dar es Salaam on the initial list was 61; 35 in Ilala, 24 in Kinondoni and 2 in Temeke. Considering the available time and assistance it was intended to have a sample of 50 Internet cafés; 28 in Ilala, 20 in Kinondoni and 2 in Temeke.

The execution of the interviews showed that some Internet cafés on the initial list did not exist or were not functioning anymore. The nearest Internet cafés, *not* selected in the initial sample, were chosen to replace the "missing" ones. Finally, 17 from the intended 28 administrators in Ilala have been interviewed. In Kinondoni 23 of the desired 20 administrators responded while in Temeke none have been interviewed. The latter was because Internet cafés on the initial list turned out to be in another district than Temeke. The sampling method for the administrators is illustrated in the table below.

Table 3-1: Sampling of administrators of Internet cafes

City district	Number of Internet cafés (according to the initial list)	Sample size[12]	Number of interviews
Ilala	35	28	17
Kinondoni	24	20	23
Temeke	2	2	5[13]
Total	*61*	*50*	**45**

Representativity

The obtained information is representative of the 45 administrators who cooperated with the survey. The sample (45 out of a total of roughly 100 Internet cafés) is most likely representative of all administrators of Internet cafés in Dar es Salaam.

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[12] The total sample size was 50. The sample size per district was divided up proportionally according to the initial list.

[13] Initially, the sample for Temeke yielded no results. As it was suspected that there were Internet cafés, the interviewer traveled through this district where 5 administrators have been interviewed.

3.3.2 Survey on users of Internet cafés in Dar es Salaam
Population and research units

The population and research units are all users of Internet cafés in Dar es Salaam, excluding transients (visitors to the city) and children under 15 years of age.

Sampling method and sampling size

After interviewing the administrators a new list of Internet cafés was made. For interviewing users it was decided to sample 24 Internet cafés from all Internet cafés *cooperated* with the first part of the survey in the two districts Ilala and Kinondoni. This saved time as the interviewer already knew the exact locations of these cafés. For the district Temeke another strategy was chosen as it was suspected that there were Internet cafés. The interviewer travelled through this district searching for Internet cafés and interviewed administrators and users as well. The sampling method used for users is explained below.

Text box 3-2: Sampling technique for the users

For the survey it was aimed to interview **350** users of Internet cafés. Similar to interviewing the administrators, users were divided according to the three city districts. The adapted list contained 17 Internet cafés in Ilala, 23 in Kinondoni and none in Temeke. From the first two districts two random samples of 12 Internet cafés per district were taken. As noted earlier for Temeke the interviewer had to travel around searching for Internet cafés. Here, 5 new Internet cafés were found and 5 administrators were interviewed, which brings the total to 45 interviews.
In all districts **346** users were interviewed, with 11 to 14 users per Internet café. In Ilala 141 users were interviewed in 11 Internet cafés, in Kinondoni 151 users in 12 cafés while in Temeke 54 in 4 Internet cafés. The table below gives an overview of the sampling.

Table 3-2: Sampling of users of Internet cafes

City district	Number of Internet cafés (according to the new list)	Sample size	Intended number of interviews (11 to 14 per café)	Number of interviews
Ilala	17	11	138	141
Kinondoni	23	12	150	151
Temeke	**5**	**4**	50	54
Total	*4*5	*27*	*350*	**346**

Representativity

The information obtained is representative of the 346 users who cooperated with the survey. The response rate for this survey was very high; perhaps around 90% approached in 27 cafés during the survey was willing to participate. Hence, the sample of the users can be also considered as representative of all users of Internet cafés in Dar es Salaam.

3.4 Methods of data collection

For the first two sub studies the primary method of data collection was consulting existing information in books, journals, policy documents, statistical and non-statistical records, papers, theses, etc., and of course the Internet. Likewise, available information was consulted for the third and fourth sub studies. Another useful source for the latter studies was the discussion forum eThinkTank Tanzania (www.ethinktanktz.org), a voluntary association of more than 200 experts of various backgrounds with an interest in the development of ICT in Tanzania. Other sources were local newspapers, IT vision (a Tanzanian ICT magazine), UCC, COSTECH, colleagues and friends.

For the fifth and sixth sub studies personal interviews with written questionnaires were used to obtain information from intended respondents. Here two different questionnaire forms were designed; one meant for the survey on administrators and the other for the survey on users of Internet cafés (see appendices G and H). Below the objectives of each questionnaire are addressed in more detail, followed by a clarification of the objectives.

Objectives of questionnaire for administrators of Internet cafés
    A.   *to identify the basic characteristics of administrators of Internet cafés,*
    B.   *to obtain general information about the Internet cafés,*
    C.   *to identify the basic economic situation of Internet cafés,*
    D.   *to identify purposes for which the Internet cafés are used,*
    E.   *to identify the administrators' perception of the quality of service provided by ISPs, and*
    F.   *to identify the owners' perception of the Tanzanian ICT, policies and other related issues.*

Objectives of questionnaire for users of Internet cafés
    G.   *to identify the basic characteristics of users of Internet cafés,*
    H.   *to identify purposes for which the Internet cafés are used,*
    I.   *to identify the use of computers and Internet by users,*
    J.   *to identify the users' perception of the quality of service provided by Internet cafés, and*
    K.   *to identify the users' perception of the Tanzanian ICT, policies and other related issues.*

Text box 3-3: Clarification of the objectives

A.   Basic characteristic of administrators of Internet cafés

The first posed questions aim to collect data about basic characteristics of administrators. These characteristics include sex, marital status, occupation, education and income.

B.   General information about the Internet cafés

This part of the questionnaire aims to collect information about the age of the Internet café, number and type of operating computers and number of computers connected to the Internet. Also information is collected about the type of Internet access and Internet Service Providers (ISP).

C.   Basic economic situation of the Internet cafés

To obtain a basic picture of the economic situation of Internet cafés information is gathered on fees paid to ISPs, number of users per week, cost of surfing and sources of income.

D.   Purposes for using Internet cafés

This part attempts to determine the equipment and services provided by the Internet café. Administrators are also asked for which purposes the Internet café is used. This information will be used as an extra verification for the data obtained from the users.

E.   Administrators' perception of the quality of service provide by the ISPs

Here, information is gathered on the general satisfaction of Internet café administrators with their ISP, and the satisfaction with the Internet access and fee paid for this access.

F.   Administrators' perception of the Tanzanian telecommunications, policies and other related issues

In this section administrators are asked about their views on ICT and development. It also attempts to determine the administrators' perception of the Tanzanian ICT and the involvement of the government in it. Furthermore, they are

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asked about their knowledge of Tanzanian national websites, their perception of the impact of the Internet on the Tanzanian culture and whether more Swahili websites should be designed. The administrators are also asked whether the Internet café has a license to operate. Another question was added to gather information on other neighbouring Internet cafés in order to have a better estimate of the number of Internet cafés in Dar es Salaam.

G.   Basic characteristics of users of Internet cafés

Similar to administrators, this part aims to collect data about basic characteristics of users of Internet cafés.

H.   Purposes for using Internet cafés

In this part users are asked how often they use Internet café services and how much time they spend during a typical visit. They are also asked for which purposes they use the café services and which equipment they use. Additionally, this parts attempts to gather information on the use of Internet telephony (VoIP), the frequency of use and the user's opinion regarding this prohibited technology.

I.   Use of computers and Internet

This section aims to obtain information on the use of computers and Internet by the users. Users are asked whether they have a computer at home, and where they have access to the Internet. Also questions are posed about how long users have been using Internet cafés and whether they feel their ability to use computers and Internet has improved as a result of using the cafés. Furthermore, this section attempts to gather information on the surfing behaviour of users. They are asked about the types of Internet contents they are interested in and their degree of interest.

J.   Users' perception of the quality of service provided by Internet cafés

Here, users are queried about their satisfaction with the quality of services offered by Internet cafés and the cost paid for these services. Additionally, users are asked which changes they propose to improve the services in Internet cafés.

K.   Users' perception of the Tanzanian telecommunications, policies and other related issues

Like the administrators, users are asked about their opinions and views on ICT and development. This section also attempts to discover the users' perception of the Tanzanian ICT and the involvement of government in it. Moreover, they are asked about their knowledge of Tanzanian national websites, their perception of the impact of the Internet on the Tanzanian culture and whether more Swahili websites should be designed.

The table below provides an overview of the different methods of data collection that was used for the six sub studies.

Table 3-3: Methods of data collection

	Methods of data collection		
Sub study	*Literature, magazines, Internet, policy documents, etc*	*Experts*	*Personal interviews*
1. ICT and development			
• ICT for development	x		
• Digital divide	x		
• The Internet	x		
• Telecenters	x		
2. Tanzanian environment			
• Social situation	x		
• Economic situation	x		
• Current policy statements	x	x	
• Education	x	x	

3. **Tanzanian ICT**			
• Access and connectivity	x	x	x
• Data market	x	x	x
• Internet	x	x	x
• Internet cafés	x	x	x
• Telecenters	x	x	
• Local content and applications	x	x	x
4. **ICT regulations**			
• ICT regulator	x	x	x
• Policy developments	x	x	
• eThinkTank	x	x	
• Policies regarding Internet cafés	x	x	x
5. **Survey on administrators of Internet cafés in Dar es Salaam**	x	x	x
6. **Survey on users of Internet cafés in Dar es Salaam**	x	x	x

3.5   Pre-test

A pre-test was done to test the questionnaires before using it to collect data. The purpose of this pre-test was to find out whether the questions would be understood by the respondents. Other reasons were to check the relevance of the questions and the length of the questionnaire.

Questionnaire for administrators

Four colleagues and three system administrators of UCC were asked to fill in the questionnaires and to give feedback. Some were of opinion that the questionnaire was too long and too extensive. There were also some remarks on the sequence, the relevance and outlook of the questions. After considering the provided feedback a number of adjustments were made to the questionnaire.

Questionnaire for users

For pre-testing the questionnaire for users 10 questionnaire forms were left in UCC's Internet café. The system administrator was asked to request users to fill in those forms and to provide feedback. 7 forms were completed and the other 3 were taken along by the students. The pre-test showed that a number of respondents overlooked some questions, while other questions were skipped as the respondents wanted to finish the questionnaire quickly. Also, some complained about the length of the questionnaire. After analyzing the pre-test results some modifications were made to the questionnaire. A number of questions which were not very relevant were removed to shorten the questionnaire. The layout was also changed to improve the overview of the questionnaire.

3.6   Techniques of data analysis

The obtained data was analyzed and evaluated using the programs Statistical Package for Social Sciences (SPSS) and MS Excel. Standard descriptive statistical techniques, mainly frequency distribution and percentages, were used for the analysis.