BUSINESS INFORMATION SYSTEMS DESIGN FOR UGANDA'S ECONOMIC DEVELOPMENT: THE CASE OF SMEs IN NORTHERN UGANDA

by

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SUMMARY

This study was conducted on the premise that if quality business information is provided to business enterprises, socio-economic transformation could be achieved. The study emanated from the documented problem where business enterprises in northern Uganda were found to depend on "word of mouth" rather than any meaningful formal mechanism for accessing information efficiently. The aim of the study was, therefore, to design an information system for northern Uganda business enterprises.

The study makes use of document analysis, questionnaires and interviews. The Small and Medium scale Enterprises (SMEs), information providers and business policy-makers in northern Uganda constituted the population of the study. The data which was collected was edited and analysed to produce graphs, charts and percentages.

The main findings indicate that business activities in northern Uganda are diverse - covering almost the entire sector of the economy. The SMEs need information on finance/capital/loans, local markets, business management skills, appropriate technologies, business competitors and security. They are lagging behind in using Information and Communication Technologies (ICTs). There is a lack of familiarity with changing technology – especially the Internet. Although the SMEs are making a fundamental contribution to Uganda's economy, they face serious challenges, such as insecurity, inadequate electricity, lack of trained information professionals and appropriate technology to access electronic information. The findings further indicate that respondents want business information to be selective to address their needs.

The study concludes that the SMEs need an efficient, effective mechanism to provide the required business information. Hence, it is recommended that a business information system (BIS) design be implemented to address their needs. The BIS should provide business information in terms of legal, technical and economic information as well as contact information and management skills. Information should be processed by means of radio broadcasts, the telephone, short text messages, posters, online and CD-ROM

formats - as required by the SMEs managers. To facilitate access, BIS should have telephone services; Internet-based services; online small business workshops; business start up assistant; and Talk to BIS services. BIS should have a flexible interface.

ACKNOWLEDGEMENTS

DEDICATION

The most precious gift God can give a person is a lovely wife and children. This thesis is dedicated to my wife, Sylvia, and to my children, Eric, Edwin and Enid. It is also dedicated to my mother, Rose, and to Mzee George Otee who taught me that even the largest task can be accomplished if it is done one step at a time.

DECLARATION

Student number: 3359-255-1

I declare that this study, ***Business Information Systems Design for Uganda's Economic Development: The case of Northern Uganda***, is my own work and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.

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    SIGNATURE   **DATE**

(Mr C Okello-Obura)

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LIST OF ACRONYMS AND ABBREVIATIONS

AACR2 or AACR1	Anglo American Cataloguing Rule 2 or 1
BAT	British American Tobacco
BDSs	Business Development Services
BIS	Business Information System
BISC	Business Information Systems Centre
BISD	Business Information System Design
BOTIS	British Overseas Trade Intelligence Services
CBOs	Community Based Organisations
CDROM	Compact Disc Read Only Memory
CSBP	Centre for Small Business Promotion
DATAD	Database of Theses and Dissertations
DFD	Data Flow Diagram
DPMDLG	Department of Production and Marketing at the District Local Government
DTI	Department of Trade and Industry
DVD	Digital Versatile Disc
EBSCO	An online subscription service that contains an array on databases that contain serial and periodical literature
GABCC	Ghana Association of Business and Communication Centres
GDP	Gross Domestic Product
GTPnet	Global Trade Point Network
ICTs	Information and Communication Technologies
ISO	International Standard Organisation
ISTIC	Institute of Technical Information of China
LBSC	Local Business Service Centre
LBSCs	Local Business Services Centres
LRA	Lord's Resistance Army
MACs	Manufacturing Advisory Centres
MTN	Mobile Telephone Network

NEPA	Ntsika Enterprise Promotion Agency
NGO	Non-Governmental Organisations
OBIS	Online Business Information Service
PAP	Poverty Action Plan
PEAP	Poverty Eradication Action Plan
PSF	Private Sector Foundation
QBI	Quality Business Information
SMEs	Small and Medium Scale Enterprises
SUCCESS	Support and Consultation Centre for SMEs
TACs	Tender Advice Centres
TINET	West African Trade Information Network
TVEs	Township and Village Enterprises
UCA	Uganda Cooperative Alliance
UCC	Uganda Communications Commission
UMA	The Uganda Manufacturers Association
UNCTAD	The United Nations Conference on Trade and Development
UNFA	Uganda National Farmers Association.
UNIDO	United International Development Organisation.
VCD	Versatile Compact Disc
WTO	World Trade Organisation
WWW	World Wide Web

CHAPTER 1

INTRODUCTION TO THE STUDY

1.1   INTRODUCTION

Business and industry - including trans-national corporations - play a crucial role in the social and economic development of a country. In Uganda, the eradication of poverty is one of the government's chief goals. The problem of poverty is one of many, including insecurity, a high mortality rate and poor accounting and financial record-keeping within the business community in northern Uganda. This problem could be mitigated by means of an appropriate business information system, as poverty eradication is directly related to information supply (World Bank 2001:73) According to the World Bank (2001:73), it is possible to reduce poverty by spreading information to needy populations, worldwide. Northern Uganda - being poor - needs a local, demand-driven information system to facilitate accessibility to, and utilisation of, business information. Based on that understanding, this study is set to design a business information system (BIS) for small and medium scale business enterprises in northern Uganda.

Although Beyene (2002); Mutula and Brakel (2006) argue that there is no, universally, accepted definition for the Small and Medium Scale Enterprises (SMEs) in Africa, this study adopts the Government of Uganda's classification of the SMEs - business firms employing 5-50 people [small scale] and 51-500 people [medium scale] (Kasekende and Opondo 2003; Schiffer and Wedder 2001:13; Uganda Bureau of Statistics 2003). This study was conducted on the assumption that if relevant business information is provided to northern Uganda business enterprises, business performance would improve and more jobs would be created that would see more money in the hands of more people. This would lead to improved income, improved income equality and improved household consumption that would - in turn - lead to the socio-economic transformation of northern Uganda. This thesis, therefore, reports on the design of a BIS for business enterprises and, in particular, the SMEs in northern Uganda. To contextualise the study, it is useful to examine some of the global trends, contextual issues pertaining to information as well as

the economic situation of Uganda - and of northern Uganda, in particular as a background to this study.

1.2   BACKGROUND TO THE STUDY

The last two decades of the twentieth century saw the creation of a completely new global marketplace which established a new foundation for the twenty-first century global economy (Javalgi and White 2002). This economy has not only accelerated global trade competition, but it has also increased the need to access relevant business information. As a backdrop to the broader theme of this thesis - and in order to provide sufficient background for this study - it is important to examine the contemporary business trends in a global context.

1.2.1   Global trends

For millions of companies throughout the world - whether large or small - conducting business, globally, is now an imperative. In this era of globalisation, the international marketing of services has become a topic of discourse for various constituencies, including governments, private enterprises, academics, and individuals, alike (Javalgi and White 2002). According to Sharma and Bhagwat (2006), recent research findings suggest that information flow is the bloodline of any business-operating unit - irrespective of its size and the scope of its operation. In the present customised and globalised business environment, where geographical distances are of no consequence to customer-supplier relationships, an organisation's competency in information systems (IS) has become one of the key measures of its survival (Sharma and Bhagwat 2006). There is emerging consensus that, globally, businesses are growing faster than ever before. Rising trade and investments are creating national wealth and consumer affluence – especially in developing countries. A convergence of tastes and preferences of consumers across the globe is increasing demand for global brands and services. Technological advancement - especially in information technology - is making the world more and more borderless and increasingly competitive.

Access to quality business information is essential for conducting business. However, access to quality business information - to a large extent - is dictated by the existence and exploitation of effective business information systems and services by business entrepreneurs. China for instance, provides a lesson - and success story - of the effective exploitation of a business information system and service. In China, the development of BOTIS (British Overseas Trade Intelligence Services) and other interventions has resulted in an efficient provision of information related to companies, products, markets, business opportunities and technical data for business communities, worldwide (Drew 1995:57). The provision of business information has facilitated trade and business operations and created multiple employment opportunities. Undeniably, different nations' economies are becoming more and more economically interdependent - creating a dominant, powerful economic force in which individual nations might not be as potent as they are collectively. This new force of the global economy is forcing goods and service firms to adapt to a new international order where access to - and utilisation of - information is critical (Rugman 2001; Czinkota and Ronkainen 2002; Yaprak 2002). Central to the global trend in handling business activities, however, is the context in which information is valued or rated. This context - as well as the conceptual issues surrounding information - is further explained below.

1.2.2 Conceptualisation of information for business

There are a vast number of information services available, today, and it is a recognised fact that information is a crucial element in any successful market economy (De Lange, Britz, Boon and 1993). Information is a major resource that businesses require for monitoring environmental trends, products, services, markets, regulations, customers; for forecasting future events; for countering competitors' strategies; and for developing new products (Ikoja-Odongo 2002:5). The success or failure of business activities depends on how information is handled and utilised (Uganda, Ministry of Planning and Economic Development 1998:18). This implies that any area of socio-economic development calls for the timely provision and use of quality information. Quality information - as observed by Gallway (2002:167) - should be relevant [meets the criteria of the question and be useful]; credible [the source is well-known]; topical [up-to-date or a hot topic]; balanced

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[represents an important and, perhaps, under-represented point of view]; and accessible [easily available and written in a clear way]. To meet the information needs of the business community requires the development of an adequate and effective information system.

For business enterprises, an information system would, then, provide the required information that would assist in

- decision-making to start a business.
- determining the nature of which staff to employ.
- establishing sources and costs of inputs.
- monitoring changes in exchange rates.
- forecasting sales.
- monitoring market trends.

The significant contributions of quality information to the improvement of business prospects can be achieved when information is accessed and utilised. Access to - and utilisation of - information helps the production of knowledge and it is the foundation of production innovation which - in turn - largely determines the competitiveness of products (Ricupero 1999:5). In a modern global economy, business information provides a potential for contributing to the success and wealth of an economy and, thereby, serves as a source for gaining a sustainable, competitive advantage for modern business (Shokane 2003). Today's business environment is characterised by an increasing intensity in competition; in the globalisation of the world economy; in rapid technological changes, and in the growing expectations of customers, suppliers and the workforce. Surviving and growing in this turbulent and dynamic business environment requires strategic thinking and decision-making - based on quality business information (Mutula and Brakel 2006). How, then, does Uganda fare in this global trend? In the next section, the economic development of Uganda and northern Uganda, in particular, is examined and the need for quality business information provision to the business community is analysed.

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1.2.3 Contextual analysis of Uganda's economic development with specific reference to northern Uganda

According to *newafrica.com* (1999), Uganda has settled down, politically, and is on the path to economic recovery. The government of Uganda has been implementing an ambitious and successful programme of macro-economic adjustment and structural reform since 1987 - with strong support from multilateral and bilateral creditors and donors. The government's continued implementation of appropriate fiscal and monetary policies - and its programme of substantial economic liberalisation - has maintained high growth, low inflation, a steadily improving balance of payments and an increasingly vibrant and diversified private sector (Uganda Ministry of Finance, Planning and Economic Development 2002). During the 2003/04 financial year, Uganda's economy registered a strong growth of 6% compared to a growth rate of 5.2% in 2002/03 (World Fact book 2004). Solid growth in 2003 reflected an upturn in Uganda's export markets. According to the World Bank's estimates, the average growth of Gross Domestic Product over the years has increased from 3.4% in 1979 to a record 7.4% in 1999. This is shown in Figure 1.1.

FIGURE 1.1

GROWTH OF GROSS DOMESTIC PRODUCT FROM 1979 - 2001
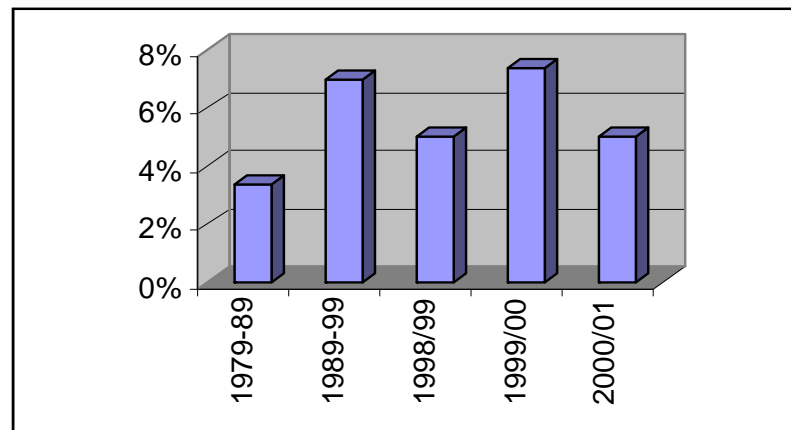
Source: World Bank's estimates - quoted in *Monitor Newspaper* (2001:19)

Although the government's initiative to fight poverty through its Poverty Eradication Action Plan (PEAP) and Poverty Action Plan (PAP) is yielding results, there is still evidence of poverty despite the GDP growth - as indicated above. The international

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poverty line is $1 per day and, according to the World Bank (2000:64) and Uganda, Ministry of Finance, Planning and Economic Development (2004:12), 37.7% of Ugandans live below the poverty line with the highest incidences being in northern Uganda (63.6%). A third of the chronically poor - and the disproportionate number of households that are moving back into poverty - are in northern Uganda (Mukasa and Masiga 2003). In the rural areas of the north, 81% of the population have a real *per capita* monthly income of less than Uganda Shs 6,000 (approx. $3.3) which translates to Uganda Shs 200 or approx. $0.11 per day and 42% have a real *per capita* monthly expenditure of less than Uganda Shs 3000 (approx. $ 1.6) - that is Uganda Shs 100 or approx. $0.05 *per* day (World Bank 1993:9). The recent survey by the Ugandan Ministry of Finance, Planning and Economic Development (2004:13) indicates that northern Uganda has experienced increasing poverty from 60% in 1997/8 to 63.6% in 2002/3. While most parts of the country shared in the benefits of growth between 1992 and 2000, northern Uganda was left behind (Uganda, Ministry of Finance and Economic Development 2004:18). Also - with respect to the spread of a cash economy - the central, the southern and south-eastern regions of Uganda have more advantages than northern Uganda. Notable among these advantages is that the central, southern and south-eastern regions of Uganda have more direct access to national economic activities with Kenya and Tanzania, rather than with the Sudan and the Democratic Republic of Congo - both before and after independence (Uganda, Ministry of Finance, Planning and Economic Development 2002). The disadvantage that northern Uganda experiences - in not having easy access to many economic activities - is one of the reasons why the focus of this study is on the districts in the northern region.

Leading manufacturers in Uganda, such as Coca-Cola, Pepsi, Mukwano, Uganda Breweries, Nile Breweries, Britannia, Rafiki, Bata Uganda Ltd, British American Tobacco (BAT), Royal Foam and Vita Foam, Mobile Telephone Network (MTN) Uganda Ltd, National Water and Sewage Corporation, Uganda Revenue Authority, Pride Africa and Private Sector Foundation, have opened regional outlets in northern Uganda to give the region an opportunity to do well in business. However, much more is still required in terms of information access because one of the weaknesses of Uganda's

economic development is poor information systems (Uganda, Ministry of Planning and Economic Development, 1999:49). The information infrastructure, including premises and communication networks, are poor. The penetration of the information economy - as shown in the Table 1.1 (World Bank 2005:318) - puts Uganda well below certain developed countries.

TABLE 1.1[*]

MEASURE OF PENETRATION OF INFORMATION ECONOMY

Country	Daily newspapers	Radio	Television	Mobile phones	Fax	Personal computers	Internet hosts (Secure servers)	Internet users
	2000	2000	2003	2000	1996	2003	2004	2003
South Africa	26	336	117	22	3.6	72.6	909	68
Sudan	26	461	386	0	0.9	6.1	….	9
Tanzania	4	406	45	0	……	5.7	1	7
Sweden	410	281	965	282	...	621.3	2354	573
Uganda	*3*	*122*	*18*	*... ..*	*0.1*	*4*	*2*	*5*
UK	326	1445	950	122	...	405.7	21034	423
Togo	2	263	123	…..	4.1	32	1	42
United States	196	2109	938	165	78.4	658.9	198098	551

Source: World Bank (2001:308; 2002:318; 2005:312)

Key to Table 1.1:

According to the World Bank (2005:313) and World Development Indicators available at: http://www.lib.umich.edu/govdocs/wdi/wdivar/wdivar13.html,

- ***Daily newspapers** refers to those published at least four times a week and calculated as average circulation or copies printed (per 1000 people).*
- ***Radio** refers to radio receivers in use for broadcasts to the general public (per 1000 people).*
- ***Television** refers to television sets in use (per 1000 people).*
- ***Mobile phones** refers to users of portable telephones subscribing to an automatic public mobile telephone services using cellular technology that provides access to the public switched telephone network (per 1,000 people).*
- ***Fax** refers to facsimile machines connected to the public switched telephone network (per 1000 people).*
- ***Personal computers** refers to self-contained computers designed for use by a single individual (per 1000 people).*
- ***Internet hosts (Secure servers)** refers to servers using encryption technology in Internet transactions (per 10,000 people).*
- ***Internet users** refers to the number of users within a country that access the Internet (per 1000 people).*

* Data for the given countries in Table 1.1 was, selectively, extracted from the three publications indicated to show a comparison in order to highlight the situation in Uganda.

*…**Unavailable data**- The cited documents (World Bank, 2001, 2002 & 2005) had no data.*

For businesses in northern Uganda to prosper, there is a need to access useful information at the right time and in the right format. Businesses require news of exchange rates and the price of credit, while lenders need to request credit histories and authority to draw available funds. Vendors advertise their products and learn about market trends in making productive decisions. All these needs require an efficient information system and services.

1.3 STATEMENT OF THE PROBLEM

According to Shokane (2003:55), information is a crucial resource in gaining a sustainable, competitive advantage for modern business enterprises. Despite this importance and the structural changes in economic development in Uganda, economic agents in northern Uganda operate in a business environment characterised by fragmented and incomplete information - where an awareness of markets, technology, policies, regulations and finance is limited. Businesses in northern Uganda fail to receive timely business information (Cochrane 1996:6). There is no meaningful information system in place to facilitate efficient and effective access to business information by business enterprises. Traders and other small companies are simply "out of the loop" in developing strategic business relationships that occur more frequently in Uganda's capital city, Kampala (Cochrane 1996:6). A recent study by the Ugandan Bureau of Statistics (2005:30) established that the majority of business enterprises depended on "word of mouth". They did not have any meaningful mechanism for accessing relevant information on business resources - a considerable amount of which is available in Uganda. The problem of access to quality business information is, generally, attributed to poor information systems (Uganda, Ministry of Planning and Economic Development 1999:49). These poor information systems and services have necessitated a study to investigate - and to propose – an appropriate business information system design for the business enterprises in northern Uganda.

1.4   RESEARCH GAP

There is a considerable amount of information concerning business activities in Uganda. Research projects have been conducted regarding the transformation of the socio-economic situation in northern Uganda (Uganda, Ministry of Finance, Planning and Economic Development 2001 and 2002). These projects (Uganda, Ministry of Finance, Planning and Economic Development 2001. *Poverty indicators in Uganda: Discussion paper 4;* Uganda, Ministry of Finance, Planning and Economic Development 2002. *Challenges and prospects for Poverty Reduction in Northern Uganda)* have focused on the poverty situation and government policies to eradicate poverty. A study carried out in Uganda by Ikoja-Odongo (2002) also focused on the information needs of the informal sector - leaving out other business enterprises, such as small and medium scale enterprises, that are significant job creators - if their businesses expanded as a result of the effective use of quality information. Much as the Government of Uganda recognises poor information systems as one of the weaknesses of economic development, no effort has been made to design a business information system. According to the literature search carried out for this study on a number of databases, such as DATAD, EBSCO, Emerald, Proquest, local databases available in the Makerere University libraries, the national libraries of Uganda, Ministry of Finance, the Planning and Economic Development library, the Bank of Uganda library, the National Council of Science and Technology library, the Makerere University Business School library and others – as well as Internet-based resources, no specific research has been carried out on the sources of business information; the business information needs of the small and medium scale enterprises (the SMEs) of northern Uganda; and the problems the SMEs face in accessing business information - with a focus on designing a business information system. Although the government and other development agencies have made concerted efforts to improve the socio-economic development of northern Uganda in a number of ways, designing business information systems to improve accessibility to relevant business information - for socio-economic transformation - is still a virgin area for research. This is because problems, like poverty and lack of economic empowerment, could be addressed through the use of good quality information systems as modern societies are becoming more and more dependent on information systems (Huisman and Iivari 2003).

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1.5   PURPOSE OF THE STUDY

The purpose of this study is to design a business information system for northern Uganda.

1.6   OBJECTIVES OF THE STUDY

In order to achieve the purpose of the study, the specific objectives were to

1) establish a theoretical basis for information system design.
2) establish a conceptual framework of a business information system in relation to economic development.
3) establish the main business activities of the business enterprises in northern Uganda.
4) determine the business information needs of business enterprises in northern Uganda.
5) determine the sources of business information being used by the business enterprises in northern Uganda.
6) determine the means that business enterprises in northern Uganda use for accessing business information.
7) determine problems that business enterprises in northern Uganda face in accessing business information.
8) propose an appropriate Business Information System Design (BISD) for the effective and efficient provision of business information to business enterprises in northern Uganda.

1.7   SIGNIFICANCE OF THE STUDY

In Uganda, Ministry of Finance, Planning and Economic Development, Vision 2025 (1999:46), one of the recognised weaknesses of Uganda's economic development is poor information systems. This research aims to address one important facet of this weakness by carefully studying the situation of the SMEs and by suggesting an appropriate information system design to enhance business prospects for northern Uganda.

The study is significant in that replicate studies could be carried out in other economic sectors of Uganda in order to contribute to the formulation of comprehensive strategies to address poverty - using information as a catalyst. Secondly, other countries with similar situations could adapt, or modify, the proposed BISD - given in Chapter 8 - to enable business enterprises to access quality business information.

Business is fast-growing and the BIS would act as a means to transform businesses by opening up opportunities and by breaking down barriers imposed by a lack of critical business information.

1.8   SCOPE, LIMITATIONS AND EXCLUSIONS

The study was conducted in northern Uganda (see map in Appendix I) and the rationale for choosing this place was based on the situation in this area as discussed under subsection 1.2.3. Geographically, northern Uganda covers 35% of the total land surface of the country. It is the largest region in size, followed by central Uganda - 25%; western Uganda - 23%; and eastern Uganda - 17% (Uganda, Ministry of Finance, Planning and Economic Development 2002:14). Northern Uganda consists of 13 administrative districts, namely, the Ajumani, Apac, Arua, Gulu, Kitgum, Kotido, Lira, Moroto, Moyo, Nakapiripiriti, Nebbi, Pader and Yumbe districts. The Kotido, Moroto and Nakapiripiriti districts make up the Karamoja region; the Kitgum, Gulu and Pader districts form the Acholi region; the Apac and Lira districts constitute the Lango region; the Moyo and Adjumani districts comprise the Madi region; and the Arua, Yumbe and Nebbi districts are districts of the West Nile region. One district from each region was, purposely, selected for this study - based on the number of business enterprises in the district; the security situation in the district; and how old the district is. Districts that were newly created in the 2005/06 financial year were not considered separately, since they still lacked management and administrative structures. The new districts were treated as part of the mother districts where they belonged.

The study focuses on the main aspects that contribute to a business information system in northern Uganda by investigating the business activities; the business information needs;

the sources of business information; the means used by business enterprises to access business information; and the problems being faced in accessing business information. It was carried out within a period of 3 years - from 2004 to February 2007. This study, however, does not attempt to establish how business information is utilised by business enterprises in northern Uganda.

1.9   THE RESEARCH PROCESS

The research process (see Figure 1.2) commenced with the identification of the research problem - through personal observation of the situation in northern Uganda and a detailed analysis of reported research and relevant literature. This included determining the relevant theoretical background of information systems; the conceptual framework of business information systems; and background information on the SMEs (see Chapters 2-4). Based on the findings from the literature, the second part of the research process was developed and is covered in Chapter 5. The findings of the study are reported in Chapter 6 and discussed in Chapter 7. The business information system design (see Chapter 8) and recommendations (see Chapter 9) resulted from the overall findings of the research. Generally, the study follows the logical stages illustrated in Figure 1.2. The research design and methodology used are described, in detail, in Chapter 5.

FIGURE 1.2

LOGICAL STAGES OF THE STUDY

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┌─────────────────────────────────────────────────┐
│  Identification of problem and research questions │
└─────────────────────────────────────────────────┘
                       │
                       ▼
┌─────────────────────────────────────────────────┐
│  Analysis of previous research on relevant topics │
└─────────────────────────────────────────────────┘
                       │
                       ▼
┌──────────────────┐  ┌──────────────────────────────────┐  ┌────────────┐
│ Literature search│◄─│ Consider research design,        │─►│ Resources  │
│                  │  │ methods & analysis               │  │            │
└──────────────────┘  └──────────────────────────────────┘  └────────────┘
                                                    │
                              ┌─────────────────────────────┐
                              │  Choose research technique  │◄───┘
                              └─────────────────────────────┘

┌──────────────┐    ┌──────────────────────────────┐    ┌────────────────────────┐
│ Choose sample│┄┄┄►│ Choose data collection       │───►│ Choose Analysis method │
│              │    │ methods                      │    │                        │
│              │    │ e.g.Questionnaire, Interview │    │                        │
│              │    │ methods                      │    │                        │
└──────────────┘    └──────────────────────────────┘    └────────────────────────┘
                                   │
                    ┌──────────────────────────────────┐
                    │ Construct research instruments   │
                    │ e.g. Interview guide,            │
                    │ Questionnaire,etc.               │
                    └──────────────────────────────────┘
                                   │
                    ┌──────────────────────────────────┐
                    │ Carry out pilot study            │
                    └──────────────────────────────────┘
                                   │
                    ┌──────────────────────────────────┐
                    │ Make adjustments necessary       │
                    └──────────────────────────────────┘
                                   │
                          ┌──────────────────┐
                          │ MAIN STUDY       │
                          └──────────────────┘
                                   │
       ┌──────────────────────────────────────────────────────┐
       │ Follow-up - if necessary to ensure accuracy in        │
       │ information                                           │
       └──────────────────────────────────────────────────────┘
                                   │
       ┌──────────────────────────────────────────────────────┐
       │ Edit/code/tabulate/analyse data                       │◄──┐
       └──────────────────────────────────────────────────────┘
                                   │
                    ┌──────────────────────────────────┐
                    │ Write report                     │
                    └──────────────────────────────────┘
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Source: Adopted and modified from Edwards and Talbot (1999:39)

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1.10 OPERATIONAL DEFINITION OF KEY CONCEPTS

In any research there are key guiding concepts and these concepts are, sometimes, defined and applied differently in different situations or to different subjects. The key concepts used in this study and their operational definitions are explained below.

1.10.1 Business information

"Business information" is, sometimes, used interchangeably with "commercial information" to mean processed data that can be used to – profitably - increase the production of goods and services for financial transactions; guard against business risks; and promote the economic development of a country (Abidi 1995:53). Simon (2002) argues that the question of the definition of business or commercial information is closely connected with the reason for which this kind of information is delivered. Liu (2000) observes that the scope of business information is as broad as the field of business and can be better understood by conceptually classifying it under standard business disciplines or subjects, such as accounting, economics, finance, marketing, management science and statistics, operations and production, management information systems, real estate, insurance and international business. According to Maesono (1999), business information is information which helps a company manage and market itself in a competitive environment. More specifically, it is understood to cover three broad types of information: marketing research information, company information and financial information. This study, therefore, uses the term, "business information", since it is widely used in the available literature and will operationally mean information about trading companies and business firms; statistical information on imports, exports, production, and markets; and economic information, including the financial conditions of the country, government, commercial and foreign policy, tax information, legal information relating to business transactions and the state of the economy and industries.

1.10.2 Economic Development

Tayebwa (1998:235) defines "economic development" as the process by which Gross Domestic Product (GDP) *per capita* increases quantitatively and qualitatively. It is

measured by the increase in real *per capita* income and the increase in things which improve the quality of life of a person - for example, housing, medical care, food, etc. The Georgia Economic Developers Association (1999) defines economic development as the creation of economic opportunities for citizens; the stimulation of business investment; the diversifying the public revenue base; and the enhancement of the quality of life. In this study "economic development" means the process that leads to enterprise/business expansion; the creation of jobs; an increased economic vitality of a community; and the reduction or elimination of poverty, inequality and unemployment in a region or country.

1.10.3 Information system

Thoburn, Arunachalam and Gunasekaran (2000) define an "information system" as a set of interrelated components that collect/retrieve, process, store, and distribute information to support decision-making and control in an organisation. While Aiyepeku (1991) and Omekwu (2003:448) define an information system as "anything" that delivers information which is useful to the consumers or to the user of the system (see details in Chapter 2, Section 2.2), this study operationally defines "information system" as a mechanism formally established to facilitate the acquisition, processing, storing, retrieval and distribution of information for an efficient decision-making process.

1.10.4 Systems design

This is a phase in the systems development life-cycle in which a plan for a new or revised system is developed - based on the results of a systems analysis (Capron 1996: G-4). It is taken to be a process of coming up with a plan or model for a new or revised system to improve on the provision of quality business information for business enterprises in northern Uganda.

1.10.5 Business Information System (BIS)

A "Business Information System" (BIS) refers to a set of processes, policies and procedures designed to capture evidence of business activities undertaken by an organisation. A business information system provides for the creation, capture and management of - and access to - an organisation's records, documents and other business information over time (National Archives of Australia 2000). Although more on the BIS is covered in Chapters 2, 3 and 8, this study defines a BIS as processes that involve inputing, processing, retrieving and accessing quality business information to support functions of business, such as marketing, finance, production, etc.

1.10.6 Small and Medium Scale Enterprises (SMEs)

Although Beyene (2002) argues that there is no universally accepted definition for the SMEs in Africa, this study agrees with the Government of Uganda's classification of the SMEs as business firms employing 5-50 people [small scale] and 51-500 people [medium scale] (Kasekende and Opondo 2003; Schiffer and Wedder 2001:13; Uganda Bureau of Statistics 2003). See Chapter 4 for further details on the SMEs.

1.11 THESIS STRUCTURE

The thesis is structured as follows.

- *Chapter 1*: **Introduction to the study** - Covers the background information to the problem; the problem statement that necessitated the study; the objectives of the study; and the logical plan of the research process.
- *Chapter 2*: **Information systems: concepts, theories and design -** The information systems concepts, relevant theories and design strategies are examined. The chapter also gives the delimitation of the study in the system development life-cycle.
- *Chapter 3*: **Conceptual framework of business information system** - System concepts identified in Chapter 2 are examined together with the key variables in the design of business information. The key variables that play

important roles in realising economic development are shown in a conceptual framework.

- *Chapter 4*: **Overview of the SMEs and business information provision strategies –** This chapter reviews the characteristics of the SMEs as a business information user group and analyses strategies used to provide information to business enterprises in South Africa, Ghana and China

- *Chapter 5*: **Research design and methodology -** The research methodology used for the study is described; the research techniques applied; the sample size determined; and the data analysis method outlined.

- *Chapter 6*: **Presentation of findings –** This chapter covers the presentation of the findings from respondents.

- *Chapter 7*: **Discussion of findings** - An analysis of the findings, based on the literature review covered mostly in Chapters 2-4, is made.

- *Chapter 8*: **Proposed Business Information Systems Design (BISD) for the SMEs in northern Uganda** - This chapter reports on the proposal for the BISD. It gives an explanation of each of the component of the BISD and makes a proposal for its functionality.

- *Chapter 9*: **Conclusion and recommendations** - Conclusive remarks on the study and recommendations on areas for follow-up studies are covered in this chapter.

1.12 SUMMARY

Information is considered to be the life-blood of any business productivity and access to it is an important factor in an organisation/firm's ability to produce, market, innovate and produce more products and services. The situation in northern Uganda - where the majority of the population lives below the poverty line – can, partially, be addressed by access to, and use of, quality business information by business enterprises. This is because access to, and use of, quality business information leads to innovation and the creation of employment opportunities and, hence, improved income. However, access to quality information is, essentially, facilitated by an efficient information system that is user-centred.

It is against this background that this study is set to investigate, examine and determine business information system requirements in order to design an effective system for quality information to - and service delivery by - the business community in northern Uganda.

The next Chapter, Chapter 2, reviews the concepts, theories and the design of an information system.

CHAPTER 2

INFORMATION SYSTEMS: CONCEPTS, THEORIES AND DESIGN

2.1   INTRODUCTION

This chapter provides the background to understanding the key concepts and theories that guided the study. Conceptual issues are examined and the theoretical background to information system design is explained by highlighting the important concepts and theories that have been used to underpin the study. An examination of concepts and relevant theories on information systems provides the basis and framework for an empirical analysis of the subject matter of the study. The chapter, specifically, addresses Objective 1 under Section 1.6 of Chapter 1 which sought to establish the theoretical basis for information system design.

2.2   INFORMATION SYSTEM CONCEPTS

Information systems are one of the most important infrastructures for modern enterprises (Lee, Hwang and Wang 2006). Lippeveld, Sauerborn and Bodart (2000:2) maintain that an information system is any collection of components that work together to achieve a common objective. From another perspective, Aiyepeku (1991) and Omekwu (2003:448) define an information system as "anything" that delivers information that is useful to the consumers or to the user of the system. The concept, "anything", implies any mechanism that would ensure that the right person accesses quality information from the right source; at the right time; and from a convenient location.   More specifically, Thoburn, Arunachalam and Gunasekaran (2000) define an information system as a set of interrelated components that collect/retrieve, process, store, and distribute information to support decision-making and control in an organisation. In addition to supporting decision-making through coordination and control, information systems may also help managers and workers analyse problems; visualise complex subjects; and create new products (Thoburn, Arunachalam and Gunasekaran 2000).   Thus, information systems (ISs) should be at the heart of any responsive organisation. In this study, all interrelated

components working together to produce quality information for business enterprises constitute a business information system. The information system concepts - interacting components - include: input, processing, control, output or quality information, procedures, feedback and system interface. These concepts are discussed below.

2.2.1   Input

Input involves capturing and assembling elements that enter the system and have to be processed. An important consideration for the BIS proposed for northern Uganda is that the input for the system should have a significant effect on the output which is considered to be important. The indiscriminate collection and accumulation of information can be wasteful in the long run. Having access to up-to-date, accurate, relevant and timely information is an important consideration for an efficient information system. Neelameghan (1992:27) observes that even if the best data is not always available, it is necessary to be aware of the attributes of the data being input into a system and that a practical method of filtering out useless data should be used from time to time. Assigning relevant parameters for rating the data can be such a filtering mechanism. This should not be a once only exercise, such as at the time of selecting data for input. As users need changes, so data usefulness changes. Hence, there should be a planned updating process to maintain the databases - as a whole - at an optimal level of usefulness (Neelameghan 1992:27). Basically, in this study, the input into the business information system relates to the better understanding of business activities; business information needs; and sources of data or information required by the users. Without a proper understanding of those, the quality of input into the system can be compromised and, ultimately, this affects the quality of output. These important issues for a business information system for northern Uganda are covered, broadly, in Chapter 3.

2.2.2   Processing

Information has become one of the most important resources for contemporary society. This is especially true for business and commercial ventures. Businesses create markets for their products and services through innovation, quality management, improved customer service, strategic planning and a host of other approaches and techniques. For

these efforts to succeed, businesses require access to information that is relevant, current, accurate and comprehensive. Unfortunately, while today's business decision-makers may have electronic access to thousands of information resources, they often lack the time and the skills needed to search for - and retrieve - information; to interpret it; to synthesise it; and to apply it to their decision-making processes (Agada 1995). The result is that businesses often fail to take full advantage of the abundance of business information at their disposal. Business managers need "capsulated" information which has been processed and rendered meaningful in the context of their business decisions (Agada 1995). Consequently, business information workers/librarians need to design information services for such clientele - based on a proper diagnosis of their business information needs. This makes the concept of information processing prominent in any information system.

Processing involves transformation processes that convert input into output (Lucey 1987). An example is the conversion of a technically produced document into a useable format or the conversion of a report produced in a printed format into an audio-visual format for an illiterate business community to utilise. Information processing entails a systematic process of adding value to information services. These value-added components would include - but are not limited to - information analysis, synthesis, editing, translating and transforming its symbolic and media formats (Agada 1995). Information processing also ensures currency; accuracy; pertinence; comprehensiveness; ease of comprehension – for example, on a technical level and in presentation style; and convenience of use – for example, in timing and format of coding. The better the quality of processing, the more value can be attached to the end product or output.

2.2.3   Control

Control involves activities that measure deviations from planned performance and it provides information upon which corrective action can be taken - if required - either to alter future performance to conform to the original plan of the system or to modify the original plans (Lucey 1987:13). The control function, then, makes necessary adjustments to a system's input and processing components to ensure that it produces proper output.

This calls for standards that specify actual performance. These standards are called the sensors and their achievements have a great deal to do with the management team of the information system. How well-equipped are the information providers or specialists to ensure that what is processed measures up to the expectations of the business community? The control measures are discussed, generally, in Chapter 3, Section 3.5.

2.2.4 Output - quality information

Output - quality information - is the end product of a transformation process within an information system (Lucey 1987:30). The term, "information", appears as a fundamental concept not only in the study of information systems of organisations/enterprises but also in the theory of other subjects, like communication, library studies, economics and cybernetics (Avgerou and Cornford 1998: 112). Although the quality of output - quality information - depends highly on input and processing and control measures exercised, adequate care needs to be taken into consideration of the distribution or dissemination of the output to the right users. Which appropriate means should be used? Should it be by means of online delivery, television, radio, notice-boards or the telephone? These are important issues addressed by this study in Chapter 3, Section 3.6 and in Chapters 5, 6, 7 and 8. The study analyses the information phenomena in order to understand what information - and the characteristics of quality information - entails.

2.2.4.1 Quality information - an element of information systems

According to Moyi (2000), information is seen less, solely, as a mechanism of control and much more as a strategic weapon. A number of other authors, such as Bell (1986); Boon (1992); Camble (1994); Sturges and Neill (1998) agree that the lack of information impacts negatively on the development process. Information constitutes what the organization 'knows' about its environment and its tasks, and thus creates a basis for action (Choo 2007). Information not only creates entrepreneurial awareness, but also increases the knowledge base and inculcates new personal attitudes and characteristics (Moyi 2000). Information provides the main conduit through which new ventures are founded; new technologies are diffused; and small enterprises mature into large formal concerns (Moyi 2000). Because information plays such an important role in almost every

human activity, its value in the development process has been a topic of extensive debate (Meyer 2005). Thomas and Ballard (1995:25) distinguish two types of assets that businesses possess. The first one is visible assets and the second - the invisible assets - is information. Information is an agent of coordination and control and serves as the glue that holds organisations, the business community, franchises, supply chains and distribution channels together (Pant and Ravichandran 2001:88).

The recognition of the value of information in business activities and, especially, as a product of an information system, builds in a sense of serious commitment to the system development process. However, a fundamental issue is to take into account the characteristics of information that make it valuable.

2.2.4.2 Quality information as an ingredient for productivity and the need for a system

The information provided by the information system is considered crucial and is always determined by the decision-maker (Bharati and Berg 2003). In some studies, information quality has not been considered separately, but rather as an integral part of user satisfaction (Bailey and Pearson 1983) or user information satisfaction (Iivari 1987). Competitive strength lies, essentially, in productivity which is reflected in the quality of the products relative to their cost and in the efficiency with which products are delivered to the market (Ricupero 1999:5). The information accuracy, completeness, relevance and timeliness are important aspects of quality required in information for correct and productive decision-making (Bailey and Pearson 1983; Miller and Doyle 1987; Srinivasan 1985; King and Epstein 1983; Gallway 2002). A better-informed business manager can choose from among many different offers and he/she will select the one that fits his/her enterprise best. This depends on the quality of the business information received. Possessing quality business information gives a firm the competitive edge over other firms and it enhances a better understanding of market trends and possible areas in which to invest capital (Thomas and Ballard 1995:3). Therefore, the need for quality information is crucial and calls for efficient mechanisms - information systems - to collect, process, store, retrieve and disseminate information. The quality of information has much do with the control measures instituted within an information system (see

Chapter 3, Section 3.5). The efficient flow of business information in northern Uganda would, therefore, depend on the appropriateness of the information system designed. Without a well-designed information system that can enhance access to quality business information efficiently, it would prove difficult to participate in the information economy. Given this scenario, what kind of business information system design should, therefore, be proposed to promote efficient access to quality business information in northern Uganda? This was established and reported in Chapter 6; discussed in Chapter 7; and proposed in Chapter 8.

2.2.4.3 Competitive advantage as a characteristic of information

Economists contend that there are some fundamental ways in which information differs from other organisational resources, and those differences form the basis of some of the emerging e-business models (Pant and Ravichandran 2001:88). Often the information component of the business is valued higher than the rest of the business. This is because information is the life-blood of a business and without it no planning or decisions-making can take place (Thomas and Ballard 1995:3). Information can be sold at a profit or it can be given away for free - in lieu of some other benefit. The economics of such business models are very attractive due to the unique characteristics of information products. There is a need to treat information as a key business resource and to plan properly for its use. If this is done effectively, a business may, then, turn information from a burden into a major source of competitive advantage (Thomas and Ballard 1995:3). Firstly, information is costly to produce, but has nearly zero marginal cost to reproduce. That is why there is a growing concern about the effectiveness of information systems in relation to the benefits for business (Remenyi and Sherwood-Smith 1999:29). This implies that the reproduction of information - as a service - should be integrated into the business information system for northern Uganda. Secondly, sharing information adds value to information for both the sender and the receiver of the information. Thirdly, information goods and services must be priced - based on the value they hold for users and not based on the costs of producing/reproducing the information. These characteristics make selling information products a relatively scalable and high-margin business (Pant and Ravichandran 2001:88). Could this make it a reason for the designed business

information system to sell information produced through the system to business enterprises? Although a detailed analysis of selling information to the business community is beyond the scope of this study, it is a good pointer to areas of concern in a follow-up study. Whatever competitive advantage is attached to information, it is important to note that - like a human being - information has life.

2.2.4.4 Half-life of information

Whether information is used for control and co-ordination in a business activity or sold as a product, its value is dependent on its half-life. The half-life of information refers to how quickly information becomes outdated or obsolete. Some information has a long half-life, while other information has a very short half-life (Pant and Ravichandran 2001:88). Pant and Ravichandran (2001:88) contend that news and stock quotes have a shorter half-life than commentaries and analytical reports. The claim is that "modern businesses must operate in real-time." This relates to the means used in the provision of, or access to, information. The faster the means is adopted, the faster information is transmitted. It is also important that problems that hinder information flow are addressed in any system if the real time of information flow is to be achieved. Generally, the half-life of information is a function of its timely dissemination and sharing. Consequently, the speed at which information needs to be exchanged between processes becomes an important information infrastructure design issue. This is why the consideration of means of access to business information and problems hindering access are important and are treated as part of the functional requirements (see Chapter 3, Sections 3.6 and 3.7; Chapter 6, and Chapter 8).

Unless the information from any information system actually contributes something new and useful to the user of the system, it is a waste of resources (Thomas and Ballard 1995:3). According to Lippeveld, Sauerborn and Bodart (2000:33), the implicit assumptions underlying information systems are twofold:

> first that good data, once available, will be transformed into useful information which, in turn, will influence decisions in all business transactions. Second, that such information-based decisions will lead to a more effective and appropriate

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use of scarce resources through better procedures, programmes, and policies, the execution of which will lead to a new set of data which will then stimulate further decisions, and so forth in a spiral fashion.

However, the adopted procedures of operations are also important to enable information to be easily accessed. The following section provides a pointer to the need for appropriate procedures to facilitate access to quality business information.

2.2.5 Procedures

Procedures refer to methods or routines of doing something (Neelameghan 1992). For this study, the methods or means for using an information system for the intended results constituted an important research and design concept. How should the users access the required information? Should the business enterprises in northern Uganda physically visit the system and service provision centres to access information or can interactive procedures be created? Based on the analysis of data collected through the research methods - described in Chapter 5, procedural means of access to the business information system are proposed in Chapter 8, Section 8.3.4.

2.2.6 Feedback

Feedback is data about the performance of a system (Lucey 1987:150). Control within a system is exercised by feedback loops which gather information on past performance from the output side of a system (Lucey 1987: 150). It is a conventional means through which relatively small variations between actual and planned objectives are noted in order that corrective action can be taken to bring performance in line with the plan. The strategic measures adopted to ensure that the feedback on with what business enterprises are provided and their responses to the services should constitute the feedback for the business information system. This is addressed in Chapter 8, Section 8.3.5.

2.2.7 System interface

The features - areas or constraints - which delineate a system are its interface or boundaries (Lucey 1987:31). When dealing with any form of social organisation or

business enterprise, boundaries are not easily defined and are often flexible - with changes occurring over time or as adaptations to meet changing demands and activities. The eminent question, therefore, for this study relates to the ways in which other organisations, ministries and Community Based Organisations (CBOs) are to interface with the business information system. Should there be a rigid, impermeable interface? In a bid to understand the system interface for a business information system for northern Uganda, access to business information from different organisations was established under sources of business information. With the help of questionnaires (see Chapter 5), this was established; reported on in Chapter 6; and an appropriate interface proposed in Chapter 8, Section 8.3.6.

The seven concepts of information systems discussed above are the basis on which an information system is designed. An understanding of these various components or concepts of a system provides a focused means to determine what should be established for the input; the process; the control measures; the procedures; the output; the interface; and the environment for the system's operations. This congruence - between information system concepts and business information systems design requirements - is discussed in Chapter 3. To guide the study - based on the relevant concepts - a theoretical analysis is crucial. This is because theories help in determining legitimate tools and methods to use and the questions for investigation or the issues to be dealt with (Avgeron and Cornford 1998:136). The section below examines the relevant theories that guided the study.

2.3   RELEVANT THEORIES

A look at the plurality of theories - used in information systems research and practice - indicates that they can be found in a few, widely, influential reference theories (Avgerou and Cornford 1998: 127). Reference theories refer to the intellectual constructs that provide general principles for making sense of the world. Kersten (2000) argues that theories influence the way we think; the way we interpret our world; and the actions we take. Avgerou and Cornford (1998) point out that theories are often explicitly used as a conceptual vehicle to conduct research and guide practice - for example, to determine questions for investigation or issues to be dealt with; to present them in conceptual terms;

and to determine appropriate methods for their investigation. It is for this reason that this study identified one main and three other theories considered relevant to the study that helped guide the investigation - indicated below, under each theory. The main theory is the Metcalf Theory and the other three theories are the Actor-Network Theory, the Systems Theory and the Organisational Theory.

2.3.1 The Metcalf Theory

The Metcalf Theory states that the usefulness - or utility - of a system equals the square of the number of users (Pant and Ravichandran 2001:88). The central point of this theory is that any system should endeavour to increase its utilisation by attracting many users. However, usage of the system will depend on its usefulness to the users. The number of users of a system depends on the quality of the services provided through the system. For the system to have value, the coverage of the users' real needs; the availability of preferred information sources; and the format in which information is accessed are important factors. The number of users of the system will - to a large extent - depend on the system's capability to meet the needs of its users. The greater the number of people who use a system because of the value attached to the system, the more challenges and innovativeness are created in the system's operations. Given this argument, it is reasonable, therefore, to assume that the greater the number of people, machines, and networks that interact with one another through a business information system, the higher its value. This implies that the designed system should be broad in interest coverage and focus on the real needs of the users. The implication of the Metcalf Theory for this study is that the wide range of business information needs of the business community in northern Uganda; the sources preferred to access business information; and the information formats preferred should be established. If the users' needs; the sources of information; and the information formats preferred are properly established, a higher value of usefulness of the system would be achieved that creates global communities of customers, business partners and suppliers in northern Uganda. The needs, sources of business information and preferred information formats are referred to as functional requirements and Chapter 5 describes how these were established.

2.3.2   The Actor-Network Theory (ANT)

It is vital to understand the main actors that drive information systems processes - both human and non-human. According to The Actor-Network Theory (ANT) - society is regarded as a socio-technical web where technical objects participate in building heterogeneous networks that bring together actors of all types - whether human or non-human (Braa and Hedberg 2002:114). ANT claims that any actor, whether it is a person, an object or an organization, is equally important to a social network. As such, societal order is an effect caused by a smooth-running actor network (Actor-Network Theory Encyclopaedia 2006). ANT is distinguished from other network theories in that an actor-network contains not merely people, but objects and organisations. In developing an information system where a bottom-up alignment of heterogeneous actors is required, the ANT is important to consider. In terms of this theory, Monteiro (2000) - in Braa and Hedberg (2002:115) - sees it as heterogeneous in that there is an open-ended array of "things" that need to be aligned, including work routines, structures, training and societal roles. This is important because it provides a theoretical base to consider: when drawing up the information flow of a system, the institutional structure of the sector should also be identified (Braa and Hedberg 2002:119). For instance, how should the BIS interface with the environment in which it is operating? Should the BIS be a closed or a flexible one? This theory taught the researcher about the need to identify the institutions at a macro level to interface with the BIS (see Figure 8.2).

Although the controversy surrounding ANT is caused by its lack of distinction between people and objects, a commonly held view is that people are fundamentally different from animals and also fundamentally different from objects (Tatnall and Gilding 1999; Actor-Network Theory Encyclopaedia 2006). In addressing this controversy, people were considered very important for the design of the BIS. In mapping the business information systems structure, it is important to note that people are the active, skilled agents who produce, sustain and transform social life. The system should, for example, be user friendly; the business community should be comfortable with the language used; and the community in northern Uganda should appreciate the skills required for information systems usage. To achieve this, the study identified the language preferred; the ICT

literacy needs of the business community; and adopted the bottom-up approach of system users' involvement for the design (see Chapters 6, 7 and 8). The bottom-up approach is where the opinion and interest of the main users of the information system are established before the policy-makers make contributions. This helped in the design of user supportive information systems for business enterprises in northern Uganda.

2.3.3   The Systems Theory

Systems theory or systematic is an interdisciplinary field which studies systems as a whole (Wikipedia 2007). System theory is basically concerned with problems of relationships of structures, and of interdependence, rather than with the constant attributes of objects (Hong…*et al* n.d). The factual content regarding information systems can also be viewed from the Systems Theory enunciated by Lucey (1987:29) who maintains that the systems approach - also known as systems thinking or General Systems Theory (GST) - does not provide a ready made list of answers to organisational or societal problems. Instead, it recognises organisations or communities as an example of complex entities with multiple relationships and helps to avoid taking a blinkered and mechanistic approach to the examination of organisational operations and problems. Rather than being an end in itself, the Systems Theory is a way of looking at things. It is an internally consistent method of scholarly inquiry that can be applied to all areas of social science (Walonick n.d). For example, looking at - and attending to - the information needs of a business enterprise, without understanding the problems faced, might be a blundering effort towards an efficient information system design. It was imperative that this study should use the Systems Theory approach to establish the interrelated factors that contribute to a successful accession of the required business information. The holistic approach - used to identify the interrelated factors, such as the business activities carried out; business information needs; sources; means preferred; and problems faced, for the supply of quality business information was important in the design of the business information system proposed in Chapter 8.   However, the weakness of the Systems Theory is that it ignores issues of power and status that influence small group decision-making, particularly when groups are embedded in large organisations (Kersten 2000). For example, should the influence of the experienced and

influential SMEs managers in the business community be ignored? To avoid this loophole the BISD proposed a link with informal systems (see Figure 8.2 and Section 8.3.6).

2.3.4   The Organisational Theory

The fourth theory that was important for this study - and that contributed to the development of the issues to investigate - is the Organisational Theory. The theory states that the success of any innovation in information systems depends on the effectiveness of management within an organisation (Avgerou and Cornford 1998). Originally, the Organisational Theory stressed the technical requirements of the work activities of organisations. In the 1970s the rise of the Systems Theory forced scientists to view organisations as open systems that interacted with their environment (Walonick *n.d*). Information systems often incorporate - or build on - the requirements of the stakeholders. Strassman's research (1985 and 1990) notes that in collecting data from firms that have invested in - and have hope in - a system, managerial effectiveness is the most significant factor predicting the success of information system innovations. This theory raises the question of managing the flow of information at a district level of each of the sub-regions in northern Uganda. Although this study does not claim to have included the structural and managerial arrangement of the local government system in Uganda and of the Uganda National Chamber of Commerce and Industry - based on the organisational theory - it was imperative to make the respondents decide on possible appropriate managerial structures for business information in the districts. A question to this effect was developed and the results reported in Chapter 6, Section 6.8 and discussed in Chapter 7, Section 7.10.3.

One of the weaknesses of the Organisational Theory - that this study had to address - is the assumption that all organisations are, somehow, alike (HRM Guide 2006). This assumption was addressed by considering all the SMEs from the sub-regions in northern Uganda to be different in business activities, needs and preferences. This enabled the involvement of equal proportion - 50 of the SMEs per sub-region - in the study.

Though the underpinning point in understanding an information system design lies in the concepts and theories applied, the culture-neutral consideration factor is essential. The section below examines the need to have an information system that values the culture of the community it serves.

2.4 THEORETICAL CONCEPT OF THE CULTURE-NEUTRAL INFORMATION SYSTEM

A culture-neutral information system refers to an information system that is designed free of a set of beliefs [culture] that affect its functioning within a community (Harvey 1997 and Galliers 1998). The study carried out by Coombs, Doherty and Loan-Clarke (1999:145) notes that community information systems have - to date - been modest with all the average successes within communities. This does not mean that the implementation of other community information systems has succeeded. Galliers (1998:89) warns that among the various factors that affect the implementation of information systems cultural factors are often cited as being important for the success of an information system. An attribute of information that can influence its usefulness as a development resource is that it is culture dependent - involving conceptual and cognitive differentiation (Meyer 2005). Cultural differences have a great impact on the technical and procedural aspects of information systems (Sagi … *et al* 2004:45). Culture plays an important role in assessing the current status of a nation; its impact on people's daily lives; and it presents an understanding about a great deal of human behaviour. Zakaria, Stanton and Sarkar-Barney (2003:49) suggest that cultural values that are held in common by individuals within societies reflect a complex of preferred patterns for social interaction, communication, and the exchange of information. Cultural values influence the typical ways in which communication artefacts and other technologies are used within a society. Could there be some cultural practices in northern Uganda that affect access to business information? This was established through the information providers where business information accessibility problems and cultural barriers were given as problems from which respondents' were permitted to choose. The results are reported in Chapter 6, Table 6.20. The issue of culture is important, since information systems expand beyond the confines of national boundaries to support the global operations of business activities

(Harvey 1997:132). That is why it is vital to have a culture-neutral system; involve users; understand enterprise sizes; and have a socio-cultural set up - based on the existing theories.

A focus on the concepts, theories and cultural fit of society - without elaborate consideration of the design principles of an information system - is a step towards a failed system. The following section discusses an information system design strategy for the study.

2.5   INFORMATION SYSTEM DESIGN STRATEGY

According to Capron (1996:232) and Bohl (1990:211), the system development life-cycle can be described in six phases:

i.   Preliminary investigation – carrying out a feasibility study
ii. Analysis
iii. Design – planning/proposing the new system
iv. Development – working to bring the new system into being
v.   Implementation/test/maintain – enactment of the plan or converting to the new system
vi. System evaluation – reviewing the system that has been developed to determine how well it meets its objectives.

Represented in diagram form, the system development life-cycle - showing this study's areas of concern - is given in Figure 2.1.

FIGURE 2.1

SYSTEM DEVELOPMENT LIFE CYCLE SHOWING AREAS OF CONCERN FOR THE STUDY
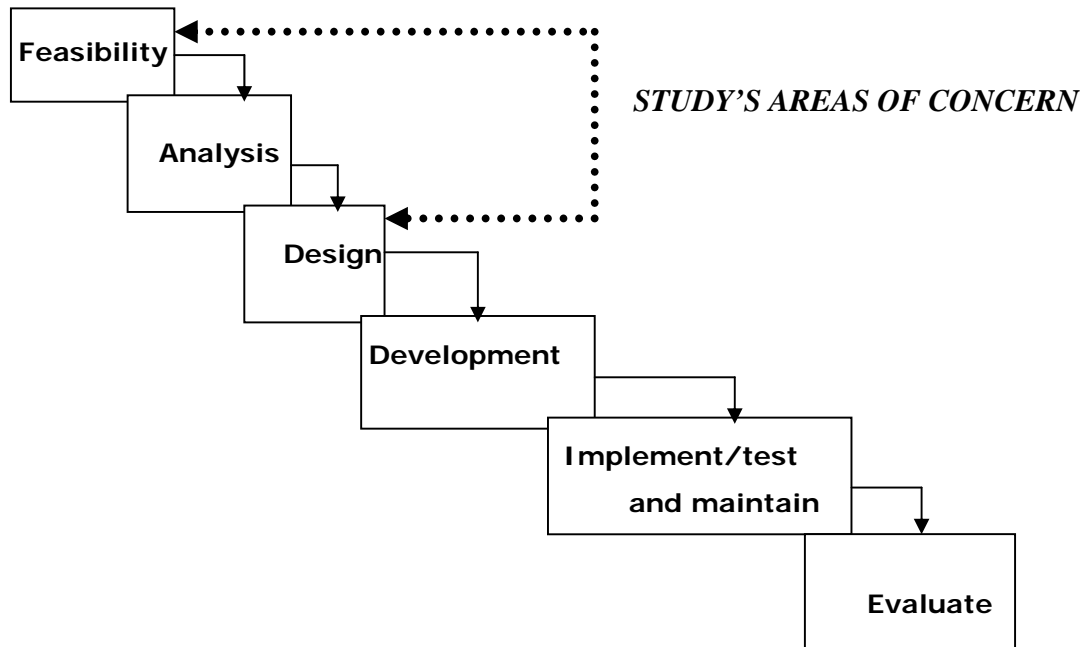
Source: Researcher's conceptualisation based on the understanding of Capron (1996:232) and Bohl (1990:211).

This study is concerned with the first three phases - the preliminary investigation/feasibility; the analysis; and the design of the information system. The last three phases - system development; implementation; and evaluation/revision - are beyond the scope of this study and could be further pursued in follow-up studies. The three phases which are this study's areas of concern are explained in the following sections.

2.5.1 Preliminary investigation phase

The preliminary investigation phase - often called the feasibility study or system survey or pilot study - is the initial investigation or brief study of the problem (Capron 1996: 234). It consists of the groundwork necessary to determine if the project should be pursued. The preliminary investigation, or pilot study, for this study was carried out in the Arua district - one of the districts in northern Uganda - and the results of the study

were published (Okello-Obura, Minishi-Majanja and Cloete 2006). The findings of the preliminary study indicated that the business enterprises in northern Uganda needed a BIS design to address their business information needs, specifically. A brief description of how the pilot study was conducted is reported in Chapter 5, Section 5.6.

2.5.2 Analysis phase

The purpose of this phase is to further understand the existing situation on the ground and to establish system requirements. The best way to understand a system is to gather all the data you can about it and this data must, then, be organised and analysed (Capron 1996:237). During the system analysis phase, a researcher is concerned with the following:

- **Data gathering** - Gathering the background information to understand the information system users; how they survive in the existing system; and what they want from the new system, is important. In doing that, a systems analyst or researcher uses different methods of data collection. For the data collection methods used in this study see Chapter 5, Section 5.3.
- **Data analysis** – Data analysis is the second activity of system analysis phase. It is the basic function of the system analysis phase that helps to determine the system requirements. As facts are collected, they must be recorded, organised and evaluated. There are a variety of tools – charts and diagrams – that may be used to analyse data. For this study, content analysis and SPSS were used for data analysis (see Chapter 5, Section 5.7.2).

Generally, the purpose of gathering and analysing data is twofold: to understand the system needs and - as a by-product of that understanding - to establish the system's requirements. The system's requirements for this study were established in Chapter 6 and discussed in Chapter 7. Once the system's requirements have been determined, the design phase can begin.

2.5.3 Design phase

The design of the information system can only be accomplished after a proper analysis has been completed. The system design phase is the phase in which the analyst or researcher actually plans the new system. The design of an information system requires the translation of user requirements - determined in the analysis stage - into design specifications. The process of the conversion of the user requirements into design specifications takes into account the following:

- Specification of the logical design elements
- Relevance to the business activities
- Ensuring that system features meet user requirements
- Ease of use
- Production of Data Flow Diagram (DFD).

These are discussed in the next sections.

2.5.3.1 Specification of the logical design elements

This refers to the detailed specifications for the system and their description in relation to the features or design concepts - input, process, control, output, procedures and feedback. Although the design of a system can consist of a logical and physical design - the production of program software, working system, etc., the physical design element is beyond the scope of this study. In the logical design - adopted by this study - what goes into the system as input determines the eventual output. The implication is that the business information needs require to be, appropriately, determined. For this study, details of business information needs - by means of an analysis of the literature and findings from the SMEs - are covered in Chapter 3, Section 3.2 and Chapter 6, Section 6.4, respectively. The business information needs are discussed in Chapter 7, Section 7.4 and recommendations are made for a BIS in Chapter 8, Section 8.3.1.2. As noted, business enterprises need different kinds of business information that were considered when dealing with the logical design of a business information system.

2.5.3.2 Relevance to the business activities

A fundamental objective of the design of an information system is to ensure that it supports the business activities - established during the analysis phase - for which it is developed. One essential business objective is the timeliness of access to the required business information. A system that slows the movement of information hampers business. The design implication of this for the study is that the preferred means or channels of information access by northern Uganda business enterprises need to be established. For instance, if the system is designed in such away that access to information should be through notice-boards, then how long will it take for the business enterprises to access this information? The means of access by business enterprises were explored through the literature review in Chapter 3; established and reported in Chapter 6; discussed in Chapter 7; and included in the proposed design in Chapter 8.

2.5.3.3 Ensuring that system features meet user requirements

The objective of a system design is to achieve the right system that produces the right output (Kendall and Kendall 2002:421). User requirements should be translated into system characteristics during the design. An information system will satisfy user needs if it accomplishes the following:

- Performs the correct procedures
- Produces accurate results
- Provides an acceptable interface and means of interaction
- Presents information and instructions in an acceptable and effective manner
- Is perceived by users to be a reliable system.

Information systems are - first and foremost - a tool of business and, therefore, fitting the system to suit the organisation or community is essential. Features that support the enterprises' success strategy are an integral part of information system's design applications and this requires the careful consideration of user information needs and opinions. The system should conform to design standards in accordance with the prescribed rules or culture of the society – a reason why designing a cultural-neutral

information system is important if user needs and the objectives of the system are to be met without resistance.

2.5.3.4 Ease of use
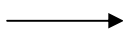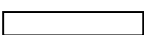
An appropriate information system design should provide a system that is engineered for ease of use by business enterprises. Users are the central parts of information systems (Lee, Hwang and Wang 2006). The usability and efficiency of an information system are among the determinant factors for productivity of employees (Compaq 1999; Lee, Hwang and Wang 2006). The ergonomic design factors of an information system that affect the performance, comfort and satisfaction of direct users, need consideration. For example, the location of the services provided - and cost of access to the desired information by the users - should be considered as important design strategies to ease of use of the system. Generally, the formulation of an information system design according to Hwang and Wang (2006), should strive to

- incorporate system features that are easy to understand and use.
- provide enough flexibility to fit a variety of individual user needs.
- deter user errors or carelessness.
- function, generally, in a way that seems natural to the user.

2.5.3.5 Production of Data Flow Diagram (DFD)

A common analysis process that can also be used in the design phase is the one used by DeMarco (Capron 1996:239). This is the method that studies the way data travels - and is transformed - within an information system (Avgerou and Cornford 1998). The method used to describe this is the Data Flow Diagram (DFD) which describes, diagrammatically, how data flows between processes - or steps - and external data sources or data recipients. A DFD was used for this study to help in the design of the BIS that would facilitate access to business information for northern Uganda business enterprises. The choice of a DFD is based on the simplicity with which it can be drawn and read (Avgerou and Cornford 1998:70). This makes it a useful tool for communication in the system development process.

According to DeMarco (1978); Avgerou and Cornford (1998); and Capron (1996), what one needs to know is the set of definitions and conventions for the symbols used to depict the DFD. These include:

- **Data flow** - "a pipeline through which packets of information of known composition flow." It is represented by a vector (———►). A vector must come from, or go to, a process circle or bubble.

- **Processes** - the actions taken on the data, such as comparing, checking, deciding on formats, etc. In other words, they are the transformation of incoming data flow(s) into outgoing data flow(s)' and is represented by a circle ("bubble" ○).

- **File or data store** - "a temporary repository of data", represented by two parallel lines (↑↑).

- **Data Source or sink** – "a person or organisation, lying outside the context of a system, that is a net originator or receiver of the system data" and is represented by a rectangular box (▭). This will be separated with an interface.

A simple, hypothetical example to show a DFD is given in Figure 2.2.

FIGURE 2.2

A SIMPLE HYPOTHETICAL DFD FOR INFORMATION PROCESSING
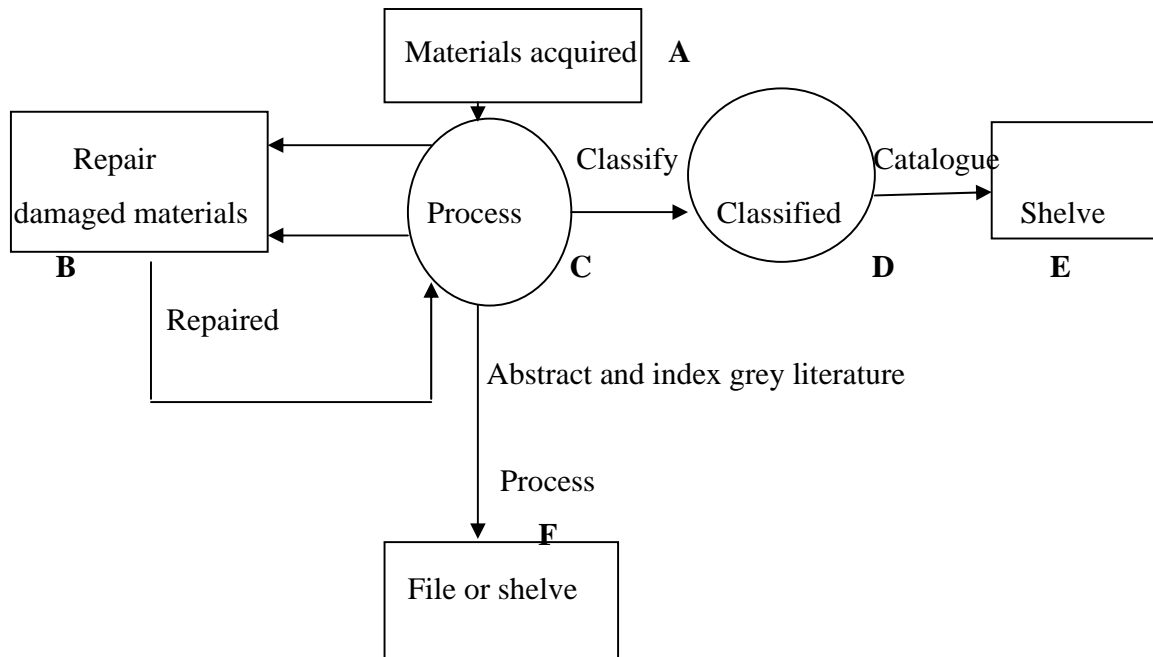
A – A data source where information materials are acquired, recorded and prepared for processing.

B – A temporary repository of data consisting of damaged materials. Repaired materials are taken back for processing in **C**

C – A process where decisions are taken on how to process material and the format for processing material. For example, the classification scheme.

D - Another process where decisions are taken on how to catalogue classified information materials. For example, tools to use: AACR1 or AACR2? Sears List of Subject Headings or Library of Congress Subject Headings?

E and **F -** Sinks where processed materials are filed or shelved for users to consult.

It is important to note that each element of a DFD must have a clear, meaningful and unique name so that the diagram is a self-explanatory picture. This can be achieved by establishing appropriate guidelines.

2.5.3.5.1   Guidelines in drawing a DFD

In drawing up a DFD for the business information system for northern Uganda, the following guidelines applied:

- Identifying all net input - based on the findings from data collected.
- Filling in the DFD body by concentrating on data flows first, and then putting bubbles – circles - at the points where data is to undergo needed transformation.
- Labelling all data flows with names relevant to the study.
- Labelling bubbles to indicate actions taken to transform the in-coming data flows into the out-going ones. Where system controls are needed, they will be depicted.
- Identifying all net output data flows to be used by the business enterprises.

Determining the system interface will be described later at the design stage. The DFD will not include the system interface.

The establishment of the design elements - and a strategic focus on the needs of the users - is crucial for the success of an information system. Strategically, though, there must be a well thought out direction. The next section explains the strategic direction for the system design.

2.6   SYSTEM DESIGN STRATEGIC DIRECTION

The type of data and information needed for planning, management, marketing and operation of business enterprises activities and programmes cover a wide range. They need to be selected from different sources, processed, consolidated and repackaged for effective and convenient use by the different user groups among the business enterprises. Evidently, the design and development of information systems and services that can provide such value-added information calls for close interaction and collaboration between the information system designer/information specialist and the users of the information system and services (Neelameghan 1992:143). The interaction and

collaboration the researcher/information specialist had with the users [the SMEs] of the proposed information system and the DFD structure - produced in Chapter 8 - helped in producing a strategic system design. In other words, the design requirements for the study were derived from Chapter 6 – the findings - and the DFD. Based on the information systems concepts, the logical design elements include: input, process, control, output, procedures, feedback and interface. The design structure is produced in diagram form and explained in Chapter 8.

2.7   SUMMARY

The significance of concepts and theories for a study like this lies in guiding the researcher's understanding of the theoretical and conceptual basis upon which information systems can be designed. This gives the researcher the ideological picture for the study. Given the change in market expectations and the demands for new products in communities, a shift in the bottom-top approach in information systems design - based on proper analysis - is vital. Conceptually, the input, process, control, output, procedures, feedback and interface - as key concepts for the design and appropriate labels based on the research terms - were used. On the theoretical side, the study used four relevant theories – the Metcalf Theory, the Actor-Network Theory, the System Theory and the Organisational Theory - to guide the study in terms of functional requirements determination.

The next chapter examines the variables of the study in relation to the concepts discussed in this chapter.

CHAPTER 3

CONCEPTUAL FRAMEWORK FOR A BUSINESS INFORMATION SYSTEM

3.1   INTRODUCTION

This chapter examines the variables in the study in terms of the information system concepts discussed in Chapter 2. With an aim to review the literature to address Objectives 2-5 of the study (see Section 1.6), a business information system conceptual framework (Figure 3.1) is used for different variables to determine and understand functional requirements. The variables which are the information system concepts - discussed in Section 2.2 of Chapter 2 - include input, processing, control, output, procedures, feedback and system interface. The concept of economic development is also added. The functional requirements for a business information system include understanding and determining the

- business activities;
- business information needs;
- business information sources;
- information processing formats;
- management information systems to be instituted;
- quality of business information required;
- accessibility problems; and
- preferred means of access to the required information.

Based on the understanding of concepts discussed in Chapter 2, the literature review of Owens, Wilson and Abell (1995) and a personal knowledge, the researcher conceptualised the following framework (Figure 3.1) as a guide in determining the requirements to be considered in the design of a business information system.

FIGURE 3.1

BUSINESS INFORMATION SYSTEMS CONCEPTUAL FRAMEWORK

Independent variables   **Dependent variables**
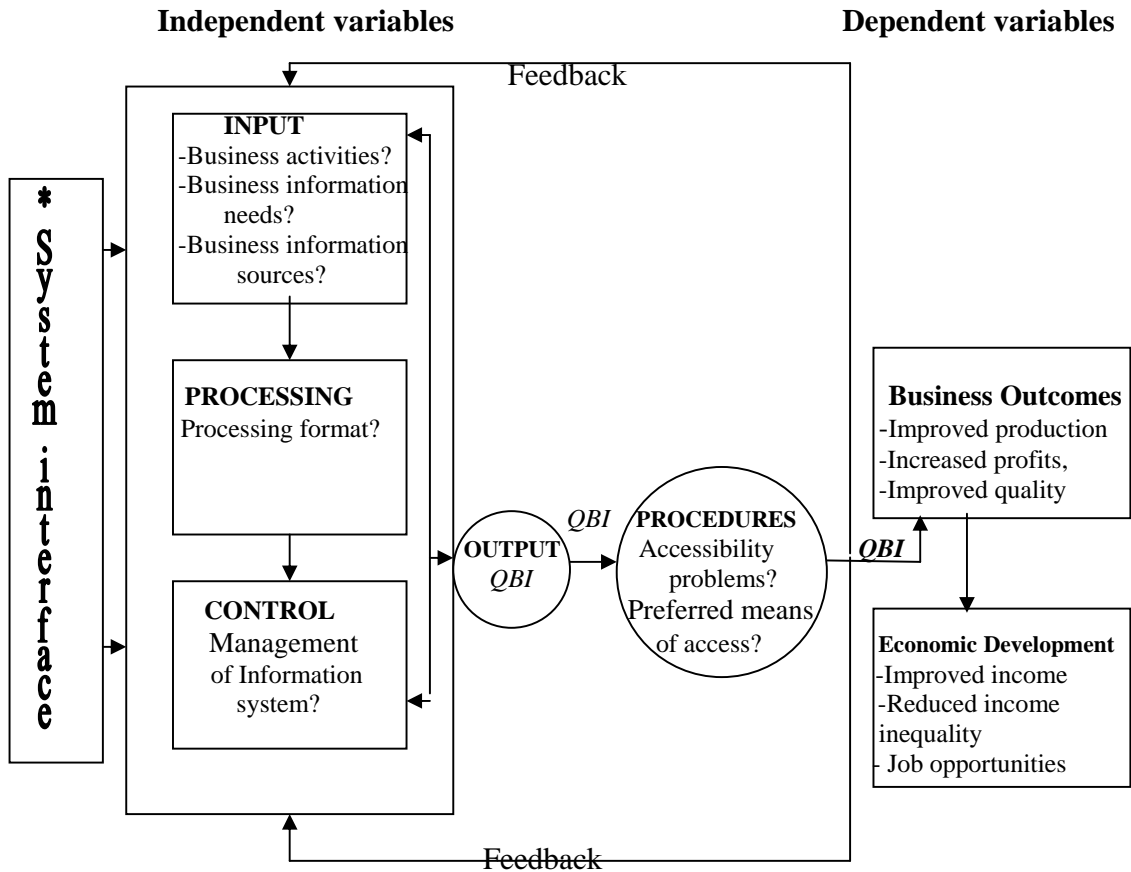
Source: Researcher's conceptualisation

Key:

*   *The system interface refers to the way business information relates to the environment in terms of business information acquisition, processing and dissemination.*

QBI   *Quality Business Information refers to the information that is relevant [meets the criteria of the question and is useful]; credible [the source is well known]; topical [up – to- date or a hot topic]; balanced [represents an important and perhaps under represented point of view] and accessible [easily available and written in a clear way] (Gallway 2002:167).*

?   ***Shows the items under investigation***

Based on the information system concepts and the objectives of the study, Figure 3.1 provides the relationships between the system concepts and study variables that helped in determining functional requirements for the design of a business information system. As

Figure 3.1 shows, the input of the business information system requires the identification of business activities; the establishment of business information needs; and the business information sources used by the business enterprises in northern Uganda. Data or input into an information system is, normally, raw and needs processing. The processing must be done in an appropriate format - as required by the users.

For the desired quality information to be achieved, the information specialists responsible for the data processing need to have the required skills and knowledge. This means that to ensure that the processed data meets the expectations of the users, the education and training of information providers/specialists is paramount. What professional measures should be included in the information system to ensure the quality production of business information? When control measures are guarded and properly executed within the system framework, then quality output is achieved. However, success in quality output does not guarantee the receipt of quality information. In other words, the generation of relevant business information from the system does not make an impact on business if user-friendly procedures for accessing information are not in place.

The procedures are related to a number of measures in the day-to-day provision of relevant information. Of significant value for the design of a business information system for this study is the identification of the problems affecting business information access and the establishment of the preferred means to access the required business information. If both these variables are identified in relation to the system concepts, quality business information should be accessible to business enterprises. As indicated in the framework, in situations where errors are made, the feedback loop should help to redress the problem in a continuous manner. It is on the basis of the successful execution of the required tasks - under the independent variables - that the dependent variables of improved business income and economic development are achieved. Next, the independent variables in Figure 3.1 are examined. These variables aided the establishment of the functional requirements for the proposed business information system design (see chapter 8) for SMEs in northern Uganda.

3.2   BUSINESS ACTIVITIES AND INFORMATION NEEDS

The business activities of enterprises have a direct relationship with their needs for business information. What an enterprise trades in, directly dictates the information needed. According to Kibera (2000:40), the SMEs are engaged in a number of business activities - depending on the economic and political environment existing in the country. The SMEs businesses are found in the

- **agricultural sector** – the keeping of dairy and beef cattle, poultry, and bees; the milling of grain; and the selling of fruit and vegetables, cash crops and cereals).
- **manufacturing sector** – furniture making; basket weaving; textile making; and printing.
- **construction sector** - wood construction; materials making; bricks and block making; painting; and plumbing.
- **transport sector** - bus and taxi services; bicycle repairs; and driving schools.
- **hospitality sector** - including tourism: hotels and lodgings.
- **professional services** – accountancy; legal services; and medical and paramedical services.
- **educational services** – schools; training; and consultancy services.

According to the Uganda, Ministry of Finance and Economic Development (2004:70), the main non-farming activities that SMEs in Uganda are involved in include a variety of activities or sectors. These are: wholesale trade; agro-processing; other services, including the food and drink industry - restaurants and bars; transportation; and construction. What is the situation in northern Uganda? Could the above-mentioned business activities be the business activities carried out in northern Uganda that need to be supported with an efficient supply of quality business information? This question was addressed in this study and the findings are reported in Chapter 6, Section 6.3.2.

As noted earlier, there is a direct link between business activities and business information needs. This implies that the determination of business information needs of business enterprises is pertinent. An accurate and timely understanding of information

needs is a prerequisite for effective business-wide information systems - whether object-based or procedure-data applications (McDavid 1996:128). "Information needs as a human attribute are the foundation for developing an information system and service provision" (Lill 2000:42). As a result, business information provision is a dynamic and constantly shifting environment - in terms of the appearance and demise of information providers (Marcella…*et al* 1996:3). Thus, understanding the coherent relationship that exists between the business information user, the needs and the information system is the point of departure for any attempt to improve the availability of - and access to - business information (Siriginidi 1996:23).

3.2.1 Business information user, user needs and the system

Mchombu (1994:4) suggests the need to consider the user as a thinking, self-controlling human being rather than an "empty bucket" to be filled with information. Information services exist by virtue of information users and potential information users (Lill 2000:38). Users make sense of the provided information in relation to their world, time, place, and problems. Making information-users central in an information system is important because of the different communities involved. Commercial firms operate within a vast consortium of communities. Moahi (2002:244) warns that most information systems that have been designed and developed have been criticised on the grounds that the users have had to adapt to them because their design has not, entirely, taken user needs into account. Until a specific audience within the community is identified and its information needs are ascertained, efforts in designing an effective information system will continue to be governed by the funding agencies, researchers and the priorities of information specialists rather than being a reflection of the identifiable information needs of the users in those communities (Omekwu 2003:444). This means that one of the basic prerequisites for any information system design is the careful understanding of the information needs of the users. In order to understand the information-users and their information needs, it is imperative that the different communities - operating within the business enterprise or company - be identified.

3.2.2   Types of communities operating within and outside business enterprises

According to Kodama (1999:149), three types of communities exist. They are the business units within the commercial enterprise, the partners and the customers.

3.2.2.1 Type 1 communities – business units

Type 1 communities are the **business units** within a company or commercial enterprise. They include the business departments/sections and branch offices/sales outlets. Type 1 communities are contained within the company and their work ranges from routine daily tasks to sharing information and knowledge for strategy development and making decisions - i.e., from top stratum to mid-level and then to lower levels or from headquarters to branches and sales offices. This type of community influences the kind of business information needed as it deals with a wide spectrum of business issues that required a wide array of business information provision.

3.2.2.2 Type 2 communities – collective bodies

Type 2 communities are **collective bodies** formed with tie-up partners and organisations, like the Private Sector Foundation, the Chamber of Commerce and Industry and outsourcing companies. These communities share diverse knowledge and information, create businesses and perform work related to everything within the business (Kodama, 1999:149). They may fall under intermediaries to the business enterprises. The transaction of business with these organisations or companies by business enterprises does influence the business enterprises' information needs in many ways. For instance, a business enterprise transacting business with a telecommunication company may require information on their business strategic plans; the cost of services they provide; business contacts for key personnel; etc. This kind of information would help the enterprise plan appropriately to transact business activities with the said telecommunication company.

3.2.2.3 Type 3 communities - customers

Type 3 communities are the **customers.** Various needs and claims by specific customers do exist. The customers range from big clients to general customers and their needs, routinely, affect the type of business information needed. The need for a certain brand of

product by customers can force the business enterprise, for instance, to look for information on appropriate technology to improve the quality of products produced and the services rendered. Diagrammatically, Figure 3.2 illustrates how these communities relate.

FIGURE 3.2

BUSINESS COMMUNITY TYPES
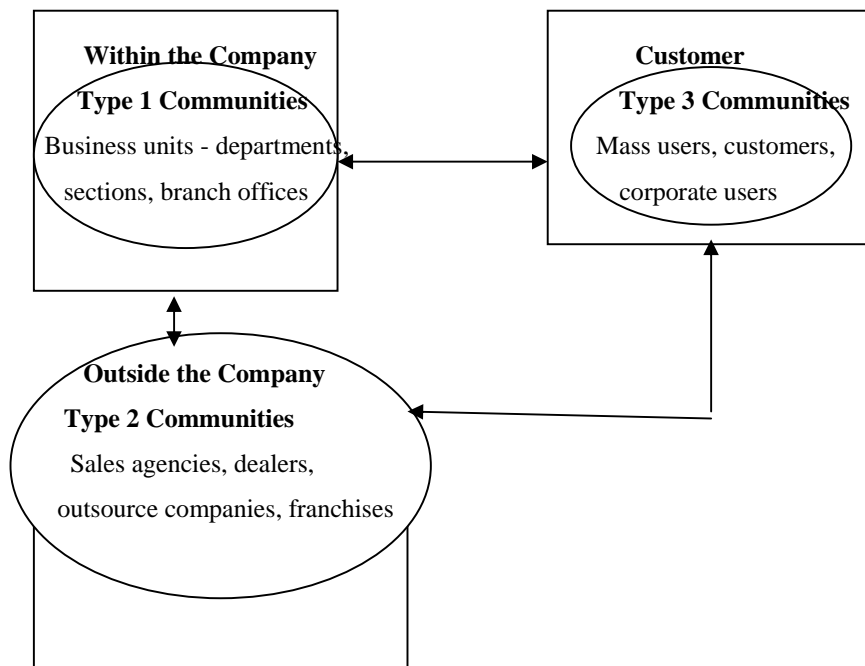
Source: Adopted and modified from Kodama (1999:150)

To continually revitalise a company or business enterprise and nurture its efforts to create new businesses in the long run through use of quality information, it is important to take into account that these communities exist - and play a significant role in determining business information needs. This is because if end-user or business firm communities are experts with respect to their information, then the strong positive relationship between perceived information quality and user satisfaction is a valuable one (McGill and Hobbs 2003:39). Users' satisfaction cannot be fully met without end-user involvement in the system's design. This study established the information needs in congruence with the three communities in mind.

3.2.3 Types of business information needs

Kargbo (1997:1) observes that many different people in developing countries use business information in different business transactions. Commercial institutions and, especially, investors - small or large - need information about companies and their financial performance as well as reports on political, economic, and market trends. Commercial dealers, business accountants, marketers, and other business participants are heavy users of business information sources. Abidi (1995:53) explains a range of business information needs which include information on market prices, exchange rates, and where to import and export at fair prices. Morant (1995:32) agrees with Abidi by pointing out that the information needs of the majority of businesses fall into two categories: general information, such as phone numbers, travel timetable and road information, and specialised information, like information on the inflation rate, government taxation policies, local and international markets and business management skills. Whatever the categorisation of business information, all business enterprises need business information for different business activities. Larvin and Zelko (2003:6) point out that the most needed information by the business enterprises include

- *business contacts* - information on business and marketing partners, technology providers, public incentives bodies, etc.
- *available market opportunities* - procurement and marketing opportunities; markets for products or goods; and services and research information. There is, therefore, a need for business firms to know about the existence of markets and where they can get raw materials at cheaper prices. According to Neelameghan (1992:1), information on marketing strategies is crucial in business operations. That is why it is imperative that information managers should know clients' requirement and anticipate them. Information services will be judged on productivity and quality criteria (Neelameghan 1992:1).
- *general business information* - registration, procedures, laws, taxation and tariffs.
- *sector statistics* - target markets and prices.
- *business potential and business trends* - resources for development; and changes in demand, supply and prices.

50

- *adequate information and knowledge* - for new product/service development, design or innovation.

Could these also be the business information needs of the business enterprises of northern Uganda that would determine the input into the system? To ensure that business information delivery service meets users' needs best, the following questions were important: Who are the business information users in northern Uganda?; What are the business activities of the business enterprises?; What are the business information needs of the business enterprises in northern Uganda?; and Do the users want a broad array of information - or do they need a limited, narrowly defined selection of content items? These were some of the questions that shaped the investigations into the input for the business information system design. The findings are reported in Chapter 6. The next section examines the different sources of business information - as variables for the input - likely to be used by business enterprises in northern Uganda.

3.3   BUSINESS INFORMATION SOURCES

Business information sources refer to the containers of information that are useful for different business transactions (Kaye 1995). These may be formal or informal sources. Business information sources play a pivotal role in determining the input for the information system. This is because access to the right business information; from the right place; at the right time; from the right source; and at the right price - and knowing how to use it - are major factors influencing trading efficiency and competitiveness (Siriginidi 1996:22). Kaye (1995:16) notes that there are informal and formal sources of business information that contain information in different forms.

3.3.1   Informal business information sources

Kaye (1995:16) argues that informal sources - just like formal sources - are those information sources which help in the provision of information to the individual business managers. Informal sources include business colleagues, superiors and subordinates, external professionals and other contacts. Some are informal-external and others informal-internal. The informal–external sources include trade contacts, personal

advisers, professional associates, social and family contacts. Informal-internal sources include superiors and subordinates, including staff from other departments.

3.3.2 Formal business information sources

Formal sources may be defined as those which are constituted in some regularised or legal manner in relation to the user (Kaye 1995:16). Some of the formal internal sources include the following:

- Trade and development associations
- Professional and learned societies
- Universities and colleges
- Chambers of commerce and trade
- Radio and television stations
- Market research organisations
- Advertising agencies
- The Stock Exchange
- Banks and insurance companies
- Law firms
- Government departments and agencies
- International sources
- The Business Statistics Office
- The Companies Registration Office
- Local authorities
- Suppliers
- Customers
- Competitors
- Shareholders
- Public and other libraries.

There are also formal-internal sources, such as the following:

- Reports

- Memoranda

- Work instructions

- Budget statements

- Delivery notes

- Invoices

- Codes and regulations

- Analyses and test results.

All these sources are important for businesses to flourish. However, Riaga (1994:1) argues that good information comes from a source in which the user has confidence. This raises the question of users' trust in sources of business information. In 1977 Atherton (1977:7) also, controversially, argued that the kind of information sources sought and used tend to be those that are easy to access and that are known, personally, to the user - regardless of the quality of the information. It was, therefore, important to ask the following questions:

- Which information sources are used by the business enterprises in northern Uganda?

- How do they rate the information sources used in terms of trust in the sources as far as quality of information is concerned?

These questions are answered in Chapter 6. However, it is important to establish, here, what users' trust entails regarding information sources.

3.3.3 Business information sources and users' trust

Whatever the source of business information, its characteristics are important to the user. Bowes (1995:120) argues that the characteristics of the information source are important for community acceptance and credence. Information source credibility and past performance are important. The variables of information sources include source credibility - and the dimensions underlying it, such as competence and trustworthiness; homophily - with audience; opinion leadership; and centrality to formal and informal

communication networks. A business information source that is trusted by its users creates confidence in decision-making in all aspects of the commercial activity and will be visited or used, repeatedly. As Moore (2003:301) observes, an important determinant of the impact that is made by information providers and processors is the trust that users place in the information they provide. Authority is an important determinant of trust. Information users take a number of things into account when assessing the information they receive. These include the "standing of the information provider; the extent to which it can be seen to be objective; its motive in providing the information, and the likelihood that it will get things right" (Moore 2003:301). These facets are the authority that information users will use to base their judgments on to get the required information from different sources. Could this be the case among business enterprises in northern Uganda? If it is true, which information providers or sources do they trust? This was established, and reported in Chapter 6.

Another emerging source of business information is the Internet and the World Wide Web (WWW). The following section reviews the literature related to the Internet as a source of business information for business enterprises today.

3.3.4   The Internet as a source of business information

Access to electronic information is becoming an increasingly important issue as more and more information is provided in electronic format (Ellen 1998:2; Thomas…*et al* 2004). Sagi…*et al* (2004:45) observe that "core economic, social, political and cultural activities throughout the planet are being structured by and around the Internet." The United Nations Conference on Trade and Development (UNCTAD) has initiated the Global Trade Point Network (GTPnet) - a computerised networking system linking about two million traders worldwide (Sagi…*et al* 2004:45). In Africa, the United States of America's Leland Initiative Assistance Programme - also known as the GII Gateway - is beginning to make headway in creating Internet connections in Africa (Sagi…*et al* 2004:45). The availability of Internet connections has led to the emergence of electronic commerce or e-commerce. (Sagi…*et al* 2004:45) defines e-commerce as the use of documents in electronic form - rather than paper - for carrying out functions of business

or government, such as finance, logistics, procurement and transportation that require interchanges of information, obligations or monetary values between organisations and individuals. It includes activities that could be replaced by electronic media, such as the exchange of documents, telephone calls, faxes, etc., and also includes standards for the procurement of manufactured goods by governments and the private sector as well as the participation of firms and individuals in the electronic market place. E-commerce is gaining momentum among businesses, worldwide, both for day-to-day transactions and as an integral part of their marketing strategy (Sagi…*et al* 2004:45). According to Liu (2000), business information resources that have emerged on the Internet can be classified into major business areas, such as company information, economics, finance and investment, international business, real estate and marketing. Online business databases, web pages of different companies, governments, institutions, investment authorities, financial institutions, etc., act as useful sources of business information for business enterprises. With the advent of globalisation, more business enterprises will have to embrace e-commerce in order to compete, favourably, in the global markets. It is also important to note that informally, Internet is also being used to establish and maintain business contacts, e.g. through e-mail, logging and even listservs, etc.

In spite of these developments, the crucial question is whether businesses in developing countries recognise the need for the Internet in business - not only as a source of relevant business information, but also as a catalyst in business activities. Do the business enterprises in northern Uganda use the Internet for business activities? If they do, what do they use it for? According to Liu (2000:234), thousands of small businesses have created their own web pages to market and sell their products and services. What is the situation in northern Uganda? Do the business enterprises in northern Uganda have web pages? If not, do they see the need to have a web page? The answers to these questions were established and reported in Chapter 6.

White House (1997) argued that many businesses and consumers are still worried about conducting extensive business over the Internet because of the lack of predictable legal environments governing transactions. A similar concern is noted by Sagi … *et al*

2004:45) that "the Internet raises challenging policy issues of access, privacy, copyright and regulation. It poses cultural problems as information is made available regardless of social and cultural boundaries." This is, particularly, true for international commercial activity where concerns about enforcement of contracts, liability, intellectual property protection, privacy, security and other matters have caused businesses and consumers to be cautious. Could this be a problem among the business enterprises in northern Uganda? What problems do business enterprises in northern Uganda face in using Internet? These questions were investigated and reported in Chapter 6.

According to Cheung (1998:172), commercial leaders who are able to access more information and make use of it - in this information age - will be the winners in the marketplace. The popularity and need for Internet resources gave birth to the World Wide Web which is now widely used for access to business information resources.

The World Wide Web (WWW) is the most popular application on the Internet and it is used for many, diverse business purposes, including direct sales, advertising and customer support (Cheung 1998: 172; Kula and Tatoglu 2003). According to Cockburn and Wilson (1995:2; Kula and Tatoglu 2003), the WWW appears to be an ideal medium for businesses attempting to promote themselves and their wares. Setting up a site on the WWW and, thereby, gaining instant access and visibility to millions of people all over the globe can be achieved at a fraction of the cost of using more conventional methods. Direct on-line selling is now possible with the WWW. It is also already possible to visit "virtual malls" full of "virtual shops"; browse through catalogues; and examine various products in detail - all courtesy of the WWW. This has been made possible by the multi-media capabilities that the WWW provides (Minio 1994:11). Companies - especially those involved in research and development - can now use the WWW as an additional resource for collecting information. When links are formed between companies, it is easy for them to communicate through the Internet. There has been continued speculation - from a wide range of sources - that the Internet and, more specifically, the WWW will be the business tool of the future and that companies which do not expand in this direction will be left at the side of the information superhighway (Cockburn and Wilson 1995:2;

Kula and Tatoglu 2003). All these benefits - derived from the application of Internet and WWW in business activities - give a company or a commercial entity a new look in the business world.

However, to use the Internet and the WWW, ICT skills are a prerequisite. Are the business enterprises in northern Uganda willing to have a new strategic look by using the Internet in their business transaction? . Do the business enterprises in northern Uganda have the necessary ICTs skills to exploit the business benefits offered by the Internet and the WWW? This study investigated these issues and reported on them in Chapter 6, Section 6.6.3.1.

As stated earlier, the establishment of the business activities of business enterprises; their business information needs; and sources of business information would determine the business information system input. However, data input into the system has little significance if it is not processed. The following section reviews the data processing methods that are required to make business information usable.

3.4   BUSINESS INFORMATION PROCESSING

Processing - as noted in Chapter 2, Section 2.2.2 - involves transformation processes carried out by the information providers and converts input into output. Information providers operate in diverse ways. Some do little to promote an awareness of information availability or to encourage its use, while others make a considerable effort to see that the information supplied to users is consumed. Onwubiko (1999:187) argues that the problem of information provision, today, lies in the format in which information is provided; the people to whom it is provided; their level of literacy; their geographical contiguity to the information base; and their level and pattern of information application to decision-making to achieve the desired results. To make information relevant and have its desired effect, it must be processed and packaged in a format that will allow for its accessibility, usage and dissemination (Jimba 2000:253). The implication of this is that northern Ugandan business enterprises need to have a specific format in which they would wish to access business information. A probable question to ask is: Which of the business

information formats - the CDROM, telephone text message, printed format, verbal format or any other format - would be appropriate for the business enterprises in northern Uganda? These were established and reported in Chapter 6. However, part of the argument refers to the processing of the business information. Who processes business information and in which form is it processed?

In most information intensive societies there is now a flourishing group of agencies that process information on behalf of their users. Public libraries collect information from a wide range of sources and make it available for people to consult and to borrow. Consumer associations collect a large amount of information from providers and add value to it by including their own information or by structuring data in consistent formats so that it is easier to use (Moore 2003:301). Telecentres and community resource centres repackage information resources into the formats and, sometimes, the language/s that the users can, easily, digest. Onwubiko (1999:188) defines information repackaging as a grand design to the collection and creation of a piece of information and disseminating the same in a more indigenous style - recognising its, essentially, community-oriented nature. Information services within an information system should be, intensively, concerned with the process of adding value to information content (Lill 2000:46). This is a task that calls for dedication and a thorough understanding of the community's needs in order to turned "worthless information" into useful information. The information processing agents perform an important function within information systems. They are intermediaries between information providers and users and much depends on their efficiency and effectiveness.

If public libraries are processing business information as intermediaries, do the business enterprises visit public libraries for business information? Does the business community access the information in an appropriate format? Is it in the languages they understand well? All these aspects were investigated. Information that is provided in a non-digestible format - or not processed to a suitable form for a user - is worthless information because it will not be used at all or it will be used incorrectly because of lack of understanding.

Information systems must deliver the right kind of information; in the right format and language; and through appropriate means of access. All these are achieved with appropriate control measures.

3.5 BUSINESS INFORMATION QUALITY CONTROL

The ISO 8402 Standard - which represents the official international terminology of quality - defines quality as the "sum of characteristics of a product or a service which satisfies users' needs" (Gallway 2002). Gallway (2002) notes that quality information should be

- relevant - meet the criteria of the question and be useful;
- credible - the source is well known;
- topical – up-to-date or a hot topic;
- balanced - represent an important and, perhaps, under-represented point of view; and
- accessible - easily available and written in a clear way.

To ensure that the required quality business information is produced, adequate control measures are required. The control measures are, directly, related to the management of the information system. The information providers or specialists need to have the required library and information science skills and knowledge for information acquisition, processing, storage, retrieval and dissemination. Before the information is declared appropriate output, certain parameters of evaluation are required. For instance, some questions an information manager needs to ask include: Does the information produced meet the enterprise's information needs?; Is the information in appropriate language and understandable by the target users?; and Should the information be disseminated by offline or online means?

To address control issues, the establishment of training of - and ICTs competencies of - the current information providers concurrently with the satisfaction derived from the business information provision by the business community in northern Uganda was important. Based on the literature analysis and the results from questionnaires, the competencies of information managers to enforce control measures were identified and are reported in Chapter 6.

Enforcing control measures to deliver appropriate output is of less significance if no effort is made to design appropriate means of business information access. The following section, therefore, reviews the literature on appropriate means or channels that can be used to access business information.

3.6   MEANS OF ACCESS TO BUSINESS INFORMATION

Means of access to business information refers to the ways, means or methods used to access or acquire the right business information from the available sources. These include the telephone; e-mails; faxes; visiting the library, personally; reading public notice-boards; listening to radio broadcasts; etc. The means of accessibility to information is a powerful procedural measure that needs to be instituted in an information system for quality control. For instance, if the information system institutes personal visits to the resource centre as the only means to access information, this can have a detrimental effect on the quality of information accessed. A business manager may decide to use a third party to access the information because of distance - which may affect the quality of access because of misinterpretation by the third party. If only the telephone is used, what measures are there to minimise noise? The type and quality of the means used to access information have a direct bearing on the quality of information. For a business enterprise and any other person, the issue of speed, distance of location, noise and costs incurred in the utilisation of the means, are crucial matters. Just as users put trust in the sources of business information, the means used to access the business information from those sources should be trusted. A trusted means or channel should facilitate accurate, timely and less costly access to business information. The question to ask is: Which means,

therefore, do business enterprises in northern Uganda trust and prefer to use to access business information? This is reported in Chapter 6. However, it is important to note that effective access to information is only attainable if hindering factors to information access are addressed. The next section examines some of the problems hindering access to business information.

3.7   BUSINESS INFORMATION ACCESSIBILITY PROBLEMS

To ensure the institution of effective procedural means of providing and accessing business information, problems that affect access need to be established and corrective measures put in place. Meyers, Nathan and Saxton (2006) note that even in the most information-rich contexts, one finds barriers to information seeking. While we often think of information barriers in terms of physical limits to access (e.g., a lack of information resources or the means to retrieve them), information seeking can be hampered in multiple ways (Meyers, Nathan and Saxton 2006).

To clearly reveal the problems that business enterprises face in accessing relevant business information, it is important to put into context how business information support services relate to one another. Figure 3.3 shows the business information support relationships between the business community and other partners.

FIGURE 3.3

BUSINESS INFORMATION SUPPORT RELATIONSHIPS
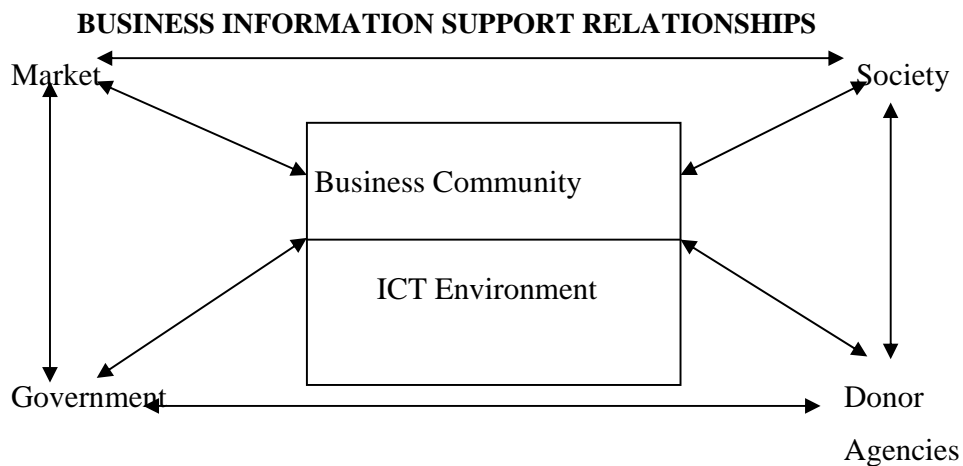
Source: Adapted and modified from Lavrin and Zelko (2003:3).

A combination of social, economic, political, cultural and personality clashes have continued to impinge, negatively, on the efforts of governments, organisations and individuals to create a necessary awareness for business community development (Uhegbu 2001:240). As argued by Larvin and Zelko (2003:3) - and considering the structure in Figure 3.3 above and further observation by Ellen (2003:2), problems affecting access to business information - coupled with the institutional framework of different support institutions/agents which intervene in the business enterprises' information provision environment - include a lack of a shared and coordinated vision; management problems within the sector; societal problems; institutional, physical and perception problems; and a lack of skills. These problems are explained in the following sections.

3.7.1 Lack of a shared and coordinated vision

For the majority of developing countries and countries in transition, there is a problem of strategic national and regional vision regarding business enterprises - a deficiency visible at various levels. This is due to three factors: The broad diversity in the sector in terms of businesses and productive segments; poor communications within the sector; and low levels of organisation (Larvin and Zelko 2003:3). In overall terms, poor organisation leads to a weakened ability to communicate within the sector and externally. Information flows among the different actors in the business sector are quite inadequate. There is

normally no coordination/integration of business communities for the promotion of information exchange - essential for sector cohesion. This lack of information and knowledge are particularly troubling in the case of decision-makers who lack the basic information necessary to define the laws and regulations affecting their businesses. This affects the entire business performances adversely - especially when there is no creative policy and regulatory framework to stimulate development in this sector. What is the situation among the business enterprises in northern Uganda?; and Are the business enterprises experiencing similar problems? This was determined and reported in Chapter 6, Section 6.7.

In some countries, there is no system of incentives; no specific provision to strengthen the organisational and administrative capacities of most business enterprises; and no provision to simplify the legal framework within which businesses should operate - a legal framework that should enhance accessibility to information and provide an atmosphere of fair competition. A study carried out by Uhegbu in Nigeria in 2001 reveals that unhealthy rivalry among traditional institutions, town or community development unions and the constituent parts of the community often frustrates efforts to encourage community information dissemination. The consequence of this failure is that most of these enterprises remain lodged in the informal sector - without any significant possibilities of developing – thereby, increasing their costs; excluding them from the global business scene; and perpetuating a vicious cycle of lack of - or inadequate - relevant information and knowledge. Could there be unhealthy or unprofessional rivalry among the institutions, like the Uganda Chamber of Commerce and Industry, the business trade associations and local government that could affect the provision of business information to the business enterprises in northern Uganda? By interviewing business policy makers in each of the districts, this was established and reported in Chapter 6.

3.7.2 Management problems within the business sector at the level of both individual entrepreneurs and support programmes

In developing countries, there are not enough resources and mechanisms available within the business sector for obtaining and processing information which would be useful to

business enterprises for making business decisions (Larvin and Zelko 2003:3). This can be explained, principally, by the fact that activities, such as market intelligence are relatively novel in the business sector of developing countries. This is why there are still no specialised intermediaries, such as information brokers. The limited flow of information in this sector leads to insufficient knowledge and weaknesses - in terms of business structures and management in productive units. According to Giggey (2002), "information matters, in general, are still missing from the agenda of public policy-makers in Africa." That is not to say that an information policy is not important. If there is none in place, there is a greater chance of lack of co-operation and co-ordination of efforts to accessibility to information.

Management problems take a broader form. For example, the commitment of government in providing information is important. If the government is committed, the training of business managers in information handling and access would feature prominently within the government's information literacy programmes. This would enhance business managers' skills and expertise in information seeking and acquisition. Could management be one of the problems affecting accessibility to relevant business information in northern Uganda? Does the business community consider the government of Uganda to lack commitment in providing information to the business community? Could lack of skills and expertise in information seeking and acquisition be a problem that compounds the management problem within the business sector and affects access to business information? The answers to these questions were established and reported in Chapter 6, Section 6.7 and Table 6.19.

3.7.3 Societal problems

The access to various sources of information; the ability to convert resources into investments; the assurance about future returns from present investment; and other people's behaviour *vis-à-vis* one's own, are influenced by historical and society norms. Linguistic and cultural diversity is part of the societal barrier to information accessibility (Odini 1995:24). Attitudes towards new knowledge and information are shaped by the setup of a society or community (Gupta 1999:1). This impedes the availability of information necessary to making the correct decisions in businesses in the community.

Could linguistic problems be one of the barriers to accessing business information in northern Uganda? In other words, is information supplied in the language/s understood by the business community? If not, which language/s would they prefer? Could there be some cultural barriers within the communities in northern Uganda that hinder their access to business information? Answers to these questions are revealed in Chapter 6, Sections 6.7, 6.8 and Tables 6.19 and 6.20.

3.7.4 Institutional problems

Institutional problems refer to the incapacity and/or unwillingness of an information provider to deliver needed information to a certain type of seeker (Larvin and Zelko 2003:3). This may be because of a limited knowledge-base of both business information providers and the business communities. It is, normally, an institutional problem where the staff is not well-trained in business librarianship or the users/business enterprises are not inducted into service delivery mechanisms. The training in business librarianship is a subject of debate. Liu (2000) argues that most librarians - working as business librarians - lack subject training in business fields, like accounting, management, economics, finance, banking and quantitative methods, which affects their performance, adversely. Liu recommends that in addition to training in Library and Information Sciences, business librarians should have a training background in business subjects for there to be effective performance. This argument, however, is beyond the scope of this study and it is recommended for further investigation.

3.7.5 Physical problems

Physical problems include infrastructural problems - for example, access to roads, access to telecommunications, problems of transport, etc. An individual is, then, unable to make contact with the appropriate information providers due to some physical problems. In African countries, lack of physical resources and information infrastructure is common. Most rural communities in Africa do not have, for example, rural libraries which are considered as one of the most effective ways of disseminating information to the people (Uhegbu 2001:240). Where any exist, they are poorly funded, stocked, managed and appreciated. Could the lack of physical resources be one of the problems affecting access

to business information by the business enterprises in northern Uganda? This was established and reported in Chapter 6, Section 6.7.

3.7.6 Perception problems

Perception problems occur when individuals are unable to perceive their needs as informational in nature and fail to obtain needed information from appropriate providers (Larvin and Zelko 2003:3). This is coupled with the poor perceptions and deep-rooted scepticism of some rural business communities on how essential information is for community improvement (Uhegbu 2001:239). How do information providers in northern Uganda view this in the provision of information to the business community? Is the business community enthusiastic enough regarding the need for information? Results on these questions are reported in Chapter 6, Table 6.20.

3.7.7 Lack of skills

Lack of skills is where the individual lacks the necessary training and expertise to acquire information. In most African communities, there is lack of knowledge or skills required to access information. Information illiteracy occurs, generally, in African societies. Information illiteracy is still a major hindrance to the accessibility to information (Odini 1995:23). Do the business managers, themselves, consider lack of skills and expertise in information seeking and acquisition as a problem? What of the information providers? Do they experience this problem when they are providing business information to the business community? These are established and reported in Chapter 6, Tables 6.19 and 6.20.

In addition to the seven factors given above, Odini (1995:24) argues that other problems that hinder accessibility to information stem from the fact that information services that are provided are, normally, not based on users' information needs. Most prevailing information systems in developing countries have been designed without a proper analysis of the users' needs. Odini's argument served as a warning to the researcher during the functional requirements determination process. This study considered users of the system as part of the system development process.

An analysis of the problems affecting the accessibility of business information gives a picture of an emancipatory view in designing a viable business information system for northern Uganda. Do business enterprises in northern Uganda face these problems? If so, how should the problems be addressed to avoid hindering the performance of the proposed business information system? These are presented and discussed in Chapters 6 and 7, respectively.

3.8 SETTING THE MACRO ENVIRONMENT AND EFFECTIVE INTERFACE

Since information is one of the key factors for success in the business world, it is essential that any corporation or society should guarantee that its flow is managed as efficiently as possible (Guertler 1997:1). Unfortunately, most of the time only internal processes are analysed while external relations are, mostly, ignored. Rao (2003:50) argues that a successful information system intervention relies on an enabling environment. Information is not just affected by its environment, but is, itself, an actor affecting other elements in the environment (Kirk 1999:3). Understanding the existence of these environmental factors, such as government departments, international bodies and community based organisations, is important in creating an effective system interface. To provide a successful information system, coordination between internal processes and the public - which has to be an integral part of a firm's information policy - is needed. This must, particularly, be true for incorporating a business into a global network to compete effectively. The questions, therefore, are: What should constitute the business information system interface?; Should northern Uganda have a closed or open system?; and If interfacing, which organisations, institutions or bodies should constitute the system boundary or interface? This is suggested in Chapter 8.

3.9 SUMMARY

An effective conceptualisation of the different variables - that play a significant role in the business information system - is important, as the basis of any system design is centred on the system's functional requirements (see Figure 3.1). The interplay of the research variables and the information system concepts contribute much to the business

information system design. The variables - the business activities; business information needs; sources of business information; accessibility means; and problems faced in accessing business information - under the system concepts of input, process, control, output and procedures - were considered in the design of a business information system.

The next chapter, Chapter 4, provides an overview of small and medium-scale enterprises (the SMEs) and business information provision practices in selected countries.

CHAPTER 4
OVERVIEW OF SMEs AND BUSINESS INFORMATION
PROVISION STRATEGIES

4.1   INTRODUCTION

The development of the SMEs has long been regarded as crucial for the achievement of broader development objectives, including poverty alleviation, economic development and the promotion of more democratic and pluralist societies (Henriques n.d). It is imperative that business information - as an ingredient for business transactions and prospects – be, effectively, provided to the SMEs. This chapter, then, provides an analysis of the literature on the SMEs characteristics, information provision and the dynamics of business development services. The main aim is to provide a better understanding of some of the principles and practices that can help in shaping the design of a proposed business information system for northern Uganda.

4.2   SMEs

SMEs have, variously, been defined but the most commonly used criterion is the number of employees in the enterprise (Kayanula and Quartey 2000). Definitions in many countries lack uniformity and reflect the relative development of the respective economies. However, the United Nations Conference on Trade and Development (UNCTAD) classifies firms employing 5 to 500 persons as SMEs (Neelamegham 1992:17). The Government of Uganda classifies SMEs as business firms employing 5-50 people [small scale] and 51-500 people [medium scale] (Kasekende and Opondo 2003; Schiffer and Wedder 2001:13; Uganda Bureau of Statistics 2003). Whatever definition it takes, SMEs are important to socio-economic transformation and it is estimated that SMEs employ 22% of the adult population in developing countries (Daniels and Ngwira 1992; Daniels and Fisseha 1992; Fisseha and McPherson 1991; Robson and Gallagher 1995).

4.2.1 Characteristics of the SMEs information user groups

Apart from the number of employees, there are other key factors that characterise the SMEs and these are related to management and the nature of operations. The SMEs may be managed by their owners who are often assisted by family members. In this regard, the decision-making system is quite flexible, informal and dependent on the personal drive of one or more of the executives. By their very nature of operation, the SMEs have a narrow range of products/services and a relatively simple and unsophisticated management structure with a narrow tolerance range of risk. Individual SMEs experience difficulties in achieving economies of scale in the purchase of inputs and are often unable to take advantage of market opportunities that require large production quantities, homogenous standards and regular supply. The SMEs are of different types and sizes, according to Neelamegham (1992:17). The SMEs can be differentiated based on the type of input, market orientation, geographical orientation and technology utilisation. Whatever differences exist in their sizes and types, the SMEs play a key role in the economic growth of - and equitable development in - developing countries.

4.2.2 The role of the SMEs in economic development

The value of the small business sector is recognised in economies, worldwide - irrespective of the economic developmental stage. The SMEs' contributions to growth, job creation and social progress are highly valued and small business is regarded as an essential element in a successful formula for achieving economic growth (Vosloo 1994: Rupert 1994; World Bank 1991; Soontiëns 2002). Governments need to focus on building a strong base of small firms as it is from this strong base that growth will emerge. The development of small industries is the *sine qua non* of industrialisation and, therefore, of sustainable development in a modern society (Soontiëns 2002). Newly industrialising countries are encouraging the growth of small enterprises because they are the custodians of job creation and growth (Sunny and Lewanika 1997).

Most developing countries - especially in sub-Saharan Africa - are shifting from command to market based economies. This shift, generally, results in the implementation of policies that support the development of small businesses and entrepreneurship which -

in turn - supports economic development (DeAssis 1997). In addition, the role of the SMEs in developing economies is viewed as increasingly important due to their job-creation capacity. Generally, the contribution of the SMEs to the generation of employment; the reduction of poverty; and the wider distribution of wealth and opportunities, represents a major window of opportunity for most developing countries' economic development. However, to achieve this, the provision of quality business information is an inevitable task. If the SMEs have an important role to play in socio-economic transformation - as noted above - it implies that any information provision interventions to help them achieve their roles must be specific to their needs and must be demand-driven.

4.2.3   Issues of access to information by the SMEs

SMEs need to have access to adequate information to enhance productivity and to facilitate market access. The establishment of an active SMEs sector - and the effective utilisation of quality business information - has been identified as crucial in attaining long-term and sustainable economic growth for developed and developing countries, alike (Corps 2005). However, in most developing countries, the SMEs sector suffers from inadequacies in the provision of business information - which is only available from stand-alone institutions; is often slow and cumbersome to access; is limited in scope; and is not provided in an integrated manner (UNIDO 2005). This situation is experienced in northern Uganda. The result is that the SMEs depend, mostly, on informal institutions as they lack an awareness of important business information provision agencies or institutions - as reported in Chapter 6 and discussed in Chapter 7. Access to information is insufficient. The SMEs need tailor-made information solutions - i.e., business information services that assess, verify and apply information to a specific business problem.

In order to respond to the specific needs of the SMEs, business information services should create value by bringing together information from different sources - both local and international. This enables the integration of the SMEs into national and global value chains (UNIDO 2005). There is a need for collaboration between various industrial and

trade organisations, professional bodies, private enterprises and government departments to provide SMEs with a comprehensive range of business information, advice and facilities. This is an envisaged position for the SMEs in northern Uganda and it is considered under the systems interface in Chapter 8, Section 8.3.6.

According to Ladzani (2001), the priority ranking of the SMEs needs, clearly puts information provision at the top of the list of services to be provided. The SMEs development is hampered by an "information-poor" environment. Market signals on business opportunities, customer trends, methods of organisation, etc., are not communicated, effectively, to the SMEs (Ladzani 2001). The SMEs perform better in information-rich environments (Moyi 2000 and Ladzani 2001). If the SMEs are crucial for poverty eradication - as noted earlier - this could confirm why there is a high level of poverty in northern Uganda. The SMEs in northern Uganda operate in information-poor environments. This is not because there is no information, but because there is a lack of an efficient, formal information system to address their information needs - as indicated by the findings reported in Chapter 6.

According to Ladzani (2001), some of the key issues to consider in the creation of an information-rich environment - which are experienced by both entrepreneurs and information providers, alike - include the following:

- **The right information -** Information has to be focused and precise and it has to be needs based. The information has to be constantly up-dated and concentrate on the challenges which the SMEs face. This will require information providers to apply the right systems and tools in identifying the needs of small and medium scale entrepreneurs. The need to have a needs-based information system - as argued above - is the reason why the SMEs, information providers and business policy-makers were involved in the design of the proposed business information system in Chapter 8.

- **The right packaging of information** - Information needs to be easily understood for correct decision-making. This implies that the information providers - when packaging or repackaging information - should take into consideration the educational, social and economic background of those who seek information. It must be presented in both written and spoken form, taking into account that vernacular languages may play an important role. In which formats should the business information be processed for the SMEs in northern Uganda? Should business information be supplied in the vernacular? If so, which vernacular should be used - given the multilingual nature of the community in northern Uganda? These were established, reported on in Chapter 6; discussed in Chapter 7; and recommendations made in Chapter 8.

- **Accessibility of information** - It is of equal importance as to where, and how, the information is provided. Information providers may be too far away from the businesses. The form of presentation needs to take into account the learning styles of potential users. The SMEs get information from a variety of sources, such as their peers, competitors, suppliers and customers. Entrepreneurs are more likely to value - and use - information that comes from someone close to them who has a track record of practical credibility. This raises the question of which sources of business information are required for the SMEs in northern Uganda and the problems of accessibility to the required business information. Will the sources only be restricted to formal sources, like libraries, radio stations, television stations etc., or will they include informal sources, like experienced business managers in the community, customers, etc.? Secondly, What measures should be instituted to reduce the problems that might affect accessibility to business information by the SMEs? These are explored and recommendations made in Chapter 9.

- **Scope of information** - Business information service provision is a very broad field which overlaps with many other activities of service provision areas. It is, therefore, important that business information services include the following:

- Provision of information on business trends and markets
- Provision of information on business organisation
- Provision of advisory services - provided one-on-one - on *inter alia*: legal and regulatory aspects, business management, customer service, business expansion and diversification, technology, etc.
- Identification and communication of business opportunities
- Provision of access to linkages, finance and markets. For example, trade fairs
- Facilitation of business partnerships and referrals.

The above issues - as noted by Ladzani (2001) - were crucial to this study. The proposed business information system (see Chapter 8) carefully took into consideration the need for the right business information; repackaging standards; accessibility methods; and the scope of the information. The utilisation of Information and Communications Technologies (ICTs) by the SMEs to access the services provided is also of great importance. The following section provides an analysis of the utilisation of ICTs for information access - with a brief global perspective.

4.2.4 Utilisation of ICTs for information access: A brief global perspective

Since the 1970s, there has been a growing recognition that enhancing the development of the SMEs may be crucial to fostering growth and equity (Sinha 2003). Unfortunately there has been much emphasis on large-scale industrialisation in developing countries that has had only moderate successes in generating employment growth and alleviating poverty (Sinha 2003). In emerging economies, increasing the viability of the SMEs is now central to many overall economic development strategies. Within the context of a global, knowledge-based economy, these countries are looking to using ICTs to help initiate, support, and facilitate the SMEs development. Most SMEs across the world are increasingly adopting various ICTs to enhance their e-readiness status to identify, acquire, organise, disseminate and apply information for informed decision making (Mutula and Brakel 2006). ICTs have proven to be vital in improving the efficiency and in expanding the market reach of the SMEs, as well as in establishing new ways for the

SMEs to obtain - and to make the most effective use of - business information (Thomas …*et al* 2004; Corps 2005). For over a decade, global network diffusion has been occurring at exponential rates (Kula and Tatoglu 2003). ICTs have made it possible for business enterprises worldwide to make direct links with customers, suppliers and distributors and this has facilitated transactions, processes and information transfer (Thomas …*et al* 2004; Kula and Tatoglu 2003). The utilisation of the Internet, World Wide Web and business application packages in the day-to-day running of business enterprises is crucial for commercial activities. Because of this, the transfer of business information between companies/enterprises has been much faster, cheaper and more reliable - more than ever before transcending natural and artificial barriers, such as geographical location and different time zones (Chisenga 2000; Kula and Tatoglu 2003).This has created common Web-based points - the resource portals or online portals that facilitate access to relevant business information.

4.2.4.1 Resource portals

Improving access to - and quality of - information available to the SMEs owners and operators is a core purpose of many projects. Many of the SMEs have accomplished this through online portals that provide a variety of information and resources. For instance, in Nepal, Thamel provides an online directory of Nepalese SMEs - sorted by industry; an e-commerce site; a chat room for local businesses; and information services, such as business news and currency exchange rates (Corps 2005). Another online directory - the Online Business Information Service (OBIS) - supports local enterprises in the Solomon Islands by sharing Internet-researched answers to business questions from entrepreneurs (Corps 2005). The information - that OBIS collects on microfinance, equipment, raw materials, market opportunities and buyers, business ideas and technical assistance - supports the start-up and expansion of local ventures and promotes private sector investment in indigenous enterprises.

Agricultural entrepreneurs are also able to make use of information portals. For example, the Agriculture Market Watch project in Mali aims to improve access to agricultural information for the private sector - in particular, local farmers, herders and transporters of

agricultural products (Corps 2005). This type of project enables local businesses to omit intermediaries and to engage, directly, in market-pricing, cost evaluation and sales. Another example is the Business Information Services site in Tanzania which performs a similar function by listing both local and global commodity prices. It has multiple locations and focuses on helping rural farmers obtain the most accurate and up-to-date information possible (Corps 2005). Foodnet in Uganda and District Information portal and b2bpricenow.com in the Philippines are two other similar sites (Corps 2005; Uganda Communication Commission 2003).

Given the above global orientation, it seems that ICTs application and use could be possible among the SMEs in Uganda for e-commerce - if an appropriate business information system were in place, with an adequate ICTs infrastructure. However, the question that needs to be addressed - before the design - is the establishment of the need for, and interest in, ICTs application in business by the SMEs business managers in northern Uganda. In as much as there are some hindering factors [business incubators] in ICTs applications in businesses, ICTs have proven to be vital in expanding the market reach of small businesses to enable them to make the most effective use of information and, especially, to allow the SMEs in northern Uganda to enjoy their benefits. These ICT opportunities were investigated and addressed through the use of a questionnaire as described in Chapter 5. The findings are reported in Chapter 6, Section 6.6.3.

4.2.4.2 ICTs and business incubators

Although the use of ICTs for improving business services looks well-established and represented in the landscape of development, the creation of an environment for ICTs utilisation by the SMEs - in developing countries - is difficult. This difficulty seems to stem from some developing countries' inability to foster the right kind of environment in which ICTs-enabled businesses can succeed (Corps 2005). For example, there are continued difficulties securing stable electricity and dispersed and affordable telecommunications infrastructures in many developing countries - a situation that also exists in northern Uganda. For countries like Uganda, that are still struggling to establish ICTs-friendly environments, stable electricity and telecommunications infrastructures and

supportive ICTs, policy measures are crucial. In countries where an adequate ICTs environment has been established, the SMEs continue to require an awareness of the benefits and possibilities of using ICTs for business administration and operation improvements. More ICTs education and training - as well as general business management skills building - will help the SMEs assess the proper levels and methods for integrating new, or upgrading existing, ICTs into their businesses - a likely situation in northern Uganda that may be proposed by this study.

The existence of information provision through ICTs in most countries - and the nation-wide existence of public libraries - can be viewed as coherent measures put in place to deliver business information services. However, situations in most countries regarding public libraries - as a channel through which business information could be accessed by the business enterprises - seems deplorable (Giggey 2002). It is imperative that the contribution of public libraries to business information provision for business enterprises be analysed. The section that follows, therefore, makes a brief analysis of public libraries readiness for the provision of business information to business firms.

4.2.5 Public library's role in the provision of business information

An analysis of public libraries' roles in the provision of business information is considered important in this study because public libraries - although some are poorly located - exist in Uganda and are funded by the government in the hope of serving the entire community/population, including business enterprises. The existence of public libraries creates the impression that the SMEs can benefit from their services to enhance their business prospects. However, Mostert (1999) observes that the greatest weakness of the public library is that it is not addressing the real needs of the communities it is serving - neither through active participation in proactive programmes, nor in the kinds of services it offers to the public. Giggey (2002) notes that the western style of library services - inherited by Africa and countries, elsewhere, during colonial times - has not met the information needs of the majority of the people. He further notes that library services - in developing countries - continue to concentrate on printed materials; continue to be reactive rather than pro-active; and are not places for activities that could, in any

way, be seen as empowering. This implies that public libraries cannot be relied upon to provide quality and effective business information - unless pro-active service programmes are initiated. This seems to be the same in northern Uganda - as noted in Chapter 6, Section 6.6.1 – which suggests the need for designing an effective business information system.

As in any well-run company, in deciding on what products and services to offer, an efficient library should pay attention to customer demand when it is building up its business reference collection. Primary research tools tend to be company directories, investment/financial reports and loose-leaf services, industry surveys, and business periodical index/abstract/full-text databases which are hardly seen in most public libraries in developing countries (Nixon and Kirkwood 2004). Nothing could be more up-to-the-minute than online access - which is rare in most public libraries in developing countries. In China, for instance, there is no tradition of public library provision to business and the public library services - the responsibility of local government under the guidance of the Ministry of Culture – are, generally, limited to educational support - especially for children (Kinnell, Feather and Mathews 1994). Zhong (2007) notes that at present the development of public libraries is in a state of unbalance in China, and the services are generally not impressive. The state of public libraries seems to be the same in most countries. Ghosh (2005) notes that public libraries in India are in an abject state and possessing neither regularly renewed print collections nor vibrant non-print multimedia resources that could lure in illiterate or semi-literate folk. The libraries suffer from a variety of infrastructure, manpower and monetary constraints, as well as being low in the priorities of policy makers and implementing bodies (Ghosh 2005). Whatever the situations in public libraries in developing countries, it should be noted that internationally, public libraries are facing fundamental changes due to the IT development and digitizing of society and to increasing pressure to reduce the size of public sector, of which most libraries are an integrated part (Aabø 2005).

 It should be noted that an in-depth study on the use of public libraries by the business community is beyond the scope of this work. The main focus of this study - regarding

public libraries - was to establish whether the business managers of the SMEs visit public libraries for business information and if not, then why not? This was addressed using the questionnaires and explained in Chapter 5. The findings are reported in Chapter 6.

4.3 INFORMATION PROVISION TO THE SMEs: SOME NOTABLE EXAMPLES

An analysis of some business information provision strategies/activities in a few selected countries is important for a better understanding of situations in terms of an appropriate information system design. China, which has one of the fastest developing economies with a key focus on the SMEs - as an engine of economic growth (Chen 2006) - was chosen from outside the African continent. From Africa, South Africa - a country considered the most developed in Africa and considered to be the economic powerhouse of Africa (International Marketing Council of South Africa 2006) - and from West Africa, Ghana - with a relatively similar economic situation to Uganda - were chosen. The GDP composition of Uganda by sector, according to a 2004 estimate, is: agriculture 35.8%, industry 20.8% and services 43.6%, while the GDP composition of Ghana as per a 2004 estimate is: agriculture 34.3%, industry 24.2% and services 41.4% (Ghana economy 2006; Wikipedia 2006).

4.3.1 China: Contextual settings

According to Kinnell, Feather and Mathews (1994:17) and Chen (2006), consumers in China are, increasingly, demanding higher quality in their goods and services. The Chinese SMEs have shown a fast growth - measured in terms of size, number, financial status or profitability (Chen 2006) - since the reform and opening-up of the country. The demand for higher quality in goods and services and the fast growth being experienced in the business sector - in turn - raises the significance of marketing within businesses. The value attached to marketing helps to define consumer needs; to design and produce appropriate quality products; to price them appropriately; and to distribute and promote them, effectively. It is important to note that potential overseas customers and joint venture partners also demand a high level of marketing activity from businesses. To achieve this, business information is required on all aspects of products, the market,

production techniques and competitors. This need has led to the establishment of a number of practices in China to promote accessibility to business information by the business community. The role played by the Institute of Technical Information of China (ISTIC) - which was founded in 1956 - and the Government of China's **Su**pport and **C**onsultation **Ce**ntre for **SME**s **(**SUCCESS) programme is most prominent (SUCCESS 2006). The ISTIC - in an effort to provide business information to the business community - is engaged in marketing its information products and services to meet the demands of the business community. This activity is, unlikely, to be carried out by the potential business information providers in northern Uganda. The ISTIC's Rural Industrial Technology (SPARK) project, for example, aids township and village enterprises (TVEs) by providing them with business information, including technical information on raw materials; intelligence on commodity markets; and management information (SUCCESS 2006).

SUCCESS collaborates with various industrial and trade organisations, professional bodies, private enterprises and other government departments to provide the SMEs with a comprehensive range of business information, advice and facilities (SUCCESS 2006). The business information provided includes the following:

- Comprehensive information on government licensing and certification requirements for running different kinds of business
- A user-friendly website - www.success.tid.gov.hk - is a ready source to look for the SMEs interest information, services and facilities
- Free access to business electronic databases
- A wide collection of business reference materials in the reference library
- A regular publication on the SMEs topical issues.

SUCCESS also organises seminars, workshops and other activities to help broaden the SMEs business knowledge and to enhance their entrepreneurial skills. On Consultation services, the SMEs seeking professional and expert advice may apply for the "Meet-the-Advisors" business advisory service or join the SMEs mentorship programme and advisory service for potential business start-ups.

A set-up of SUCCESS with daily transactions taking place is shown in Figure 4.1.

FIGURE 4.1

SET-UP FOR BUSINESSS INFORMATION PROVISION AND CONSULTATION

SOURCE: **http://www.sme.gcn.gov.hk/smeop/english/service.cfm** - SUCCESS
            offering free business information and consultation services to SMEs.
            (accessed 5 February 2006).

An analysis of SUCCESS shows that television sets and face-to-face consultations can be used for business information provision. Within the Centre, seminars can be organised for SMEs on topical issues. Could this be applied in northern Uganda for the SMEs? This was explored during the design stage of this study to help in the system's information feedback (see Chapter 8, Section 8.3.5). It is worth noting that "the manner in which information is communicated will largely determine whether the community will react to it or not." For example, if outside information is offered in metaphorical speech, or is demonstrated in a way people are not used to, they will not be able to understand it and it will not make any impression on them (Meyer 2005) - an issue to consider in the design of an information system.

Generally, the strategy used in China - and the set-up to provide business information to the SMEs - gives an indication of a possible strategy that could be applied in the design of a business information system for northern Uganda.

4.3.2 SOUTH AFRICA

The role of the SMEs in South Africa is no different from other countries and the South African Government actively supports the SMEs. In his address at the President's Conference on Small Business, former President Mandela cited the following three reasons for the importance of the SMEs in the South African framework (South Africa, Department of Trade and Industry 1995a):

- The development of the SMEs is important for the social and economic development of the country, since they increase competitiveness and mobilise idle funds to productive aims.
- The SMEs development contributes to a more equal distribution of economic powers.
- The stimulation of the SMEs can reduce the level of unemployment.

Notwithstanding the South African historical focus on larger businesses, the small business sector represents a considerable portion of the economy. The total SMEs sector accounts for 84% of all private employment and the SMEs represent an estimated 80% of the total formal sector and they contribute more to the South African GDP than the cumulative amount of the corporate giants (Soontiëns 2002). This, no doubt, calls for effective information provision initiatives for the SMEs productivity.

The Government of South Africa - through its Department of Trade and Industry (DTI) - established the Centre for Small Business Promotion (CSBP) at a national level. This centre gave birth to the Ntsika Enterprise Promotion Agency and Khula Enterprise Finance Limited. These are the main statutory bodies that were established to support and assist SMEs. The Centre for Small Business Promotion (CSBP) is a Chief Directorate that falls, directly, under the Department of Trade and Industry. It is responsible for all policies related to the SMEs and supports programmes that are - directly and indirectly - assisted by government. The centre also coordinates the implementation of the framework within central government to mobilise the necessary funds and supervise the establishment of other new institutions - proposed in the White Paper on a National

Strategy for the Development and Promotion of Small Business in South Africa (Ladzani 2001).

The Centre for Small Business Promotion gave a directive to all nine provinces to form SMEs desks at provincial level. Staff members who were attached to the Department of Economic Affairs then constituted these divisions. The divisions are the first point of contact of small business people with the government. The purpose of these divisions is to give the SMEs support in all the provinces - including the provision of business information required (Ladzani 2001).

4.3.2.1 Ntsika Enterprise Promotion Agency (NEPA)

The Ntsika Enterprise Promotion Agency (NEPA) was given a mandate by the Government of South Africa to provide a wide range of non-financial services to local service delivery groups on a "wholesale" basis - meaning the delivery of resources to local providers in the different provinces and in their regions that work directly with the SMEs (Ladzani 2001). These services - that are offered by accredited local service providers - include the institution-building of these organisations; training programmes for entrepreneurs; the mentoring of individual firms; marketing; procurement advice; and technology assistance (Carana Report 1999:25). Examples of local service providers include the Local Business Services Centres (LBSCs), Non-Governmental Organisations (NGOs), Educational Institutions and Community Based Organisations (CBOs).

4.3.2.2 Local Business Service Centres (LBSCs)

Economic development at local level cannot be overemphasised. This is where there is much work in terms of the SMEs development. The LBSCs - defined in terms of their functions - are owned by the local business people and managed by the local people. Their services include training; marketing and linkages; counselling and referrals; and information gathering and dissemination (Ladzani 2001).

4.3.2.3 Tender Advice Centres (TACs)

Tender Advice Centres provide non-financial support to small businesses in the area of market access and procurement. They provide information about government tenders, counselling and support service to entrepreneurs. Examples of this support include assistance in the completion of tender documents and the provision of advice and information on tender opportunities. These services are made available to the SMEs through workshops and seminars on tendering procedures. The TAC program is run by accredited organisations around South Africa (http://www.brain.org.za/SUPPORT/tender_advice.html).

4.3.2.4 Manufacturing Advisory Centres (MACs)

Manufacturing adds much value to growing economies. In a country where blacks were not allowed to manufacture anything, the importance of the Manufacturing Advisory Centres (MACs) cannot be overemphasised (Ladzani 2001). These centres provide business information and advice to small and medium manufacturing firms.

4.3.2.5 Other

Other service providers that work closely with Ntsika are - among others - Non-Governmental Organisations (NGOs), Educational Institutions and Community Based Organisations (CBOs). It is important to note that though industrial associations exist as intermediaries for information access in South Africa, they are less frequently used by the SMEs for business information – especially, among the exporting enterprises (Gumede and Rasmussen 2002).

A brief assessment of the initiatives for the provision of information to the SMEs in South Africa indicates that there is a well-established procedure - from the national level down to the local level - with separate centres to handle each of the SMEs information needs. The integration of libraries, telecentres, CBOs and NGOs into an organised information system - specifically to supply business information to the business community - is a well thought out strategy. The information system in place seems to have a broader base at the distribution point of information to the SMEs than at the

collection/acquisition point of information. In other words, business information is acquired by the government and distributed through a number of channels to the SMEs - depending on their information needs and interests.

According to Shokane (2003), however, despite the existence of these interventions to facilitate access to business information in South Africa - and the fact that information has been recognised as an important resource to use in modern business - there is still an apparent lack of, and need for, information by business entrepreneurs. In most areas of South Africa, there is also a heavy reliance on business colleagues, friends and relatives as sources of information. This situation is, apparently, attributed to a lack of systematic information skills on the part of business managers and insufficient knowledge or no knowledge of the true information needs of business managers on the part of information specialists (Shokane 2003).

Based on this South African example, should a northern Uganda business information system design have a broader acquisition level of information and a narrow distribution level or be broader at all levels? This question led to further investigation – as reported in Chapter 5 - to determine the business activities carried out by the SMEs; and to identify different information sources trusted by the business managers. The results are reported on in Chapter 6. Other important questions to ask were: Should the identification of training needs of both business managers and information specialists in northern Uganda be part of the requirements for the business information system?; Should the business information system have different units to handle different information needs?; and If yes, should the units be within the headquarter/centre of the system or be set differently? The answers to these questions - based on the literature review; data collected; analysed; and reported in Chapter 5 - are considered in Chapter 8.

4.3.3   GHANA

The Minister of Trade and Industry, Mr Alan Kyeremanten, said that the SMEs have a significant contribution to make to Ghana's socio-economic development and in the attainment of a middle income status of US$1,000 *per capita* income by the year 2015 (Ghana 2006). Ghana's domestic economy continues to revolve around subsistence agriculture which accounts for 40% of GDP with a huge SMEs sector representing a considerable part of employment opportunities in the country (Boeh-Ocansey 1996; Tetteh and Burn 1999; Wikipedia 2006). The SMEs in Ghana can be categorised into urban and rural enterprises. The major activities within this sector include making soaps and detergents; weaving fabrics; designing clothing and tailoring; producing textiles and leather; village blacksmithing; tin-smiting; firing ceramics; cutting timber and mining; making bricks and cement; brewing beverages; food processing and baking; creating wooden furniture; assembling electronic products; agro-processing; producing chemical based products; and mechanical activities (Kayanula and Quartey 2000). To provide information for these activities, there are several categories of communication centres in Ghana. They range from a one-room facility - providing a narrow range of services - to facilities that provide training and a wide range of development-oriented services. Generally, the centres can be classified into two broad categories: those with a purely commercial orientation and those with a community/education service orientation (Owen and Darkwa 2000). Commercial-oriented centres are those that have been established with a profit motive. Almost all of them provide basic communication services, such as providing access to telephones, faxing and photocopying facilities. A sizable percentage provides secretarial - as well as computer-based - services. Although there is no study carried out to establish the level of utilisation of these centres by the SMEs, in particular, the business community does use these services.

Community/education-oriented communication centres provide basic services to address the needs of a given community. Among other objectives, the centres aim to

- tap the untapped potential of the people they serve.
- organise resources and expertise nationwide.

- foster the emergence of local capability.

- promote a unique and comprehensive approach to servicing the multiple needs of people they serve through the innovative use of ICTs (Owen and Darkwa 2000).

While they are not profit oriented, almost all of them charge basic fees for their services.

4.3.3.1 Relevant services provided to the business community

According to Owen and Darkwa (2000), providing access to telephone facilities is one of the most basic services. The first service offered by a new centre in Ghana is local, national and international dialling facilities - a human telephone booth. Another popular service is providing faxing facilities. Most people send and receive faxes at communication centres rather than at their offices or homes. Photocopying is done on a small scale with low-end, slow machines. Another service is video-viewing for individuals and groups. An increasing number of centres are providing computer-based services, such as word processing, creating spreadsheets and graphics. E-mail accounts are *via* Internet connections to free e-mail Web sites. Drop-in e-mail sending and receipt from a telecentre account is offered on a limited basis. Internet access fees start at US$1.00 per quarter hour. Some communication centres have existing contracts with non-governmental agencies to provide basic secretarial services. Others provide Web site development for businesses and local agencies/enterprises. One of the prominent tailored centres for the business community is the Ghana Association of Business and Communication Centres (GABCC). This group has members from business centres in the major cities, such as Accra, Kumasi, Tema and Tarkwa. The centres offer photocopying, telephone and faxing services. In addition, they provide e-mail and software training (Owen and Darkwa 2000). They charge commercial rates for all these services - some of which are the same price as similar services in the schools and donor projects. Could these services be integrated into the proposed business information system for northern Uganda? Does the business community in northern Uganda have the basic ICTs skills to use these facilities? Do the information providers in northern Uganda have the require ICTs skills to effectively provide business information to business firms? The answers to

all these questions were established through the use of questionnaires - as explained in Chapter 5. The results are reported in Chapter 6.

4.3.3.2 Trade information network

The establishment of the West African Trade Information Network (TINET) in Ghana has facilitated access to business information by the SMEs. The objective of the TINET is to establish and operate sub-regional trade information networks to ensure the continuous and regular flow of business information to provide business entrepreneurs - within the framework of computerised databases - with comprehensive and interlinked trade information systems (Owen and Darkwa 2000). This is done with the view to inform entrepreneurs of business opportunities in the sub-regional commercial exchange, in time. To achieve TINET objectives, the Ghana National Chamber of Commerce has a business-stocked library; reference and advisory services; a computerised business contact database; and business publications. The Chamber assists firms in their marketing functions through group facsimile (fax) and telex services. These resources are, essentially, available to the public – i.e., members and non-members of the Ghana National Chamber of Commerce. The facilities encourage small and medium firms to use these rapid modern means of communication at a very cheap cost (Owen and Darkwa 2000).

This review of the Ghana National Chamber of Commerce's role in business information raises useful questions for northern Uganda. Are the business enterprises in northern Uganda aware of the existence of the Uganda Chamber of Commerce? If yes, are they using their services? Can the Uganda District Chamber of Commerce and Industry be an information dissemination point at district level for the proposed business information system design for northern Uganda? These important questions constituted part of the questions asked - as described in Chapter 5 (see Appendices II and III). The responses are reported and discussed in Chapters 6 and 7, respectively.

The existence of information provision mechanisms, like the Chamber of Commerce, in most countries and the nation-wide existence of public libraries can be viewed as

coherent measures that are in place to deliver business information services. However, situations in most countries - regarding public libraries as channel through which business information could be accessed by the business enterprises - are deplorable. It is imperative that the contributions of public libraries to the provision of business information to business enterprises be analysed. The following section briefly analyses business development services which are relevant for northern Uganda.

4.4 DYNAMICS OF BUSINESS DEVELOPMENT SERVICES FOR SMEs: LESSONS FOR NORTHERN UGANDA

Business Development Services (BDSs) refers to the provision of information, knowledge and skills - as well as advice on the various aspects of a business (Finnegan 2000). It, also, refers to the systematic manner in which the needs of business enterprises are addressed through an organised information system. BDSs are provided to help owners of enterprises obtain new ideas on how to improve their businesses through, for example, increasing productivity, reducing production costs or accessing a more profitable market (Finnegan 2000). These services include the transfer of information in various forms to the information user. It is a viable service that can be delivered by an organised information system. The impact of BDSs depends on how the owners of enterprises make use of the new ideas and the nature of commitment of information providers in the area to supply the required information to the established system. Business development services may also be required for the establishment of - and operation of - an enterprise, such as information on legal services - for example, the registration of the enterprise; the training of owners and workers; and providing assistance in arranging contracts with larger firms.

These services may be provided free-of-charge or for a fee - depending on the functioning modalities set by the information system in place. It should be noted that informal BDSs also play a very important role in business information provision to the SMEs. Informal BDSs are those that are not provided by service providers (Finnegan 2000). They include information and advice provided by the relatives, friends or employees of the owner of the enterprise - as well as those services provided in the

context of normal commercial transactions with suppliers, clients or contractors. Informal BDSs also include information obtained from media programmes – for example, radio and television - that might not, necessarily, be documented within the information centre or systems mechanism. These services are, usually, obtained free-of-charge. In many instances, these are, generally, the most important sources of BDSs used by the SMEs. Could this be an integral part of the business information system for the SMEs of northern Uganda? Should the northern Uganda BDSs include the informal information services; and integrate training in ICTs utilisation and in information search skills? Based on an understanding of the above issues that relate to the provision of business information to the SMEs under the umbrella of BDSs, answers to the above questions were established and analysed in Chapters 5 and 6. It is important that BDSs should be demand driven and that the owner of an enterprise should recognise the need for BDSs assistance. However, the service provider may also have a role in helping the entrepreneur to identify specific problems within the enterprise by offering appropriate assistance. It was important to include the best practices of BDSs that this study determined in the proposed business information design (see Chapter 8).

According to Finnegan (2000), the guiding principles for the best practices of BDSs - for the SMEs - considered to be sufficiently elaborated on for application under most socio-economic environments, include:

- ***Ensuring that BDSs are provided to the right clientele.*** This objective implies that BDSs should be provided to those who exhibit good entrepreneurial characteristics and who can make a good use of the services. Whether full fees are charged for the services or not, the provision of BDSs should be considered as a commercial transaction between the entrepreneur and the service provider.

- ***Ensuring that BDSs are demand-driven.*** Experience shows that institutional service providers often neglect to assess the type of services needed by their clients (Finnegan 2000). In these cases, services - especially information services and training – are, mostly, supply-driven and do not reflect the real needs of the

clients. Thus, ensuring that services are demand-driven presents two advantages: it can create a greater and more positive impact on the business, and it can encourage clients to start paying for the services they value.

- *Ensuring a strong sense of ownership.* International experience shows that the best business information providers are people working in an environment which induces commitment and a strong sense of ownership (Finnegan 2000). This is often found amongst not-for-profit organisations or commercial firms, where the managers and staff members have a clear idea about the objectives of the organisation and the long-term plans for growth within the organisation. This implies that the managers and staff running the business information system should have an inclusive attitude and sense of value for the system.

- *Ensuring maximum outreach.* The SMEs have always been able to access some basic services without the assistance of institutional service providers. They get useful information from clients, suppliers/contractors, friends, relatives or people in the same business. Owners and workers are often trained "on-the-job". This does not mean that these services are all of the best quality. They are, however, sufficient for their immediate needs. Therefore, the objective of maximum outreach - in terms of helping the SMEs all over the region to obtain good quality information services that have a positive impact on their business - should be emphasised in the proposed business information system design for northern Uganda.

- *Ensuring cost-effectiveness.* All enterprises strive to control costs to remain competitive or to increase profits. This should also be the case for service providers - whatever their legal status. Achieving maximum cost-effectiveness yields many positive results. More clients can be served with the same available resources and the cost of services can be reduced. Some services can be sub-contracted and preference may be given to providing services to groups or associations of the SMEs with a view to, simultaneously, reducing costs and

reaching a larger number of clients. Should the business information be provided directly to each of the SMEs managers or should it be provided through an organised body, like the Chamber of Commerce and Industry or the Department of Production and Marketing, at a district local government? This was established by means of both questionnaires and interviews (see Appendices III and IV) - analysed and the results reported in Chapter 6.

- ***Ensuring that BDSs achieve the greatest impact.*** The growth of an enterprise may depend - among other things - on the entrepreneurial spirit and qualifications of its owner and on the quality of BDSs it can access within the designed system. Service providers should be concerned with the impact of their services on the enterprise and, therefore, strive to provide services that respond to demand and that are of sufficient quality. It is important that BDSs providers, regularly, assess the impact of their services. This is an important consideration for the proposed business information system (see Chapter 8). It can be achieved through a variety of ways and can be complemented by the development of performance indicators to measure the desired impact.

4.5   SUMMARY

Managers of business enterprises use information as an integral part of their work and, hence, it is important to be clear about what information is at the level of the individual users of information (Kirk 1999). An analysis of the Chinese, South African and Ghanaian business information provision practices points to the following factors which need to be considered in the proposed BISD for northern Uganda:

- The business community (the SMEs) has unique information needs that need to be addressed with a specifically designed information system.
- A multi-faceted approach to information provision is necessary because of the variation in needs, literacy and business prospects.

- There is a need to broaden both the acquisition level of information going into the system and the distribution/dissemination points to ensure that quality business information from various sources is accessed by the different SMEs.

- Training needs of both the business managers of the SMEs and information specialists should be identified and recommended as part of the business information system design.

- Public libraries cannot satisfy the business information needs of the SMEs - given their set-up and lack of proactive services provision. This is because the classic view of managerial functions of business managers, such as planning, organising, communicating, coordinating and controlling, suggests a rational and ordered approach to business information provision services - which public libraries lack.

In order to determine the specific requirements for the BISD, the situation in northern Uganda required a more detailed investigation, using appropriate research methods of investigation. In the next chapter, the research design and methodology used for the investigation is explained.

CHAPTER 5

RESEARCH DESIGN AND METHODOLOGY

5.1   INTRODUCTION

The first phase of this study - as indicated in Chapter 1, Section 1.10 - deals with the analysis of other reported research – the literature review - to establish the concepts, theories and the design features of information systems; the conceptual framework of business information systems; and the background information on SMEs (see Chapters 2-4). In order to achieve the purpose of this study of designing an appropriate BIS for business enterprises in northern Uganda, it was imperative that an empirical investigation into the user requirements be carried out. This chapter thus examines a more detailed approach of the second part of the research process, namely, the method and techniques of empirical investigation into the requirements for the BIS for northern Uganda business enterprises.

Research has been conceptualised and defined in different ways by different investigators. Amin (2005:2) defines research as a critical and exhaustive investigation or experimentation - that has as its aim the discovery of new facts and their correct interpretation; the revision of accepted conclusions; and theories or laws in the light of newly discovered facts. Trumbull (2000:80) notes that research requires a formal and rigid adherence to some defined system of inquiry - to determine new facts or to collate old ones in a new way. To accomplish this, an appropriate research design is necessary. The research design can be thought of as the structure of research and it is the constructed plans and strategies developed to seek; to explore; and to discover answers to a research problem (Trumbull 2000:80). The design provides the glue that holds the research project together. A design is used to structure the research to show how all the major parts of the research project - the samples or groups, the measures, the treatments or programmes and the methods of assignment - work together to address the central research questions (Trochim 2002:1).

The research methodology is the philosophy - or general principles or strategies - behind research and methods used in eliciting the required data for the study (Hall and Hall 1996:29). The methodology comprises general principles under-pinning the use of different research methods, such as questionnaires, interviews, observation and document analysis. Related to the methodology used are the research paradigms. A paradigm is a set of beliefs, values and techniques (Sarantakos 1998). This means that a research paradigm refers to a set of beliefs, values and techniques - used in critical investigations or experimentation to discover new facts and correctly interpret them (Sarantakos 1998 and Amin 2005:2). The following section discusses the research paradigms and design used for this phase of the research.

5.2   RESEARCH PARADIGMS AND DESIGN

The three research paradigms that a researcher could choose from are qualitative research, quantitative research and a combination of both. Patton (1990:39) argues that "the choice of the research paradigm should depend on the purpose of the research, questions being investigated and the available resources." This study adopted both qualitative and quantitative paradigms. The quantitative paradigm was used to determine the popularity of information sources; the ranking of business information needs; and the problems hindering accessibility to business information. In the final report, graphs, charts and figures are used to represent the outcome of the main themes of the study. On the other hand, the qualitative approach helped in providing a deeper understanding of emerging patterns arising in the study. For example, understanding the views of business policy-makers on business information needs; identifying problems faced by the SMEs in accessing business information; and making proposals for business information systems design. Ferrio (1998) observes that the two paradigms are so intertwined that a study is nearly impossible without referring to both quantitative and qualitative paradigms. Although that observation is accepted to be true, the fundamental issue is how the study is designed to ensure that the findings measure up to its objectives

To complete the study in the required time - without compromising the quality of the findings - the different research objectives were handled by using both paradigms as indicated in Table 5.1.

TABLE 5.1

RESEARCH PARADIGM USED FOR EACH OF THE OBJECTIVES

RESEARCH OBJECTIVE	RESEARCH PARADIGM
1. To establish the main business activities of business enterprises in northern Uganda	Quantitative
2. To determine the business information needs of business enterprises in northern Uganda	Quantitative and qualitative
3. To determine the sources of business information used by business enterprises in northern Uganda	Quantitative
4. To determine the channels through which business enterprises in northern Uganda access business information	Quantitative
5. To determine the problems business enterprises face in accessing business information	Quantitative and qualitative
6. To design an appropriate Business Information System Design (BISD) that could improve accessibility to business information in northern Uganda	Quantitative and qualitative

This study used a descriptive research design - which is further explained in the following section.

5.2.1 Descriptive research design

According to Amin (2005:212), descriptive studies are those studies which are concerned with describing the characteristics of an event, community or region - providing data about the population or item being studied by only describing the who, what, how, when and where of a situation at a given time. They do not go into what causes or caused it. Biscoe (2004) argues that a descriptive research design is used when the objective is to provide a systematic description and analysis that is as factual and accurate as possible. Descriptive research provides the number of times something occurs [frequency] and lends itself to statistical calculations, such as determining the average number of occurrences. Since, making a viable decision on the main commercial activities; establishing the business information needs; confirming the popularity of the channels

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used in accessing business information by business enterprises; and considering of the number of responses, a descriptive design was appropriate for this study. The most commonly used techniques of descriptive research design are surveys, field research, content analysis and historical-comparative techniques (Neuman 1997:20). This study employed a survey research technique.

5.2.2   Survey research technique

A survey research technique is a fact-finding research technique dealing, chiefly, with the nature and problems of the community that may result in the formation of important principles of knowledge and the solution of scholarly problems (Sharma 1990:104). A survey is used to explain/explore and may be explanatory, descriptive or a combination of both (McNeill 1990: 199). A survey asks many people about their beliefs, opinions, characteristics, past or present behaviour, expectations and knowledge (Neuman 1997:228). Since the study's aim was to design a viable business information system for the business community in northern Uganda, it required data on background information of the business enterprises [characteristics]; the present information sources and methods of accessibility to business information; problems being experienced in accessing business information [present behaviour]; and the opinions of the respondents on what type of business information system they desired [expectation]. In order to effectively obtain data on the characteristics of respondents and their present behaviour or problems and expectations, the survey technique was deemed the most appropriate research technique with the application of its research methods. The next section discusses data collection methods used in the study.

5.3   DATA COLLECTION METHODS

It is important to note that the central purpose in any research process is to elicit credible responses. In order to avoid any loopholes in the data collection, different data collection methods were used to supplement one another in eliciting comprehensive data for the study. This was done by making sure that the instruments employed are carefully chosen and designed, as well as ensuring that procedures are appropriately applied. The study

used questionnaires, interviewing and document analysis. These data collection methods and the reliability and validity of the instruments are hereafter explained.

5.3.1 Questionnaires

A questionnaire is a list of questions prepared by the researcher in such a manner that the questions are asked in exactly the same way to every respondent (McNeill 1990:23). The questionnaire method of data collection is often used in surveys as the primary data-collection method. It is a method that enables a researcher to obtain a lot of useful research data (Edwards and Talbot 1999). Structured questionnaires were the main data collection method and were used to elicit data for the third to the eighth research objectives described in Chapter 1 (see Appendices III and IV for the questionnaires).

The attitude scales measurement - Likert scales - was used in some structured questions in the questionnaires. An attitude scale is a set or a list of statements in which people are asked to respond by showing the extent to which they agree or disagree with a statement. The Likert scales were used because they are reliable and much easier to compile (Edwards and Talbot 1999).

In order to achieve the goals of the study, the questionnaires were pre-tested under actual survey conditions - during the pilot study - to allow poorly worded questions to be identified and the overall quality of the instrument to be refined. After the questionnaires were refined for the main study, one questionnaire was administered to the SMEs (Appendix III) and another (Appendix IV) to the business information providers. Self-answered and investigator-assisted methods of administering of questionnaires were applied - depending on circumstances. For example, if the researcher established that the respondent was knowledgeable about what the questionnaire requires - when the questionnaire was given to him/her - the self-answered method was used. If not, the investigator would guide the respondent to ensure that he/she correctly understood the questions asked in the questionnaire.

5.3.2 Interviews

Interviewing is a form of questioning - characterised by verbal questioning as its principal technique of data collection. Together with questionnaires, interviews make up the survey method of data collection (Sarantakos 1998:246). Since this method is known to elicit significantly more complete answers to questions (Sarantakos 1998:246; Busha and Harter 1980:77), a semi-structured interview guide was used to elicit the required data from the business policy makers (see Appendix V). The use of interviews for business policy makers was important because they are very busy people - as discovered during the preliminary investigation stage [pilot]. It was easier to schedule an interview than provide a questionnaire that could, easily, be misplaced.

Specifically, after appointments were scheduled with each of the policy makers in each of the districts - and with the help of a semi-structured interview guide - the researcher conducted face-to-face interviews of approximately 30 minutes each. Telephone interviews were used, especially, where the clarification of issues was needed and also where the respondents could not, easily, be reached for face-to-face interviews. The interviews started with a clear and precise explanation of the research context and its value for the northern Uganda business community. As was the case during the pilot study, a great deal of appreciation was received from the policy makers after the explanation and this gave a morale boost to the researcher during the interviewing process. The researcher tape-recorded all the responses during the face-to-face interviews - having first obtained the interviewee's permission. The researcher also used notebooks to record all important points - related to the objectives of the study – that were made by the interviewee. Generally, the interviews with the business policy makers complemented the questionnaires in determining the business information needs of SMEs; determining the problems faced in accessing business information; and in obtaining information needed for appropriate business information system design.

5.3.3 Document analysis

Documented information sources are often rich sources of research data (Edwards and Talbot 1999:107). Themes and patterns – which, perhaps, reveal a certain coherence or

even incoherence of thought - can be made explicit through document analysis. Similarly, changes in perspectives over time can be easily noted as material is updated and comparisons are made (Edwards and Talbot 1999:107). The documents analysed for this study included the following:

- Uganda Ministry of Finance, Planning and Economic Development policy documents and reports on poverty eradication in northern Uganda. These documents and reports were obtained from the Ministry of Finance, Planning and Economic Development library; the Institute of Statistics library and the main library at Makerere University.

- Local Government strategic plans and policies - related to business information provision. These plans and policies were obtained from the participating districts in the study, including the Ajumani, Arua, Gulu, Lira, Moroto, and Nebbi districts. The researcher, formally, requested these documents through the Chief Administrative Officers of the districts concerned.

- Relevant reports on the state of business enterprises in Uganda. These reports were accessed from the Uganda Investment Authority, the Uganda Manufacturers Association, the Uganda Small and Medium Scale Association and the Private Sector Foundation libraries. When the researcher acquired the authorisation letter from the Uganda Council of Science and Technology - granting permission to carry out the research - accessibility to these documents was made simpler.

- Reports and other documents from the Uganda Bureau of Statistics.

- Relevant publications to the study from Makerere University libraries and UNISA library.

- Internet-based information resources, such as the EBSCO database; the Emerald database; peer reviewed online journals; online information materials search, using Google and Yahoo search engines, etc., which were used throughout the study.

It is important to note that the central purpose in any research process is to elicit credible and comprehensive responses. The use of different types of measures or data collection

methods – triangulation - in research helps to improve the validity of the study. Obtaining identical measurements - or data - from highly diverse methods implies greater validity than if a single method - or similar methods - had been used (Neuman 1997:150). To avoid any loopholes in data collection, questionnaires were used as the main data collection instruments - supplemented by the document analysis and interview methods of data collection. The matrix representation of the different methods used to address the different research objectives is given in Table 5.2.

TABLE 5.2

MATRIX FOR DATA COLLECTION METHODS

Data collection Methods

RESEARCH OBJECTIVES	Analysis of documents	Structured Questionnaires	Semi-structured Interviews
1. To establish the main business activities of business enterprises in northern Uganda	X	X	X
2. To determine the business information needs of business enterprises in northern Uganda	X	X	X
3. To determine the sources of business information being used by business enterprises in northern Uganda	X	X	X
4. To determine the channels business enterprises in northern Uganda use for accessing business information	X	X	X
5. To determine problems business enterprises in northern Uganda face in accessing business information	X	X	X
6. To design an appropriate Business Information System Design (BISD) for effective and efficient provision of business information to business enterprises in northern Uganda	X	X	X

5.3.4 Reliability and validity of research instruments

Reliability refers to the extent to which the measurements that are made are consistent – i.e., in the event that the same experiment or action is performed elsewhere under the same conditions, the same or similar results would be obtained. Validity, on the other

hand, refers to the level to which the measurements are correct – i.e., the designed instrument measures what it is intended to measure and it does it correctly (Goddard and Melville 2001:41). In both qualitative and quantitative terms, validity can be linked to truth and referred to as the degree to which the researcher gives a true picture of the phenomenon that is under study. In order to achieve the desired reliability and validity, the instruments were pilot-tested in the Arua district in northern Uganda - to determine their clarity, completeness, relevance and shortcomings. The findings of the pilot study indicated very few shortcomings in the instruments, especially in terms of size and wordings. After the pilot study, the research instruments were refined before being used for the data collection for the main study. The next section discusses the population targeted for the study.

5.4   POPULATION OF THE STUDY

A population is a set of persons or objects that possess at least one common characteristic (Bailey 1994). Neuman (1997:203) argues that "a population is an abstract concept because one can never truly freeze a population to measure it." This study targeted a population consisting of 3 distinct groups of stakeholders that are important stakeholders in business information provision. These groups are SMEs, policy makers and existing information providers - each of which is described, further, below:

- **SMEs** – These are classified by the Government of Uganda as small scale if they employ 5-50 people and medium scale if they employ 51-500 people (Kasekende and Opondo 2003; Schiffer and Wedder 2001:13; Uganda Bureau of Statistics 2003). Small and medium scale business enterprises are the main pillars of the Ugandan economy in that they play an essential role that is crucial for poverty reduction by generating employment and income for a substantial part of the Ugandan population (Sander 2000; Kappel, Lay and Steiner 2004). However, these SMEs are among the groups considered to be disadvantaged when it comes to access to information on business opportunities, new technologies, taxes/subsidies, business rules and regulations, etc. (Schiffer and Wedder 2001; Uganda, Ministry of Finance Planning and Economic Development 2003).

It is estimated that there are 800,000 micro, small and medium scale enterprises in Uganda (Kasekende and Opondo 2003) of which 160,883 are registered, but only 9,763 are registered business enterprises in northern Uganda (Uganda Bureaus of Statistics 2003:6). The breakdown of these per district is: Ajumani 373 (3.82%), Apac 486 (4.98%), Arua 1,763 (18.06%), Gulu 2,754 (28.21%), Kotido 392 (4.02%), Lira 2,241 (22.95%), Moroto 218 (2.23%), Moyo 315 (3.23%), Nebbi 900 (9.22%), Nyakapiripiriti 177 (1.81%) and Yumbe 144 (1.47%) (Uganda Bureaus of Statistics 2003:55). However, most of these 9763 business enterprises - 9,019 - are micro or informal business enterprises employing less than 5 persons and only 721 are classified as SMEs (Uganda Bureaus of Statistics 2003:6). This study targeted the population of 721 SMEs - from which a sample size was determined.

- **Policy makers** - These include persons involved in business policy-making and the overall management of business activities. They are: 1 District Chairperson of the Uganda Chamber of Commerce; 1 District Chief Administrative Officer; 1 Town Clerk; and 1 Production and Marketing Officer from local government in charge of trade and commerce in each of the districts of Ajumani, Gulu, Lira, Moroto, and Nebbi. Policy makers - involved in business policy-making and the day-to-day management of business activities - are important respondents because they make decisions/policies regarding business activities which are vital when an appropriate business information system is to be designed. They are central to district planning and the implementation of plans for sector strategies - based on local priorities and needs (Ministry of Finance, Planning and Economic Development 2000). Their input in this study was important because of the reasons explained above.

- **Information providers -** They include libraries, telecentres, resource centres and radio stations – all of which are involved in the provision of information to the northern Ugandan community. Libraries, bibliographic centres, information analysis centres, documentation centres and resource centres form a large

percentage of information service providers. The study targeted managers/ librarians of public libraries, telecentres and resource centres, who were available in the districts of Ajumani, Gulu, Lira, Moroto, and Nebbi in northern Uganda. In addition, radio and television stations are important providers of information in Uganda. Unfortunately, there are no television stations in northern Uganda – except for one in the Lira district that opened recently. The radio stations at the time of research (2005) included - among others: Radio Freedom in the Kitgum district; Mega FM and Radio Four in the Gulu district; Radio North, Radio Rhino and Radio Wa, Radio Unity and Lira FM - all in the Lira district; Apac FM in the Apac district; Radio Paidha in the Nebbi district; the Voice of Life and Radio One in the Arua district and other smaller stations. All are privately owned. The government-owned television and radio stations did not reach some parts of northern Uganda at the time of the research.

The study targeted 15 information providers per district. Since there was no documentation on the number of information providers available - and based on the experience of the pilot study in which 12 information providers participated - the study's target of 15 information providers per district for the main study was considered appropriate.

An analysis of the target population given above, shows that a sample size for the SMEs required determining – unlike that for the business policy makers and information providers, whose numbers were fewer. This study, therefore, used all the targeted policy makers and information providers. The sample size determination method used for the SMEs is explained in the following section.

5.4.1 Sample size

A sample is a sub-set of some pre-determined size from a population of interest (Bailey 1994:82) so that - by studying the sample - results may be fairly generalise back to the population from which they were chosen (Trochim 2002:1). An adequate sample size reduces the likelihood of sampling error and the optimal size for a particular study may

be estimated from several parameters (Polgar and Thomas 1997). Neuman (1997:221) observes that the question of sample size may be addressed in two ways:

- The first one is to make assumptions about the population and use statistical equations to determine the sample size. Using this method, the researcher makes assumptions about the degree of confidence or number of errors that is acceptable – as well as the degree of variations.
- The second method is the "rule of thumb" - a conventional or commonly accepted number. This method is used because researchers, rarely, have the information required by the statistical method and because it gives sample sizes close to those of the statistical method.

5.4.1.1 Sample size for policy makers and information providers

Neuman (1997:222) argues that one of the methods of sample size determination is by "rule of thumb" - a conventional or commonly accepted amount. As noted earlier, based on the result of the pilot study and the manageable number of the target population of the policy makers and information providers, the study used all the targeted policy makers and information providers. In other words, the study used all of the 20 targeted policy makers and 75-targeted information providers.

5.4.1.2 Sample size for the SMEs

To determine the sample size for the SMEs, the statistical method was adopted - since the size of the population is known to be 721. Rea and Parker (1997) state that when, statistically, determining a sample size from a population, two interrelated factors that the researcher must, specifically, address before proceeding with the selection of a sample size are confidence interval and level of confidence. A confidence interval is an interval used to estimate the likely size of a population parameter. It gives an estimated range of values - calculated from a given set of data - that has a specified probability of containing the parameter being estimated. The level of confidence, on the other hand, is the risk of error the researcher is willing to accept in the study. Given the time requirements, budget and the magnitude of the consequences of drawing incorrect conclusions from the

sample, the researcher, typically, chooses either a 95% level of confidence – with a 5% chance of error - or a 99% level of confidence – with a 1% chance of error (Rea and Parker 1997:114). In order to minimise the risk of errors, the researcher considered the following:

- The greater the consequences of generalising data that might lead to incorrect conclusions, the greater the level of confidence the researcher should establish. In practical terms, this involves a choice between the 95% and 99% levels. In most cases the researcher can be satisfied by choosing the 95% confidence level - 5% risk.
- The margin of error or confidence interval must be established. The researcher will, generally, find 3-5 % to be satisfactory for proportional data.

On the same note, the *Evaluation and Data Development Strategic Policy, Human Resources Development, Canada* (1998) argues that the sample size to be chosen for a particular survey depends, mainly, on tolerable error; population size; the importance of particular sub-groups; anticipated level of non-response; and how much money is available. "Tolerable error" refers to the margin of error for the survey. The margin of error tells the reader how accurate the study's findings are. It adjusts the standard error to account for any potential differences between the sample and the population *via* the calculation of a "confidence interval" for the population mean. Traditionally, a 95% confidence interval is used (Evaluation and Data Development Strategic Policy, Human Resources Development Canada 1998). The tolerable margin of error is, usually, between 3% and 5% - much lower and the costs of the survey begin to rise, dramatically.

The traditional formula for sample sizes is:

$$n = 1.96^2 \, p \, (1-p)/Cp^2 \quad \text{OR} \quad n = \left[\frac{Z\alpha\sqrt{p(1-p)}}{Cp} \right]^2$$

Where n is the sample size to be calculated, Cp is the tolerable standard error and p is the proportion having the characteristic being measured. The most conservative way of handling this uncertainty is to set the value of p at the proportion that would result in the highest sample size. This occurs when p = 0.5, and (1-p) is the proportion who lack it. For example, if 48% said "yes", 52% must have said "no". $Z\alpha$= level of confidence - i.e., 95% or 1.96 from Z-table. That is to say that the 1.96 figure reflects the choice of a 95% confidence interval. In a normal distribution, 95% of the area under the curve is within 1.96 standard deviations of the mean. When the population size is known - and is below 100,000 - the "finite population correction factor" must be used to determine sample size (*Evaluation and Data Development Strategic Policy, Human Resources Development Canada* 1998; Israel 1992). The finite population correction factor measures how much extra precision is achieved when the sample size comes close to the population size (Simon 2004). Integrating the finite population factor gives the formula for sample size as: n = $Z\alpha^2$ p (1-p) N/ [$Z\alpha^2$ p (1-p)] + (N-1)Cp^2 (*Evaluation and Data Development Strategic Policy, Human Resources Development Canada* 1998), where n is the sample size, $Z\alpha$= 1.96 (from Z-table), p is the proportion having the characteristic being measured or the estimated proportion of an attribute that is present in the population. The most conservative way of handling this uncertainty is to set the value of p at the proportion that would result in the highest sample size and this occurs when p = 0.5, N is the population size which is 721 (see Section 5.5), Cp is the desired level of precision or tolerable error and this study will use 5%. Substituting these in n = $Z\alpha^2$ p(1-p)N/ ($Z\alpha^2$ p(1-p)) + (N-1)Cp^2, then, n= 1.96^2 x 0.5(1-0.5) 721/1.96^2 x 0.5(1-0.5) + (721-1) 0.052

$$n= 692.4484/2.7604 = 250.85.$$

The calculated n must be rounded to the next highest whole number. This gives n (number of the SMEs) to be 251.

Alternatively, the sample size for proportions is given as n= Z^2 pq/e^2 (Israel 1992) where n is the sample size; Z is the abscissa of the normal curve that cuts off an area or the desired confidence interval; e is the desired level of precision; p is the estimated proportion of an attribute that is present in the population; and q is 1-p. The value for Z is found in statistical tables which contain the area under the normal curve. In this study Z

is 1.96 - from the table; p is 0.5; and e is 0.05. Substituting in the formula: $n = Z^2 pq/e^2$, then, n= 1.96 x 1.96 x 0.5 x 0.5/ 0.05 x 0.05 and gives n to be 385. However, since the population size is small - less than 100,000 – a finite population correction for proportions is required. The finite population correction for proportions is

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

Where n is the sample size; n_0 is the determined sample size that needs to be reduced slightly for precision to be achieved; and N is the population size. In this case $n_0 = 385$ and N = 721 and substituting this in the formula:

$$n = \frac{385}{1 + \frac{385 - 1}{721}}$$ gives n to be 251 - the same as with the first formula.

Therefore, in this study, a sample size of 251 SMEs was used. Each of the sub-regions - West Nile, Madi, Acholi, Lango and Karamoja - had 50 SMEs to participate in the study.

5.4.2 Sampling procedure

Sampling is the process of selecting units – for example, people and organisations - from a population of interest (Trochim 2002:1). In this study, two levels of sampling and four samples were used. The first was the selection of districts to participate, and the second level was the selection of respondents – the SMEs, policy makers and information providers. The selection processes, involved, are explained in the following sub-sections.

5.4.2.1 Selection of districts

The first level and sample was the selection of the districts which would participate. At the time the study was conducted (2004), there were 13 districts in northern Uganda (see Appendix I). A purposive sampling technique was applied. Purposive or judgmental sampling is an acceptable kind of sampling for special situations which a researcher may use to select a difficult-to-reach, specialised population (Neuman 1997:206). Neuman

argues that a researcher needs to obtain a sample that is more manageable and cost effective to work with. The selection of the districts was based on the security situation and the number of business activities in the districts. The most peaceful districts with the highest number of SMEs were selected. Northern Uganda is divided into five sub-regions, namely: West Nile, Madi, Acholi, Lango and Karamoja (see Appendix I). The study could not choose one sub-region as a case study for the whole region because of the variation in the business activities; culture and languages used that have a direct bearing on the way and kind of business information provided. Secondly, one sub-region would not be representative enough for the entire northern Uganda. The study therefore selected from each sub-region, one district as explained below.

5.4.2.1.1 *The West Nile sub-region*

The West Nile sub-region consists of the Yumbe, Arua and Nebbi districts. The Arua district was used for the pilot study and was, therefore, excluded from the main study. Of the remaining two, though Yumbe is relatively peaceful, it has few business activities (Uganda Bureaus of Statistics 2003:55). This left Nebbi as the district selected for the main study. This is because Nebbi is peaceful and has many business activities - compared to Yumbe.

5.4.2.1.2 *The Madi sub-region*

The Madi sub-region consists of the Ajumani and Moyo districts. Ajumani was formed on 17 May 1997 from the, then, East Moyo county of the Moyo district. Although being a new district, Ajumani has a large Madi-speaking community that makes up 55.2% of the population and has 373 registered SMEs - compared to Moyo that has 315 (Uganda Bureaus of Statistics 2003:55). Although both the Moyo and Ajumani districts are, relatively, peaceful, the Ajumani district has more business activities when compared to the Moyo district. The Ajumani district was, therefore, selected to participate in the study.

5.4.2.1.3   The Acholi sub-region

The Acholi sub-region is comprised of the Gulu, Kitgum and Pader districts. Both Pader and Kitgum were not secure for conducting an effective and risk free research. The Gulu district has, traditionally, been widely acknowledged as the regional capital of the northern region and is said to be at the centre of the northern region – partly, because of the several districts it borders, such as Pader, Kitgum, Masindi, Apac, Moyo, Nebbi and Arua. In addition to these, it shares a border with the Sudan and has more business activities compared to the Kitgum and Pader districts. This made the Gulu district the most suitable area to be selected for the study.

5.4.2.1.4   The Lango sub-region

The Lango sub-region is comprised of the Lira and Apac districts. Though both Lira and Apac are relatively peaceful, the Lira district has more business activities than the Apac district. There are 486 registered business enterprises in Apac compared to 2,241 for Lira. Thus, the Lira district was selected for the study.

5.4.2.1.5   The Karamoja sub-region

The Karamoja sub-region consists of the Kotido, Moroto and Nakapiripiriti districts. The Kotido district has 392 registered business enterprises compared to the Moroto and Nakapiripiriti districts that have 218 and 177 each, respectively (Uganda Bureaus of Statistics 2003:55). Since the Kotido district has most of the business activities in the sub-region, it was selected to participate in the study.

5.4.2.2 Selection of respondents

The second level of sampling involved the selection of respondents in three categories - i.e., the SMEs, policy makers and information providers.

5.4.2.2.1   SMEs

The first category - second sample - of respondents was the SMEs from each of the selected districts. Since 251 SMEs were needed to participate in the study which covered

5 districts, 51 SMEs were selected from the Lira district - as it had the highest number of registered SMEs - and 50 SMEs were selected from each of the other 4 districts.

Although the Uganda Bureau of Statistics states that there were 721 registered SMEs in northern Uganda, all the districts did not have any useful documentation on the registered SMEs. The only document, available, was the one being compiled by the Uganda Chamber of Commerce and Industry that included micro, SMEs and large scale business enterprises. This document was not useful because the researcher could not identify the SMEs from the list - and even some districts, like the Kotido and Gulu districts, did not have any documents. This also raised a question on the management of records and information in the districts in northern Uganda. The study, thus, used the knowledge of research assistants to select the SMEs that would participate in the study. Since most of these SMEs were within the commercial centres or town areas, the research assistants knew most of those capable of employing 5-50 people [small scale] and 51-500 [medium scale]. With the help of the research assistants, who were knowledgeable in the study area, it was easy to identify the SMEs operating businesses in the area. Secondly, the identified business enterprises also helped the research assistants to identify more business enterprises since they knew each other.

5.4.2.2.2   *Business policy makers*

The second category - of the respondents targeted the 75 business policy makers in northern Uganda and included all 5 District Chairpersons of the Uganda National Chamber of Commerce and Industry; 5 District Chief Administrative Officers; 5 Town Clerks; and 5 Production and Marketing Officers of local government in charge of trade and commerce in the Ajumani, Nebbi, Gulu, Lira and Kotido districts. The selection of these policy makers was based on the findings of a pilot study - where it was established that those were the key business policy makers in the districts.

5.4.2.2.3   *Information providers*

The third category - of the respondents targeted the information providers - managers of public libraries, telecentres, resource centres and radio stations. The "snowball" or

"chain" sampling strategy was used. Snowball sampling - also called network, chain referral or reputational sampling - is a method of identifying and sampling or selecting in a network (Neuman 1997:207). The crucial feature in snowball sampling is that each unit or person is connected with another through a direct or indirect linkage. The use of this sampling technique - in selecting information providers - is justified in that public libraries, telecentres, resources centres and radio stations as information providers, know of each others' existence and there are either direct or indirect linkages between them because of the need to share information or obtain information for provision to users. Through inquires from one information provider to another; public libraries; resource centres; and radio stations as a source of business information, providers were identified. Secondly, the research assistants knew most of the information providers that were operating in the districts. All the public libraries, resource centres and radio stations - identified in the districts through the snowball strategy and through the knowledge of the research assistants - were included in the study.

To summarise, then, the sample for this study was drawn from 5 districts, one district per sub-region, and consisted of 251 SMEs, 20 policy makers and 75 information providers. SME managers and directors/librarians/managers of information providers answered the questions.

5.5 ETHICAL ISSUES

Accuracy in data collection and processing; the use of appropriate research methodology; appropriate interpretation of the data; accurate reporting; the non-fabrication of data; and/or criminal misconduct are elements that a researcher must keep in mind in order to do professional work (Sarantakos 1998). The ethical concerns noted by Goddard and Melville (2001) about collecting data from people that the researcher, carefully, took into consideration included: avoiding causing harm to people; having due regard for their privacy; respecting them as individuals; and not subjecting them to unnecessary research. Neuman (2003:302) argues that the "major ethical issue in survey research is the invasion of privacy." He advises researchers never to cause unnecessary or irreversible harm to subjects and never to, unnecessarily, humiliate, degrade, or release harmful information

about specific individuals that was collected during the research. The researcher ensured that those ethical concerns were observed. Respondents were assured of their rights of consent and the treatment of information - given as confidential - and only to be used for the purpose of the study. Anonymity and confidentiality was promised and upheld. This was stated before the questionnaires were administered (see Appendices III and IV) and before the interviews were conducted.

5.6   PILOT STUDY

Before the main study was conducted, a pilot study was conducted in the Arua district. The choice of the Arua district was based on the fact that it is one of the busiest districts with many business enterprises. This provided a relevant environment for a pilot survey for this study. The purpose of the pilot study was to acquaint the researcher with what to expect in the main study and to test the research instruments. A pilot study gives the opportunity for research instruments to be closely examined for possible errors and the adequacy of eliciting the required data - before the main survey is undertaken. Edwards and Talbot (1999:37) argue that a pilot study should not include people or settings from the main study and the actual size depends upon factors, such as the purpose of the study and access to subjects. However, an indicative figure is that it should consist of approximately 10% of the sample size. A sample size of 60 business firms or enterprises, information providers and business policy makers were, therefore, used. There were 40 business enterprises and 10 business policy makers and information providers each Of these, 30 SMEs, 6 business policy makers and 12 information providers participated - giving a response rate of 75%, 60% and 120%, respectively. The response rate of 120% for information providers indicated that there were more information providers than were necessary to participate.

After the pilot study, the data was analysed using Epi Info and SPSS. A report was produced that gave the researcher a picture of what to expect in the main study. The pilot study resulted in the improvement of content of the research instruments for the main study; the withdrawal of unnecessary instruments, such as an observation guide for the

study; and the publication of a journal article in *Mousaion* (Okello-Obura, Minishi-Majanja and Cloete 2006).

5.7   DATA COLLECTION PROCESS AND ANALYSIS

The data collection process and analysis method - used for this study - are explained in the following sections.

5.7.1   Data collection process

After the necessary adjustments of the instruments for data collection - as a result of the pilot study - had been made and approved by the promoters, the data collection process commenced. The researcher submitted a formal request to the Executive Secretary of Uganda Council of Science and Technology – the statutory body concern with research in the country - for permission to conduct the research and introductory letters to the Districts Administrative Officers of the Ajumani, Gulu, Kotido, Lira and Nebbi districts were secured. After permission had been granted and introductory letters issued by the Uganda Council of Science and Technology, the data collection started in the Gulu district where the local promoter went into the field with the researcher. In all the districts covered, research assistants were first trained in the data collection techniques. Research assistants administered the questionnaires to the SMEs and to the information providers. In order to ensure consistency and that the challenges were addressed, the researcher met with the research assistants every evening and formulated strategies for challenges faced during the day. The researcher interviewed the business policy makers. After the Gulu district, the data collection process proceeded in the Lira district, then the Kotido and Nebbi districts and, finally, in the Ajumani district. On average, the data collection process took six months and was conducted in 2005.

5.7.2   Data analysis

In survey research, content analysis and descriptive statistics are used for data analysis (Edwards and Talbot 1999:115). The way the researcher organised - and analysed - the data from the research instruments depended on the questions the researcher tried to address in the study. The coded responses from the questionnaires were analysed, quantitatively, using Epi Info and SPSS software. After the questionnaires were returned,

the researcher edited all the questionnaires - district by district - to ensure legibility and accuracy and, thereafter, handed them over to the statistician from the Institute of Statistics, Makerere University, who created a data entry screen using Epi Info. A data entry clerk was employed to enter the data. To ensure that the data entered was free of errors, the researcher - together with the statistician - cleaned the database before the data was transferred to SPSS for analysis into frequencies, percentages, pie charts and bar graphs. The researcher collaborated with the statistician and was involved throughout the data analysis process. The involvement was because the researcher did not want a mistake during any step of data analysis process to ruin the study. Neuman (1997:297) observes that a researcher who has a perfect sample, perfect measures and no errors in gathering data but who makes errors in the coding process - or in entering data into the computer - can ruin a whole research project. This is the kind situation the researcher wanted to avoid.

Data from interviews [unstructured questions] was analysed, using the content analysis method. Content analysis is the systematic, quantitative analysis of communication content - including verbal, visual, print, and electronic communication. In content analysis, "a researcher uses objective and systematic counting and recording procedures to produce a quantitative description of the symbolic content in a text" (Neuman 2003:311). In applying content analysis, the researcher identified the themes of the research - based on the objectives of the study - and classified the responses from each of the respondent, accordingly, so as to come up with a quantitative value that would facilitate decision-making. Edwards and Talbot (1999) argue that irrespective of the research design and the methods utilised, a stage of coding and classification of information must be undertaken. Classification simplified the task of obtaining a quantitative value from what policy makers said about the business information needs and from the problems the SMEs face in accessing business information - for a viable business information design.

5.7.3 Time frame and resources

Because it is impossible to anticipate all the potential stumbling blocks when doing research, one has to make time allowances for the unexpected that might intervene (Mouton 2001). The time frame for the processes involved in this study - given in Appendix VI - was modified as the research processes preceded. The study used 6 research assistants. Two research assistants were used in the Gulu district while the Lira, Kotido, Nebbi and Ajumani districts had one research assistant each. Carnegie - through the Makerere University Postgraduate and Research Committee - provided the research funds.

5.7.4 Problems encountered

Generally, the study was conducted without any major problems. Some of the practical problems encountered during the study include the ones described below.

5.7.4.1 Insecurity

Insecurity - due to the Lord Resistance Army (LRA) war on the way to the Ajumani district from the Gulu district and cattle rustling - was a great hindrance, especially in the Kotido district. This resulted in a lot of suspicion among the respondents. Because the research assistants were widely known among the business community, the respondents later developed a trust and responded, appropriately. It should be noted that though insecurity was a problem in the Kotido district, it was beneficial for the research in the Gulu district. Because of the war in most parts of the Gulu district, most business enterprises were concentrated in Gulu town. This made data collection easier.

5.7.4.2 Research fatigue

The different problems - experienced by northern Uganda - have resulted in many research projects being carried out in the region. This has created resentment among the population and a reluctance to participate. Some people thought that they did not benefit from the research carried out and there was, therefore, no need to participate in the study. Since the researcher had anticipated this – having been warned by an NGO researcher and from experience in the pilot study - the choice of social and known research

assistants among the business community was considered crucial. This worked perfectly well because there was good cooperation from the respondents.

5.7.4.3 Demand for money

There is a culture that is developing within the Ugandan society of demanding payment for whatever one does. Many respondents, such as the SMEs, demanded money to answer the questionnaires. Though in some cases a "reward" - in the form of soft drinks - was given to induce participation, much of the convincing was due to the competence and good social characters of the research assistants who were employed. It is not clear as to whether this was happening due to the high level of poverty existing in the area or to the commercialisation of politics in Uganda - where many people think they should be given reward for participation.

5.8   FINAL REPORT

The final report is the vehicle for communicating the findings, conclusions and recommendations - derived from the study - to an audience. It is more than a summary of the findings; it is a record of the research process (Neuman 2003:469). Rea and Parker (1997:198) observe that the writing of the final report should be viewed by the researcher as integral to the survey research process as a whole. Edwards and Talbot (1999: 165) argue that for a survey-based study, a report requires a clear tabular presentation of several elements of the results that have been obtained - before moving onto another analysis which examines relationships between these results. In this report, the analysis of data - including tables, graphs and other statistical presentations - is organised and explained, clearly. The tables and graphs are integrated within the text and are not aggregated separately from it. The findings - based on the analysis - are presented in Chapter 6; the discussion of the findings is in Chapter 7; the proposal for a BISD is presented in Chapter 8; and conclusions are drawn and recommendations are made in Chapter 9.

5.9   SUMMARY

The credibility of any study depends on the structuring of the study to elicit credible responses. The appropriateness of the research design and methodology is important to the success of the planned study. Based on that, this study used both the quantitative and qualitative research paradigms - with a focus on descriptive survey research design. A quantitative approach was used in structuring the questions to quantify and rate the responses to different aspects of the study which was based on the objectives and on data analysis and the presentation of the findings. Percentages and graphs are used to convey the required information in a meaningful way. A qualitative approach was used to bring about a deeper understanding of the emerging issues, patterns or themes relevant to the design of a viable business information system. Of the many research techniques used in descriptive study, the survey research technique was applied. The application of the survey technique, data collection methods and tools, was aimed at eliciting the required data for proposing a mechanism/design that supported business activities and conformed to the design standards - as per the requirements of the SMEs in northern Uganda. In the next chapter, the findings of the study are presented.

CHAPTER 6

PRESENTATION OF FINDINGS

6.1 INTRODUCTION

This chapter presents the findings of the study - conducted on the SMEs in northern Uganda - to establish the requirements for a BISD for SMEs. As part of the strategy to achieve credible responses for Objectives 3-8 - as stated in Chapter 1, Section 1.6, of the study - information providers and business policy makers were also involved in the study. The results of the findings - from the SMEs and information providers – are, jointly, presented in text, table and graphic formats. The focus is on the SMEs - as the objectives of the study require. Where the Likert scale ranking was used, responses are ranked and presented, accordingly. The findings from the interviews - that were conducted with policy makers - are presented, mainly, in the form of quotations in order to draw comparisons and contrasts in the findings. The chapter reports on the following:

- Background information on the respondents
- Business activities carried out in northern Uganda
- Business information needs of the SMEs
- Sources of business information used - and trusted - by the SMEs
- Access to business information and the problems experienced in accessing business information
- Suggestions from the SMEs managers, information providers and business policy makers for an appropriate business information system design.

6.2 BACKGROUND INFORMATION ON THE RESPONDENTS

The respondents included the SMEs managers, information providers and business policy makers. The background information on the respondents is presented in the following sections.

6.2.1   Response rate of the respondents

Of the targeted sample of 251 SMEs (see Chapter 5, Section 5.4.1.1), 219 respondents participated in the study - giving a response rate of 87.3%; of the targeted 75 information providers, 54 participated - giving a response rate of 72%; and of the targeted 20 business policy makers, 17 participated - giving a response rate of 85%.   Generally, the rates indicate a very positive response from the respondents.

6.2.2   Gender and age of the respondents

The SMEs managers who participated were 73.4% male and 26.6% female. Of the 219 participants, 218 indicated their age brackets - i.e., they answered the specific question. The age distribution of those 218 respondents is presented in Table 6.1.

TABLE 6.1

AGE DISTRIBUTION OF THE RESPONDENTS [SMEs MANAGERS] N=218[*]

Age Bracket	Frequency	Percentage
15-20	13	6.0
21-30	101	46.3
31-40	59	27.1
41-50	34	15.6
51 and above	11	5.0
Total	**218**	**100**

Note:
> *****   *The "N" given in all the tables indicates the number of the respondents who answered that particular question.*

The information providers who participated were 81.1% male and 18.9% female. Their age distribution is given in Table 6.2.

TABLE 6.2

AGE DISTRIBUTION OF THE RESPONDENTS [INFORMATION PROVIDERS]
N=54

Age Bracket	Frequency	Percentage
15-20	5	9.3
21-30	29	53.7
31-40	11	20.3
41-50	5	9.3
51 and above	4	7.4
Total	**54**	**100**

The findings show that there are still very few females in managerial positions in business enterprises and information provision. A notable finding relates to ages: the majority of both the SMEs managers and the information providers fall in the active - and most productive - age bracket of 21-30 years. This goes up to 40 years before the trend declines.

Business policy makers who participated were 94.1% male and only 5.9% female. Their age distribution was as follows: 15-20 years (0%); 21-30 years (23.5%); 31-40 years (47.1%); 41-50 years (29.4%) and 51 and above (0%). This shows that the majority of business policy makers fall in the age bracket of 31-40 years.

6.2.3   Education levels of the respondents

The education levels of the SMEs managers and information provider managers were established and are indicated in Tables 6.3 and 6.4, respectively.

TABLE 6.3

EDUCATION LEVELS ATTAINED BY SMEs MANAGERS N=218

Education Levels	Frequency	Percentage response
Never went to school	14	6.4
Primary	16	7.3
Secondary	73	33.5
Technical college	28	12.8
Business college	47	21.6
Teachers college	12	5.6
University	28	12.8
TOTAL	**218**	**100**

TABLE 6.4

EDUCATION LEVELS ATTAINED BY INFORMATION PROVIDERS N=54

Education Levels	Frequency	Percentage response
Never went to school	0	0
Primary	1	1.9
Secondary	14	25.9
Technical college	0	0
Business college	15	27.8
Teachers college	4	7.4
University	20	37
TOTAL	**54**	**100**

Of the policy makers who participated, 52.9% had Bachelor's degrees [none in the field of Library and Information Sciences], 41.2% had diplomas and 5.9% had a secondary level certificate.

Since the findings show that the majority of respondents are literate, therefore, the respondents are in a better position to comprehend business issues and concerns with ease. However, the respondents have different levels of business experience - as is seen from the presentation in Section 6.2.4 which follows.

6.2.4   Years of business experience

There is a common saying that "experience is the best teacher." The SMEs managers are able to learn from their business experience to access or scan the environment for relevant information. Business information providers can also learn from their experience - acquired in the provision of information to determine not only the information needs of their users, but also the problems they face in accessing quality information. This study, therefore, established the extent of business experience of the SMEs managers and the information provision experience of information providers - and the results are presented in Figure 6.1.

FIGURE 6.1

SMEs MANAGERS' BUSINESS EXPERIENCE AND INFORMATION PROVIDERS' EXPERIENCE IN INFORMATION PROVISION
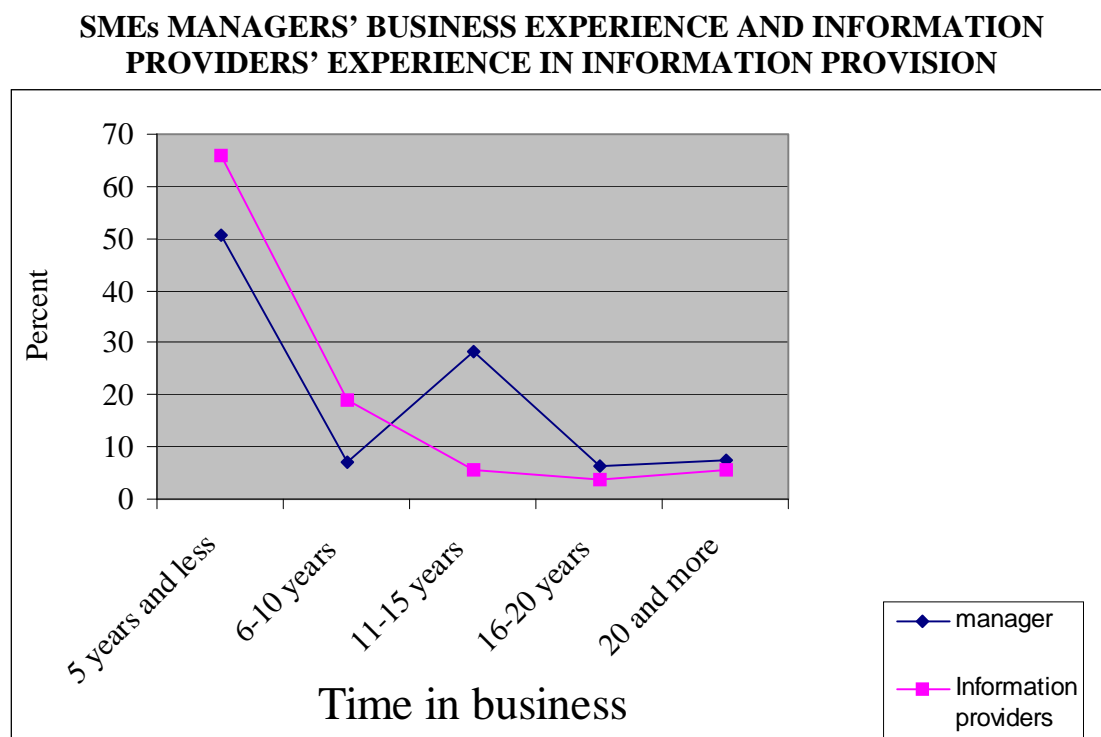
The results show that the majority of both the SMEs and information providers have 5 years or less experience in business operations and information provision, respectively. For the business policy makers, the least experienced respondent had one years' experience and the most experienced had twenty two years' experience in business policy

making - in different capacities. The findings indicate that since the majority are less experienced in business management and in information provision, appropriate training may be necessary as part of the business information systems design. However, only 5.9% of the business policy makers had less than 5 years of work experience.

6.2.5   Location of the SMEs and information providers

Of the SMEs who participated, 87.7% are located in urban areas while 12.3% are located in rural areas; and of the information providers who participated, 83.3% are located in urban areas and 16.7% in rural areas. Out of the SMEs who participated, 77.8% use electricity. Since the majority of the SMEs use electricity, this could be good for online information provision.

6.2.6   Registration

Of the 217 SMEs respondents who answered the question on registration, 78.3% are registered business enterprises while 21.7% are not registered. Of the total SMEs respondents, 66.2 % use electricity and 33.8% do not have electricity. However, 98.1% of the information providers who participated are registered.

6.2.7   Language proficiency of the SMEs managers

The study gave respondents [the SMEs managers] the choice of one official language used in Uganda; one national language; and three local languages – that are widely spoken in northern Uganda - for them to indicate the ones they read quite well. The findings indicate that 87.7% of the respondents can read English - Uganda's official language - quite well, while 32.9% can read Kiswahili - Uganda's national language - quite well. Of the local languages given, 56.2% of the respondents can read Luo quite well, 6.4% - Lugbara, 5.0% - Ngakarimojong and 16.9% can read another language.

6.3   BUSINESS OWNERSHIP AND BUSINESS ACTIVITIES

In a bid to understand more about the SMEs that are operating in northern Uganda, the SMEs managers were asked about the ownership of the business enterprises and the

business activities carried out by their enterprises. The following sections indicate the findings.

6.3.1   Ownership

The findings show that the ownership of business enterprises include Sole Proprietorship - 51.4%; Limited Liability Companies - 20.6%; Partnerships - 16.8%; Cooperative Companies - 5.1%; Government-owned - 2.8%; Religious Organisation-owned - 2.3%; and other - 0.9%. These findings indicate that the majority of the business enterprises fall into the Sole Proprietorship and Limited Liability Company categories. Religious organisations and the government own very few business enterprises.

6.3.2   Business activities

The study established that the SMEs are engaged in a variety of business activities. The majority are involved in transport services - 21.5%; Construction - 21%; Lodging Services - 18.3%; and Property Management - 15%. The details are as shown in Figure 6.2 on the next page.

FIGURE 6.2

SMEs BUSINESS ENTERPRISES IN NORTHERN UGANDA
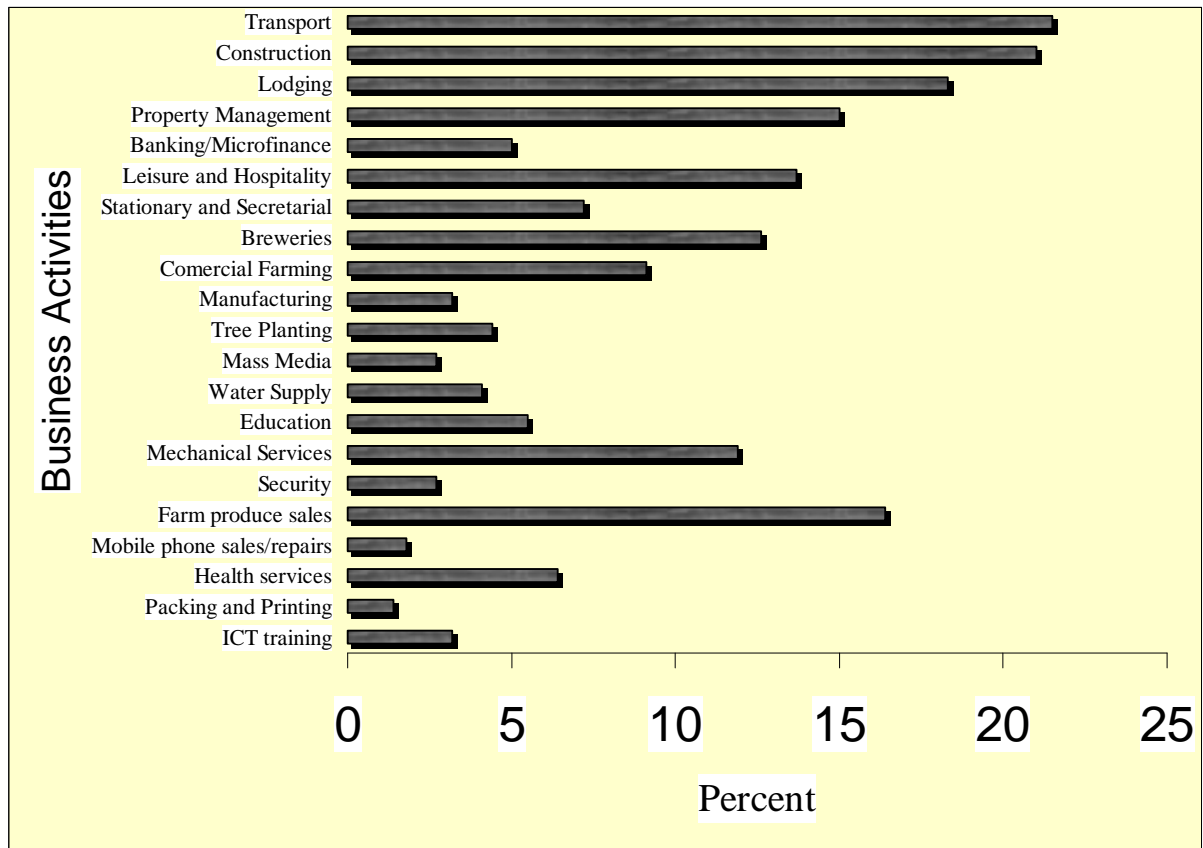
The findings show that business activities carried out in northern Uganda are diverse - with the majority being in the service sector.

Figure 6.3 shows how the information providers who responded were classified.

FIGURE 6.3

CLASSIFICATION OF INFORMATION PROVIDERS

Organisation classification
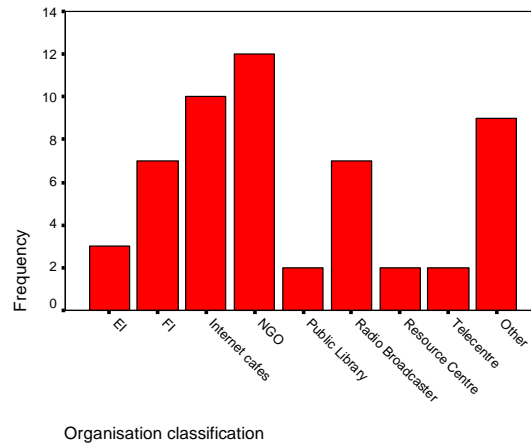
Key:

EI   Educational Institutions

FI   Financial Institutions

It can be seen that public libraries and resource centres - which are generally considered to be the focal points of community information access - are limited in number in northern Uganda.

When the information providers were asked as to whether they had specific programmes for the business community, the results indicate that 50% of the information providers have specific programmes for the business community and 33.3% sometimes have programmes, while 16.7% have no specific programme for the business community in their service provision. Those who have specific programmes made mention of the following:

- Selective administration of business information - 37%
- Advisory services - 22.3%
- Translation of business information - 7.4%
- Talk shows - 3.7%
- Others eg. Computer training, drama, loans, radio programmes etc - 29.6%

6.3.3 Motivation for continuing with the business

In a bid to understand what motivates the SMEs to continue with their businesses, respondents were asked to give reasons for continuing with their businesses. The results are given in Figure 6.4.

FIGURE 6.4

MOTIVATION TO CONTINUE WITH THE BUSINESS

Motivation to continue with the business
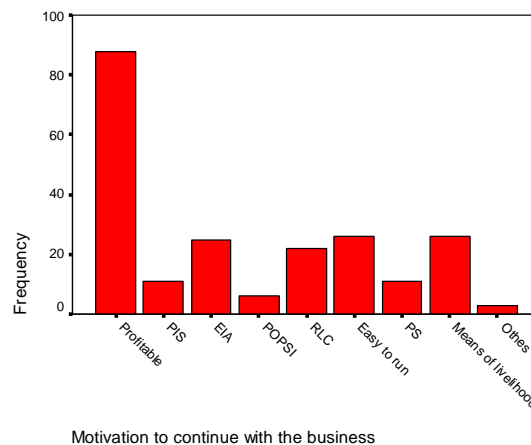
Key:

PIS – Prompt Information Supply

EIA – Easy Information Access

RLC - Requires Less Capital

PS – Personal Satisfaction

POPSI – Private Organisations Promptly Supply the Information for running them

From Figure 6.4, the findings reveal that the majority - 40.4% - of the SMEs continue to carry out their businesses because of their profitability; ease to run; while means of livelihood were 11.9%. A striking finding - that is worth noting - is that prompt information supply by the Government of Uganda and private sector is not considered by the majority as a motivating factor to continue with a business.

The following section reports on the business information needs of the SMEs.

6.4   BUSINESS INFORMATION NEEDS

In order to design an information system, it is crucial to determine business information needs - as part of the functional requirements. Respondents were asked to state and rank the business information needs they considered important in their business activities. The results are recorded in Table 6.5.

TABLE 6.5

SMEs BUSINESS INFORMATION NEEDS (N=219)

Business information for SMEs	Most needed %	Sometimes needed %	Least needed %	Not needed %
Information on finance/capital/loans	68	14.2	9.1	8.7
Information on business management skills	57.8	18.8	13.3	10.1
Information on local markets	48.4	21.9	20.1	9.6
Information on business competitors	37.3	26.3	21.7	14.7
Information on security	33.5	20.1	21.6	24.8
Information on appropriate technologies	30.7	24.4	22.0	22.9
Information on business laws and taxation	29.4	30.7	25.2	14.7
Information on trade fairs, tenders and contracts	26.7	17.5	24.0	31.8
Information on government policies and regulations	26.3	24.4	30.4	18.9
Information on international markets and foreign exchange	14.7	15.1	34.9	35.3

The business information providers ranked the information needs of the SMEs as indicated in Table 6.6.

TABLE 6.6

SMEs BUSINESS INFORMATION NEEDS ACCORDING TO INFORMATION PROVIDERS (N=54)

Business information for SMEs	Most needed %	Sometimes needed %	Least needed %	Not needed %
Information on finance/capital/loans	51.9	18.5	22.2	7.4
Information on local markets	50.0	22.2	20.4	7.4
Information on business management skills	46.2	20.4	16.7	16.7
Information on government policies and regulations	35.2	27.8	27.8	9.2
Information on security	29.6	24.1	33.3	13.0
Information on trade fair, tender and contracts	28.2	32.1	20.8	18.9
Information on business competitors	25.9	37.0	25.9	11.2
Information on appropriate technologies	25.9	25.9	31.5	16.7
Information on business laws and taxation	18.9	37.7	22.6	20.8
Information on International markets and foreign exchange	11.2	25.9	37.0	25.9

An examination of the results - given in Tables 6.5 and 6.6 - show a similarity of opinions between the SMEs managers and the information providers regarding the SMEs information needs. Both the SMEs and the information providers considered information on international markets and foreign exchange least needed. Although information providers are of the opinion that information on business laws and taxation is sometimes needed, the business policy makers are of the opinion that the SMEs, mostly, needed this kind of information. One of the business policy makers (Okot 2005) said that

> *most of our business enterprises do engage in businesses without knowing the*
> *taxes involved and they, eventually, get frustrated when the government gives*
> *them a tax assessment. Accurate information on laws and taxes are crucial.*

An information user might have a need for information, but access to that information is something else. Some information is easily accessed, while other information is difficult to access. In view of this, respondents were asked to rate the level of difficulty they experienced in accessing the business information they needed and the results are recorded in Table 6.7.

TABLE 6.7

LEVELS OF DIFFICULTY IN ACCESSING DIFFERENT TYPES OF BUSINESS INFORMATION BY SMES IN NORTHERN UGANDA (N=219)

Business information for SMEs	Most difficult %	Sometimes difficult %	Least difficult %	Not difficult %
Information on finance/capital/loans	41.6	27.8	16.0	14.6
Information on international markets and foreign exchange	41.6	16.4	26.5	15.5
Information on appropriate technologies	32.6	19.3	25.7	22.4
Information on business laws and taxation	29.7	26.0	27.9	16.4
Information on government policies and regulations	23.3	26.5	23.3	26.9
Information on business management skills	21.5	28.9	24.8	24.8
Information on trade fairs, tenders and contracts	17.8	16.0	27.8	38.4
Information on security	17.4	15.5	23.3	43.8
Information on business competitors	15.5	19.2	34.7	30.6
Information on local markets	13.6	26.5	32.0	27.9

From the results - indicated in Table 6.7 - the majority of the SMEs managers in northern Uganda felt that the most difficult information to access includes information on finance/capital/loans - 41.6%; information about international markets and foreign exchange - 41.6%; and information on appropriate technologies - 32.6%. The business policy makers that were interviewed agreed that information on finance/capital/loans and, especially, on fair interest rates, international markets, business skills and appropriate technologies, is difficult to access by most of the SMEs.

Table 6.8 indicates how the information providers rated the difficulty in accessing different types of business information by the SMEs.

TABLE 6.8

LEVELS OF DIFFICULTY IN ACCESSING DIFFERENT TYPES OF BUSINESS INFORMATION BY SMEs ACCORDING TO THE INFORMATION PROVIDERS (N=54)

Business information for the SMEs	Most difficult %	Sometimes difficult %	Least difficult %	Not difficult %
Information on international markets and foreign exchange	37.0	20.4	25.9	16.7
Information on appropriate technologies	35.2	16.7	37.0	11.1
Information on business laws and taxation	33.3	16.7	29.6	20.4
Information on security	27.8	14.8	35.2	22.2
Information on trade fairs, tenders and contracts	20.3	31.5	24.1	24.1
Information on government policies and regulations	24.1	27.8	33.3	14.8
Information on business management skills	20.4	25.9	35.2	18.5
Information on local markets	16.7	29.6	25.9	27.8
Information on business competitors	14.8	33.3	35.2	16.7
Information on finance/capital/loans	14.5	16.0	27.9	41.6

Table 6.8 shows that information providers find information on international markets; foreign exchange; business laws and taxation; and appropriate technologies most difficult to access by the SMEs in northern Uganda. Although there was a difference in the findings regarding the difficulty in accessing information on finance/capital/loans, the findings show some similarity between the views of SMEs managers and those of the information providers (see Tables 6.7 and 6.8) - probably suggesting the real situation in northern Uganda. The following section reports on the findings on the means of access to business information by the SMEs.

6.5   ACCESS TO BUSINESS INFORMATION

To access the needed business information, appropriate means must be used. The following section reports on the means used by the SMEs to access business information.

6.5.1 Means of accessing business information

Table 6.9 gives the results of the study on the means used by the SMEs to access business information needed.

TABLE 6.9

SMEs RESPONSES TO THE MEANS OF ACCESS TO BUSINESS INFORMATION (N=218)

Means of access to business information	Most used %	Sometimes used %	Least used %	Not used at all %
By using the telephone	72.0	12.8	6.9	8.3
Discussions with business colleagues or customers	44.0	33.0	15.2	7.8
Listening to radio broadcasts	32.9	30.6	17.8	18.7
Through the public notice-boards	18.3	24.2	21.9	35.6
Through e-mail	12.3	12.8	30.6	44.3
Listening to, and watching, television broadcasts	11.5	11.9	31.2	45.4
Communication at conferences	9.1	15.5	30.2	45.2
Using the Internet	7.8	12.3	22.8	57.1
Visiting a library and reading information sources	7.3	10.5	25.1	57.1
Visiting a telecentre and reading information resources	6.4	9.2	27.1	57.3
Listening to politicians	4.6	8.3	24.3	62.8

Table 6.9 indicates that the SMEs in northern Uganda use, mostly, telephones; business colleagues or customers; and radio broadcasts as a means of access to business information. Listening to politicians; visiting telecentres and libraries; using the Internet; communicating at conferences; and using e-mail were considered unpopular by the majority of the respondents.

How the information providers in northern Uganda rated the means used by the SMEs to access business information is indicated in Table 6.10.

TABLE 6.10

INFORMATION PROVIDERS' RESPONSES TO THE MEANS OF ACCESS TO BUSINESS INFORMATION BY SMEs (N=54)

Means of access	Most used %	Sometimes used %	Least used %	Not used at all %
Listening to radio broadcasts	57.4	25.9	5.6	11.1
By using the telephone	53.7	18.5	13.0	14.8
Discussions with business colleagues or customers	40.7	31.5	22.2	5.6
Through the public notice-boards	29.6	24.1	29.6	16.7
Through e-mail	9.3	9.3	37.0	44.4
Listening to politicians	13.0	9.2	35.2	42.6
Communication at conferences	1.9	20.3	35.2	42.6
Visiting a library and reading information sources	1.9	9.2	46.3	42.6
Using the Internet	7.4	11.1	38.9	42.6
Visiting a telecentre and reading information resources	3.7	9.2	31.5	55.6
Listening and watching television broadcasts	3.7	9.3	33.3	53.7

Similar to the SMEs, the majority of the information providers in northern Uganda highly rated the use of the telephone at 53.7%; discussions with business colleagues or customers - 40.7%; and radio broadcasts - 57.4%, as the most used means to access business information. The information providers were, equally, divided on the utilisation of public notice-boards, with 29.6% saying that they were used most and 29.6% saying they were used least. E-mail, television broadcasts, the library, the Internet, telecentres and politicians were considered least used - or not used at all - by the SMEs to access business information. The business policy makers attributed the lack of Internet usage, e-mail and television to the lack of facilities and to ICTs illiteracy within the business community in northern Uganda. One of the district's Commercial Officers (Olobo 2005) said:

> *Most of the business managers are ignorant of the vast opportunities the Internet can provide. The Internet can provide enormous business opportunities and a well- coordinated approach in sensitising the business community in ICTs could go a long way in improving business prospects.*

6.5.2 Reliability of means of accessing business information

In order to understand the reliability of the means of access, respondents were asked to rank the different means of access to business information used - depending on the level of trust they put on each of them. The results are recorded in Table 6.11.

TABLE 6.11

RELIABILITY OF MEANS OF ACCESS TO BUSINESS INFORMATION BY SMEs (N=219)

Means of access	Most reliable %	Sometimes reliable %	Least reliable %	Not reliable %
By using telephone	63.1	17.5	7.4	12.0
Discussions with business colleagues or customers	38.5	34.4	19.3	7.8
Listening to radio broadcasts	27.6	27.6	28.1	16.1
Through the public notice-boards	18.4	20.6	23.0	37.8
Through e-mail	14.4	13.4	31.9	40.3
Using the Internet	11.0	8.8	25.8	54.4
Listening to, and watching, television broadcasts	11.9	15.1	32.2	40.8
Visiting a library and reading information sources	9.8	11.7	29.0	49.5
Communication at conferences	7.4	17.5	30.9	44.2
Visiting a telecentre and reading information resources	5.5	12.4	25.8	56.1
Listening to politicians	5.1	6.5	23.3	65.1

The findings - given in Table 6.11 - show that the most reliable means of accessing business information is by means of the telephone, discussion with business colleagues, and by listening to radio broadcasts. E-mail, television, conferences, libraries, telecentres, notice-boards and politicians are not considered reliable means by the majority of respondents.

Table 6.12 indicates the responses of the information providers on the reliability of the means used by the SMEs.

TABLE 6.12

RELIABILITY OF MEANS OF ACCESS TO BUSINESS INFORMATION BY SMEs ACCORDING TO INFORMATION PROVIDERS (N=54)

Means of access	Most reliable %	Sometimes reliable %	Least reliable %	Not reliable %
By using the telephone	48.1	22.2	20.4	9.3
Discussions with business colleagues or customers	42.6	35.2	11.1	11.1
Listening to radio broadcasts	40.7	29.5	24.1	5.6
Through the public notice-boards	22.2	29.5	33.3	14.8
Using the Internet	20.4	9.3	27.7	42.6
Visiting a library and reading information sources	16.7	11.1	33.3	38.9
Through e-mail	13.0	7.4	35.2	44.4
Listening to, and watching, television broadcasts	11.1	18.5	35.2	35.2
Visiting a telecentre and reading information resources	11.1	13.0	29.6	46.3
Communication at conferences	9.3	18.5	33.3	38.9
Listening to politicians	7.4	13.0	35.2	44.4

An examination of the information providers' responses shows that the majority of information providers (70.3%) think that SMEs consider the telephone to be reliable means of business information accessibility. Others rated highly include: discussions with business colleagues or customers (77.8%) and radio broadcasts (70.2%). They also think that over 70% would not – or would to a lesser extent - rely on television broadcasts, the Internet, conferences, e-mail, libraries, telecentres and politicians.

6.5.3 Formats in which SMEs receive and prefer to receive business information

When the respondents – the SMEs - were asked to state the formats in which they receive business information, the responses were: Radio broadcasts - 63.5%; telephone text messages - 52.5%; verbal form, through extension workers - 49.3%; printed form - 46.6%; demonstrations - 16%; e-mails - 14.6%; faxes - 14.2%; television broadcasts - 11.9%; video tapes - 10.5%; online delivery - 10%; diskettes - 9.1%; and CD ROMs -

4.1%. These findings indicate that the majority of the SMEs receive business information in the form of radio broadcasts, telephone text messages and in verbal formats.

When the respondents – the SMEs - were asked to indicate the formats in which they would prefer to receive business information, the majority gave their preference as by means of the radio - 54.5%; in a printed format - 45.9%; and by means of telephone text messages - 42.5%. About 40% of the respondents showed a preference for a verbal form - through extension workers. The ICTs formats, like CD-ROMs, online delivery, diskettes, e-mails and faxes, were less popular.

When the information providers were asked about the formats they see as appropriate for supplying business information to the business enterprises, 19.2% suggested the radio format and 16.4% preferred a verbal form - through extension workers. Like the SMEs, the information providers lowly rated ICTs, such as online delivery, e-mails, faxes, diskettes and CDROMs. When the business policy makers were interviewed on their preferred formats, radios, printed, telephone and online delivery formats were, overwhelmingly, preferred. About 95% of the business policy makers supported the use of the online delivery format - attributing its lack of use to ignorance, cost and the lack of ICTs sensitisation among the business community. One of the policy makers (Epilla 2005) said:

> *If the business community could be taught and sensitised to the benefits of ICTs applications in business, many would, willingly, exploit their values in commerce. Ignorance, illiteracy and inadequate facilities are the problems.*

6.6   SOURCES OF BUSINESS INFORMATION

In order to determine the input into the proposed business information system, it was necessary to find out which sources of business information are used - and preferred - by the SMEs in northern Uganda. The sources of business information used by the SMEs are shown in Table 6.13.

TABLE 6.13

SOURCES OF BUSINESS INFORMATION SMEs USE (N=219)

Sources of business information	Most important %	Sometimes important %	Least important %	Not important %
Radio stations	57.2	20.7	13.8	8.3
Newspapers	44.4	17.6	19.9	18.1
Personal contact - e.g., entrepreneurs and friends	44.0	23.4	17.9	14.7
Extension workers	26.7	24.0	32.2	17.1
Printed sources, like trade literature, journals and reports - individually bought or donated	17.5	22.6	39.6	20.3
Private sector consultants	16.6	23.0	26.3	34.1
Uganda government departments	15.7	17.2	32.4	34.7
Banks/Other financial institutions	14.8	21.8	24.5	38.9
Television stations	12.0	11.2	28.7	48.1
Industrial/trade associations	11.0	23.4	33.9	31.7
Internet sources	9.7	14.7	24.9	50.7
Libraries, telecentres and resource centres	8.3	14.3	32.3	45.1

An analysis of Table 6.13 shows that the important sources of business information include radio stations - 77.9%; personal contact - 67.4%; and newspapers - 62%. However, the majority of the SMEs indicated that the sources of business information that are not important include private sector consultants - 34.1%; Uganda government departments - 34.7%; libraries, telecentres and resource centres - 45.1%; Internet sources - 50.7%; banks/other financial institutions - 38.9%; and television stations - 48.1%.

For information providers, the important sources of business information used by the business enterprises are given in Table 6.14.

TABLE 6.14

SOURCES OF BUSINESS INFORMATION SMEs USE ACCORDING TO INFORMATION PROVIDERS (N=54)

Sources of business information	Most important %	Sometimes important %	Least important %	Not important %
Radio stations	69.2	13.5	7.7	9.6
Personal contact - e.g., established entrepreneurs and friends	38.9	33.3	24.1	3.7
Newspapers	37.0	33.3	24.1	5.6
Extension workers	31.5	29.6	27.8	11.1
Banks/other financial institutions	24.1	25.9	27.8	22.2
Printed sources, like trade literature, journals and reports - individually bought or donated	24.1	35.2	29.6	11.1
Private sector consultants	24.1	31.5	24.1	20.3
Uganda government departments	20.4	14.8	50.0	14.8
Information centres, like telecentres and resource centres	13.2	11.3	43.4	32.1
Television stations	13.0	13.0	33.3	40.7
Industrial/trade associations	7.4	18.5	46.3	27.8
Sources available on the Internet	3.7	20.4	35.2	40.7
Libraries	3.7	13.0	44.4	38.9

An analysis of the contents of Table 6.14 indicates that the important business information sources include radio stations - 82.7%; personal contact - 72.2%; newspapers – 70.3%; extension workers - 61.1%; printed sources - 59.3%; private sector consultants - 55.6%; and financial institutions - 50%. Surprisingly, a high percentage of these respondents did not value certain information sources, such as libraries - 83.3%; the Internet - 75.9%; industrial associations - 74.1%; television stations - 74%; information centres, like telecentres and resource centres - 75.6%; and Uganda government departments - 64.8%.

The SMEs were asked whether they accessed business information from some specific organisations considered relevant to business information supply. The results are shown in Table 6.15.

TABLE 6.15

**ACCESS OF BUSINESS INFORMATION FROM DIFFERENT
ORGANISATIONS BY SMEs (N=217)**

Organisations that can supply business information	Yes	No
Uganda Revenue Authority	64.2%	35.8%
Uganda Chamber of Commerce and Industry	39.6%	60.4%
Private Sector Foundation	36.4%	63.6%
Ministry of Finance, Planning and Economic Development	26.5%	73.5%
Uganda Manufacturers' Association	25.8%	74.2%
Uganda Investment Authority	25.8%	74.2%
Northern Uganda Manufacturers' Association	25.3%	74.7%
Ministry of Tourism, Trade and Industry	23%	77%
National Agricultural Organisation (NARO)	20.8%	79.2%
Business Information Solutions Network Uganda – BISnet-Uganda	11.1%	88.9%
Other	14.4%	85.6%

An analysis of Table 6.15 shows that the Uganda Revenue Authority is the most well-known organisation among the SMEs for business information supply. The findings also indicate that the Northern Uganda Manufacturers' Association - that should be a popular organisation among the SMEs in northern Uganda - was not. Only 25.3% get information from that association.

6.6.1   Public Libraries and business information provision

Public libraries are traditional avenues that help in the provision of information to the community. Based on that assumption, it was necessary for this study to determine whether the business community visited public libraries for business information - and if not, then why not? The pie chart in Figure 6.5 shows the percentages of the SMEs in northern Uganda that visited public libraries for business information.

FIGURE 6.5

SMEs VISITING PUBLIC LIBRARIES FOR BUSINESS INFORMATION
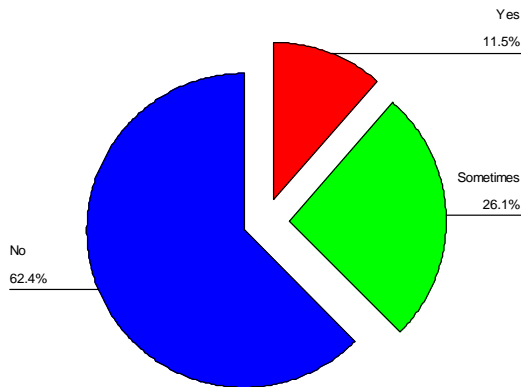
From Figure 6.5, it is evident that the majority of the SMEs - 62.4% - do not visit public libraries for business information - only 26.1% sometimes do. When those who do not visit public libraries were asked to state why they did not, the majority - 36.2% - attributed it to a lack of satisfaction in satisfying their business information needs there. Slightly more than 17% attributed it to a lack of ICTs facilities and 12.8% said that public libraries were too far away, while 6.6% said that they did not know what a library is.

6.6.2 Quality of business information accessed by the SMEs

In order to determine the quality of information that is accessed by the SMEs, questions relating to quality, including timeliness of information; relevance of information; understandability; content adequacy; and preciseness of information, were asked and the responses are given in Table 6.16.

TABLE 6.16

RESPONSES IN RELATION TO THE QUALITY OF BUSINESS INFORMATION ACCESSED BY SMEs MANAGERS (N=219)

Questions on quality factors of information	Always %	Sometimes %	Never %
i. Do you get the business information you need on time?	25.2	66.5	8.3
ii. Does the business information you get help you to solve your business needs?	24.2	71.2	4.6
iii. Is the business information provided understandable?	22.1	63.8	4.1
iv. Does the business information you get have enough content?	24.8	65.1	10.1
v. Is the business information you get precise?	37	54.3	8.7
vi. Do you access the business information you need from a convenient place to your business place of operation?	32.6	54.1	13.3

Much as the aim of information provision should be for users to always access quality information, an analysis of the data in Table 6.16 shows that the majority of the SMEs in northern Uganda do not always access quality business information (see the column under "Always"). The majority only sometimes access business information (see the column under "Sometimes").

6.6.3   ICTs for business operations

ICTs are now regarded as critical for the success of business operations and their use should be embraced. Against this background, it was necessary to determine the most useful ICTs that are used by the SMEs in transacting business; the ICTs skills that the SMEs managers have; the use of the Internet in business transactions; problems faced in using ICTs; and whether the business enterprises have websites - and if not, whether they would wish to have them. According to the results, the most useful ICTs that are used by the business enterprises are mobile telephones (79.4%) - as can be seen in Table 6.17.

TABLE 6.17

USEFULNESS OF ICTs IN BUSINESS TRANSACTIONS
(N=218)

ICTs	Most useful %	Sometimes useful %	Least useful %	Not useful at all %
Mobile telephone	79.4	7.8	4.5	8.3
Landline telephone	21.6	25.7	27.5	25.2
Internet	12.8	10.1	31.7	45.4
E-mail	10.2	13.4	28.7	47.7
Computers to assist manufacturing	9.7	10.6	24.4	55.3
Fax	9.3	11.5	23.6	55.6
Accounting software	7.4	11.1	26.9	54.6
Video conferencing	3.7	8.3	29.0	59.0
Teleconferencing	1.8	8.8	31.3	58.1

The information providers were asked to indicate - and rate - the ICTs they used to provide information to the business enterprises. Their responses are given in Table 6.18.

TABLE 6.18

ICT FACILITIES INFORMATION PROVIDERS USE TO PROVIDE INFORMATION TO BUSINESS ENTERPRISES (N=54)

ICTs	Most useful %	Sometimes useful %	Least useful %	Not useful at all %
Mobile telephone	51.9	16.6	13.0	18.5
Internet	27.8	7.4	29.6	35.2
E-mail	24.1	9.2	31.5	35.2
Landline telephone	20.4	22.2	35.2	22.2
Scanner	16.7	3.7	29.6	50.0
Fax machine	13.0	3.6	24.1	59.3
Video conferencing	5.6	5.5	31.5	57.4
Teleconferencing	3.7	5.6	40.7	50.0

The results in Table 6.18 indicate that most of the respondents - 51.9% - find the mobile telephone most useful in the provision of business information to the SMEs. A fair percentage of the respondents - 20.4% - indicated that they found the landline useful for business information provision while 27.8% indicated the Internet and 24.1% indicated e-mail.

6.6.3.1 ICTs Skills

The effective use of ICTs for information acquisition and access requires adequate skills. For an information system to adopt particular ICTs for information provision, an ability to use ICTs skills among the users is important. In terms of these abilities, it was necessary to establish the ICTs skills of both the SMEs managers and the information providers. The results are displayed in Figure 6.6.

FIGURE 6.6

ICTs SKILLS OF THE SMEs MANAGERS AND INFORMATION PROVIDERS IN NORTHERN UGANDA
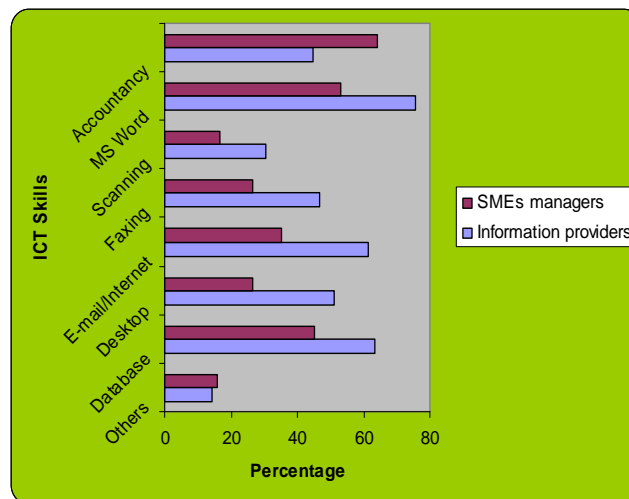
Figure 6.6 shows that the majority of the SMEs have skills in word-processing and accounting packages, while the information providers have skills in word-processing, e-mail/Internet, database management and accountancy packages. Very few have skills in scanning. Generally, it seems that the information providers have better ICTs skills than the SMEs managers.

6.6.3.2 Use of the Internet for business

As noted in Chapter 3, Section 3.3.4, many business activities are being conducted on the Internet. It was necessary to establish the extent to which the SMEs in northern Uganda use Internet services and the results are presented in Figure 6.7.

FIGURE 6.7

SERVICES SMEs USE THE INTERNET FOR - ACCORDING TO THE SMEs MANAGERS
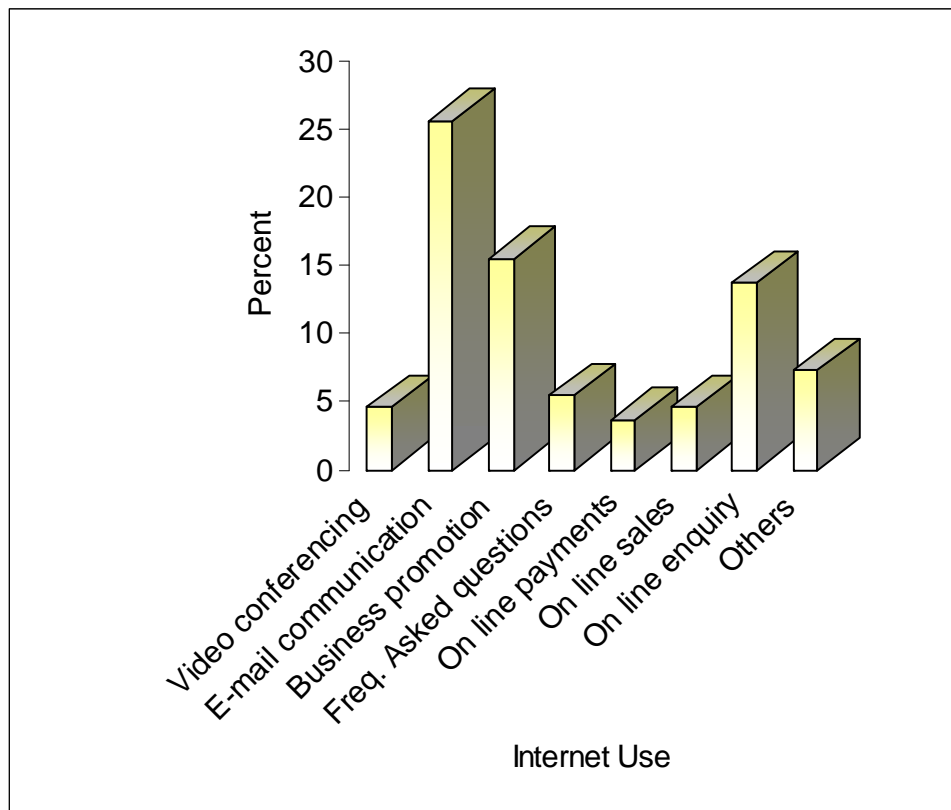
An analysis of Figure 6.7 shows that e-mail communication and business promotion are the most common Internet services used by the SMEs. This could be attributed to the privatisation of the Ugandan economy which brought many businesses into play, resulting into competition. Thus many businesses are encouraged to devise marketing strategies which has led to the utilisation of ICTs in communication and business promotion.

The information providers were asked to indicate what the business community uses the Internet for. The results are indicated in Figure 6.8.

FIGURE 6.8

**SERVICERS SMEs USE INTERNET FOR - ACCORDING TO THE
INFORMATION PROVIDERS**
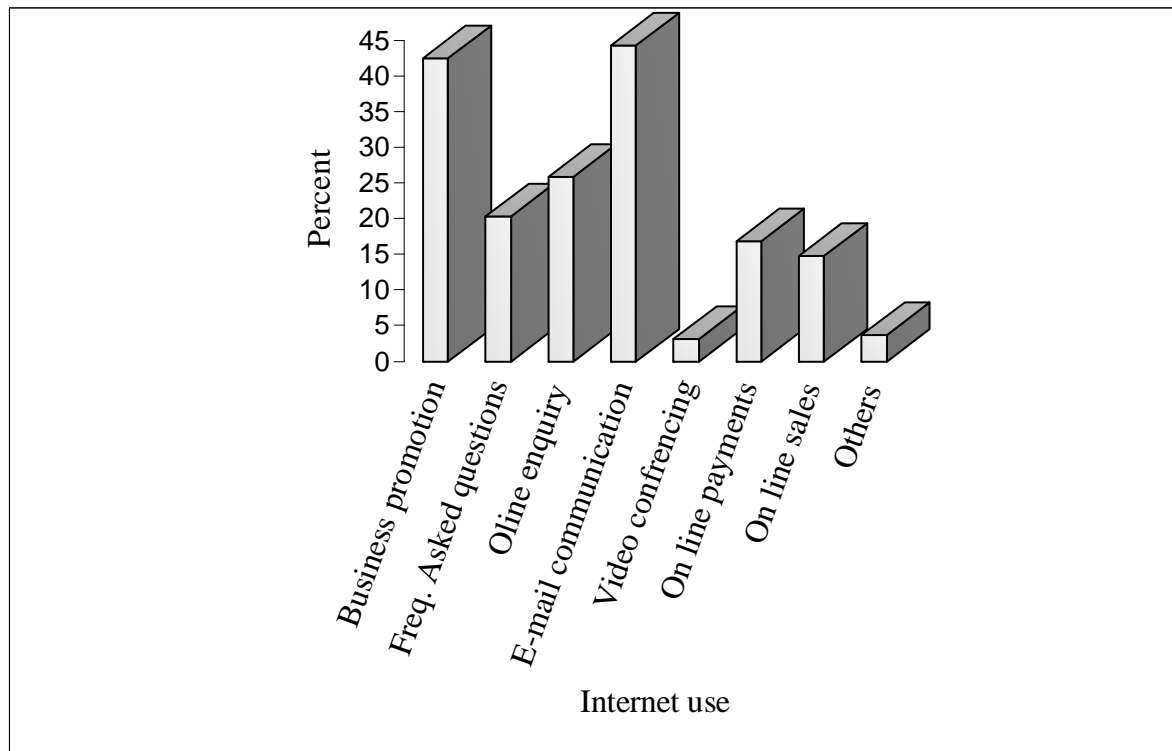
The findings indicate that business promotion and e-mail communication are the services that require most use of the Internet - according to the SMEs managers and the information providers. This concurs with the SMEs views - shown in Figure 6.7.

6.6.3.3 Problems faced when using the Internet both as source of business information and a means of accessing business information

Respondents – the SMEs managers - who use the Internet for their businesses were asked to state the problems they faced when using the Internet as a source and means of accessing business information. Of the 251 respondents, the results of 189 - who responded to the question – are the following:

- A lack of appropriate skills for the use of the Internet - 42.3%
- A lack of access to Internet facilities - 28%

- A lack of competent information providers - 22.8%
- Other - 6.9%.

When respondents – the SMEs - were asked to indicate whether they had a website, 87.7% said, "No", 11.4% answered in the affirmative and 0.9% did not respond. When those - who said that they did not have a website - were asked whether they would like to have a website for their companies, 75.8% said, "Yes" while 13.2% did not see the need for one and 11% did not respond at all.

In pursuit of a better understanding of the problems the SMEs face in using the Internet as a source and means of accessing of business information, information providers were asked to give the problems that the SMEs face in their use of the Internet. The results are as follows:

- A lack of appropriate skills to use the Internet - approximately 63%
- Power [electricity] load shedding - 59.3%
- A lack of places to access Internet facilities - 55.6%
- Inadequate ICTs facilities to facilitate Internet access - 51.9%
- A lack of translation facilities/services for Internet-based resources for the business community - 22.2%.

Although the majority did not see too much information overload - supplied by the Internet - as a problem, 20.4% of the information providers considered this to be a problem.

6.7   BUSINESS INFORMATION ACCESS PROBLEMS

When the SMEs managers were asked to select from a list of problems that affect accessibility to business information, the results are those given in Table 6.19.

TABLE 6.19

PROBLEMS SMEs FACE IN ACCESSING BUSINESS INFORMATION (N=219)

Problems faced in accessing business information	Yes (%)	No (%)
Lack of physical and human resources - e.g., inadequate electricity, lack of trained information professionals	68.1	31.9
Insecurity in the region	65.3	34.7
Lack of appropriate technology to access electronic information	56.0	44.0
It takes too long to get the needed information	47.4	52.6
Lack of devotion of government to providing information to the business community	45.5	54.5
There is lack of skills and expertise in information seeking and acquisition	40.5	59.5
There is no organised information/records management system in our enterprise.	35.2	64.8
Information received lacks local content to address business information needs	34.4	65.6
Information is always in a language that is not understandable	17.6	82.4

In Table 6.19 the results indicate that all the predefined problems do affect the accessibility to business information but most prominent are a lack of physical and human resources - 68.1%; insecurity - 65.3%; and a lack of appropriate technology to get the needed information - 56.0%. The issue of the language not being understood does not seem to be a problem for the majority of the SMEs.

The results reflected in Table 6.20 suggest that the information providers face many problems.

TABLE 6.20

PROBLEMS INFORMATION PROVIDERS FACE IN PROVIDING BUSINESS INFORMATION TO SMEs IN NORTHERN UGANDA   (N=54)

Problems	Yes (%)	No (%)
Lack of physical resources – e.g., inadequate electricity	74.1	25.9
Lack of appropriate technologies to provide electronic information	70.4	29.6
Lack of organised system for provision of business information to the business community	63.0	37.0
Insecurity in the region	59.3	40.7
Business community is not enthusiastic regarding the need for information	48.1	51.9
Information received lacks local content to address business needs	46.3	53.7
Lack of expertise in information seeking and handling by information seekers	46.3	53.7
Cultural barriers within the community	44.4	55.6
Lack of skills/expertise in information handling by staff	33.3	66.7

According to the business policy makers, a lack of physical resources; a lack of appropriate technologies; and a lack of skills to search for relevant information constitute the major problems that the SMEs have in business information accessibility in northern Uganda. The business policy makers also cited a lack of clear policy from the government in dealing with the SMEs in Uganda. According to Epilla (2005), the problem is complicated by the fact that

> *there is no policy in place and for the last 10 years, the Ministry of Trade and Industry has never linked, directly, with the districts to aid the provision of business information to the SMEs.*

An analysis of the problems faced in the provision of - and accessibility to - business information in northern Uganda shows that there is a need for strategic measures to be instituted to improve the situation.

Given these problems, how satisfied, then, are the SMEs with the business information provision? The study attempted to establish the level of satisfaction of the business enterprises with the way business information is provided to the business community in northern Uganda. The results are summarised and illustrated in the bar graph - Figure 6.9.

FIGURE 6.9

**RATE OF SATISFACTION OF THE SMEs MANAGERS WITH BUSINESS
INFORMATION PROVISION**
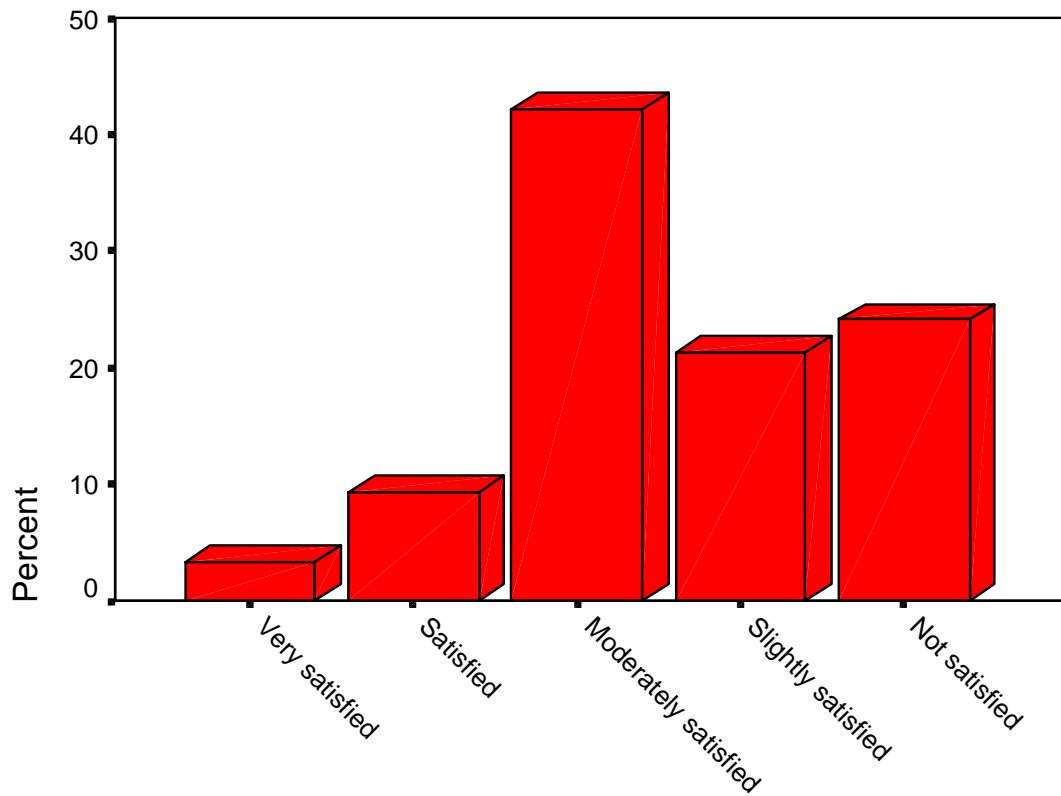
Rating Business information provision

The above results indicate that the majority - 42% - are moderately satisfied and that 24%
are not at all satisfied.

6.8   PROPOSAL FOR A BUSINESS INFORMATION SYSTEM DESIGN

Because of the need to design a system that would satisfy the information provision needs
of the business enterprises in northern Uganda, respondents were asked to consider
proposals that should be taken into consideration when designing a business information
system. The proposals put forward to the respondents included:

- Whether the SMEs, information providers and business policy makers needed something done to facilitate quality business information access
- The extent to which business information should be provided
- The languages preferred to access business information
- The need for a new business information system
- The location of the business information system centre.

The results indicate that 94% of the SMEs that responded want something done to ensure that appropriate business information is accessed at the right time; from the right place; and in the right form/format. Slightly more than 38% of the SMEs who participated want the business information provided to be general, while 24.4% want the provision of selective business information.

Likewise, the majority of information providers - 42.6% - want selective business information provision to the SMEs - as indicated in the Figure 6.10.

FIGURE 6.10

SCOPE OF BUSINESS INFORMATION TO BE SUPPLIED - ACCORDING TO INFORMATION PROVIDERS
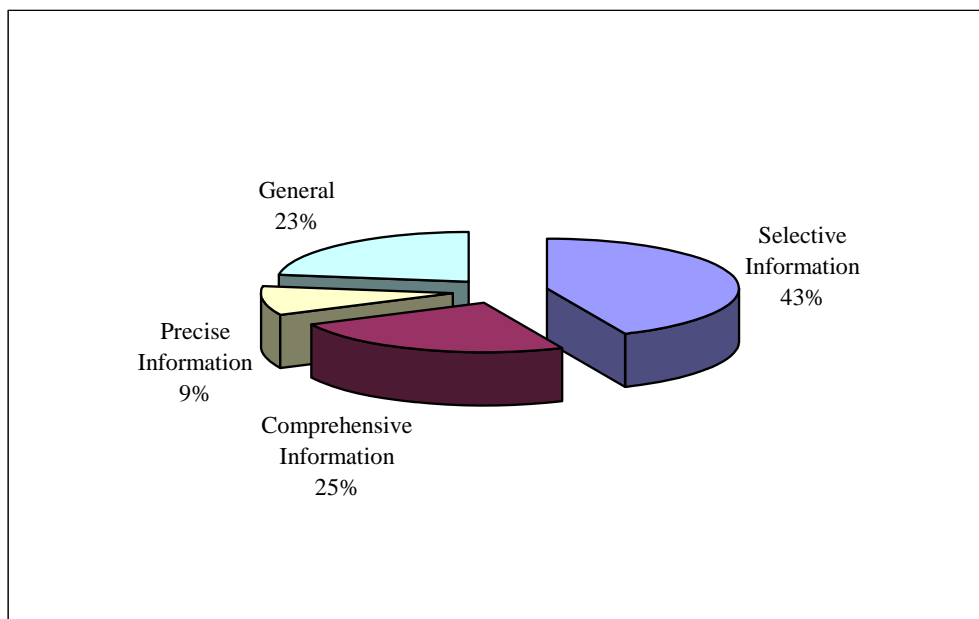
Whereas 43% of the information providers were of the opinion that the business information provided to the SMEs should be selective in nature - as illustrated in Figure 6.10 - 85.7% of the business policy makers said that it should be selective so as to ensure effective resources utilisation. Regarding the language preference for information provision, both the majority of the SMEs - 70.8% - and information providers - 83.3% - want the business information provided in English and the predominant, local language of the community. This concurs with the opinions of the business policy makers, as illustrated in the following quote:

> *A local language is very crucial for community information provision and since we have a fairly educated business community, we would suggest the use of English and a local language for the effective dissemination of relevant information* (Okot 2005).

Although Kiswahili is the national language in Uganda, only 10% of the SMEs and 5.6% of information providers preferred the use of Kiswahili and the local language in the provision of business information.

As part of the requirements for a systems design, respondents were asked whether they would want a new business information system to be established and 95.9% of the SMEs; 100% of the business policy makers; and 90.7% of the information providers said, "Yes". Of the SMEs who said "Yes", 61.8% said that the new business information system should be based in a centrally located district in northern Uganda with nodes/centres in the Madi, Acholi, Lango, Karamoja and West Nile sub-regions. The majority - 74.1% - of the information providers agreed with the SMEs that the business information centre should be centrally located in northern Uganda with nodes/centres in the Madi, Acholi, Lango, Karamoja and West Nile sub-regions. The respondents – the SMEs - were almost equally divided on who should coordinate the business information systems and services, with 45.4% preferring the District Chamber of Commerce; 45.8% preferring the Department of Production and Marketing at the district local government; and 8.8% preferring others, like local business associations. The information providers were, also, equally divided on who should coordinate the business information systems and services

– 50% were in favour of the District Chamber of Commerce and Industry and 50% were in favour of the Department of Production and Marketing at the district local government.

In a bid to determine the one district that could house the business information system centre for the designed business information systems, respondents were asked to choose from the given districts of Gulu, Arua and Lira. These three districts were identified - based on the findings of the pilot study where respondents suggested the three districts (Gulu, Arua and Lira) as appropriate for housing the business information system centre. When the respondents (SMEs) for the main study were asked to choose from those three districts, the results were as given in Figure 6.11.

FIGURE 6.11

CHOICE OF DISTRICT BY THE SMEs TO HOUSE BUSINESS INFORMATION SYSTEM HEADQUARTER
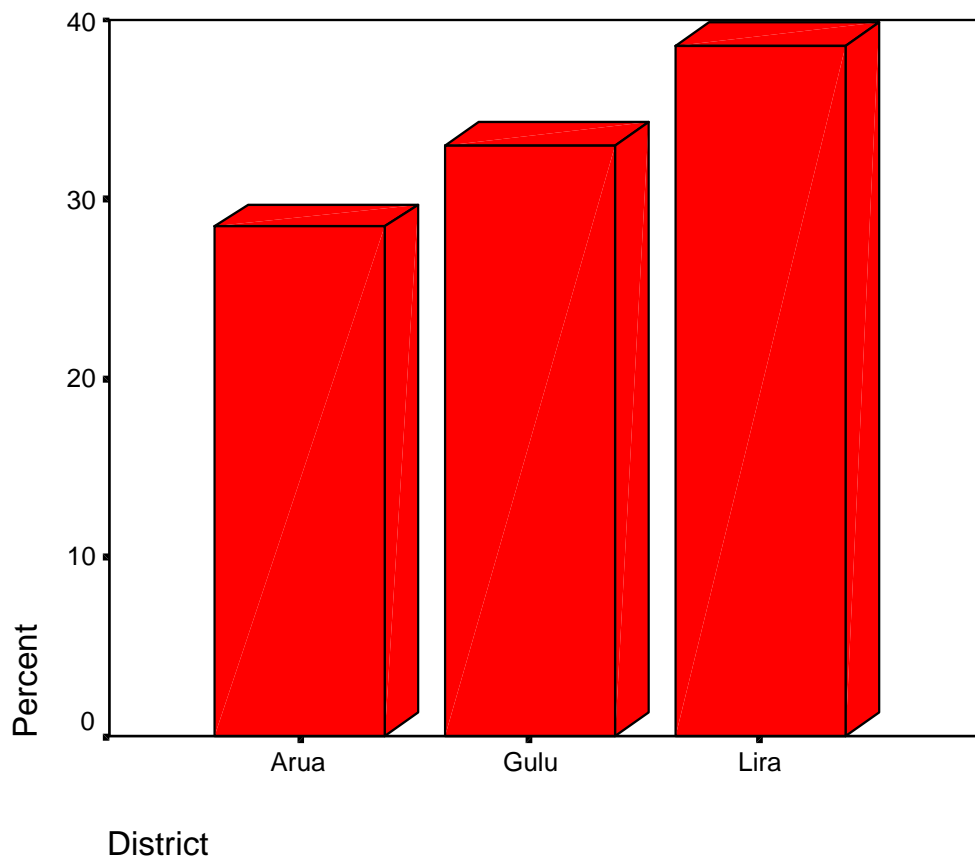
The choices for the business information system headquarter show that the respondents were almost equally divided. However, the majority - 39% - selected the Lira district. The result of this finding also applies to the information providers - as shown in Figure 6.12.

FIGURE 6.12

INFORMATION PROVIDERS' CHOICE OF DISTRICT FOR BUSINESS INFORMATION SYSTEM HEADQUARTERS
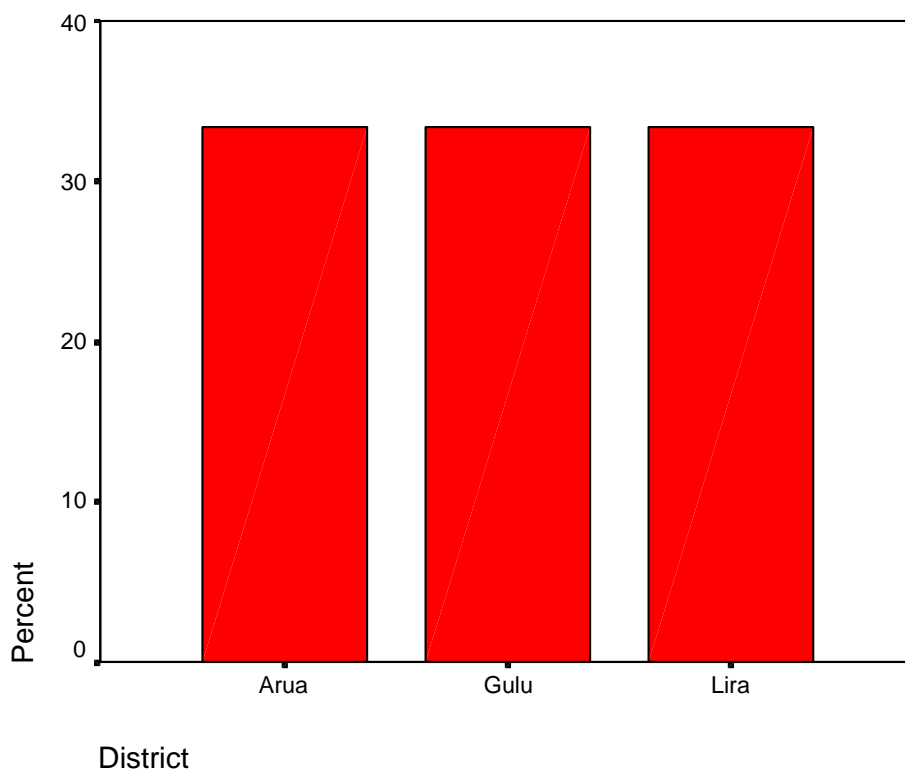
The information providers who responded to this question were equally divided – 33.3% wanted the business information system centre to be based in the Arua district; 33.3% wanted the Gulu district and, likewise, 33.3% wanted the Lira district. The business policy makers were also divided, with the majority - 71.4% - suggesting that the business information system centre should be in the Gulu district because of its central location and its availability of infrastructure. The 14.3% who suggested the Lira district cited its easy connection with the neighbouring districts of northern Uganda, such as those of Soroti and Kotido as well as the relative security within the district.

6.9   SUMMARY

Not only does information create entrepreneurial awareness, it also increases the knowledge base and inculcates new personal attitudes and characteristics. Where information is insufficient - or asymmetrical - decision-making is flawed. This leads to errors in goal-setting; in planning; and in the implementation of business ideas. However, of significant importance is the main conduit through which information flows to the business community – i.e., the information system.

Aiming to design a useful information system for the business enterprises in northern Uganda, this study established the requirements for a business information system design. The findings concerning the background information of the respondents; the business activities; the business information needs; the sources of business information; the means and problems of access; and, specifically, the users' opinions on the design – as presented in this chapter - constitute the core values for the business information system design. An important finding indicates that all the stakeholders who participated in the study want a business information system put in place to enhance the business information flow within the northern Uganda business community and for effective entrepreneurial development.

Based on the reported findings in this chapter, the next chapter identifies - and discusses - the input, processes, control measures, output, procedures, feedback and the business information system interface for a proposed business information system design.

CHAPTER 7

DISCUSSION OF FINDINGS

7.1 INTRODUCTION

This chapter provides an integrated discussion on the research findings - reported in the previous chapter, Chapter 6, as well as those from the literature review explored in Chapters 2-4. The aim of this chapter is to highlight the requirements - as they became evident from the research findings - for the design of a BIS for northern Uganda. The discussion is based on the objectives of the study which are set out in Chapter 1 and the information system design concepts explained in Chapter 2.

7.2 PROFILES OF RESPONDENTS

According to the results - presented in Tables 6.3 and 6.4 - the majority of the SMEs managers and all the information provider managers attended school and are, therefore, considered to be literate. The literacy level of both the SMEs managers and the information providers and their general attitude towards information (see Chapter 6, Section 6.8) was encouraging for the provision of information - as a literate person can read and understand information provided, compared to an illiterate one who cannot. The general literacy of information users is crucial if information is to be provided to the users, but the information literacy of both the information user and the information provider is more important - if access to quality information is to be achieved. Information literacy is the ability to identify what information is needed and the ability to locate, evaluate and use information in solving problems and composing discourse (Evans…*et al.* 1994). It encompasses a set of competences in ICTs skills that will provide for survival and success in an information technology environment (Evans…*et al.* 1994). Arguably, the appropriate interpretation of information and economic incentives - associated with that information – are closely related to educational levels. Entrepreneurs – with a limited education - are disadvantaged, since illiteracy impinges on their ability to comprehend the positive signals flowing in the system and using them to their advantage (Moyi 2000). Since the level of the SMEs' information literacy was not part of this study,

it is recommended that this be covered in more depth in a follow-up research study (see also Chapter 9, Section 9.4).

According to the findings presented in Chapter 6, Figure 6.1, the majority of both SMEs managers and information providers have less than 5 years' experience. An analysis of the SMEs graph shows a sharp decline in numbers from 6 to10 years and from 16 to 20 years. When Figure 6.1 is analysed, together with Figure 6.4, it could be concluded that those who stay in their businesses for a long time do so because the businesses are profitable. However, as noted in Figure 6.4, easy access to information is a problem. If easy access to information is addressed, there would be fast, quality decision-making that would enhance the profitability of the businesses – hence, less need for changing businesses. Secondly, the SMEs managers and information providers need tailor-made training for performance improvement - given the low level of experience they have.

As the majority - 87.7% - of the respondent SMEs managers can read English [the official language] quite well, and 32.9% can read Kiswahili [the national language] well, the training to enhance the access and use of business information would not be a problem as far as the language of instruction was concerned.

7.3   BUSINESS ACTIVITIES

The business activities of an enterprise directly determine the type of information an enterprise requires. Although the majority of the business enterprises are involved in the service sector, the business activities in northern Uganda are diverse - covering almost the entire sector of the economy (see Chapter 6, Figure 6.2). This situation requires the BISD to take a broad approach. Rather than being restricted to the supply of business information to a narrow spectrum of business activities, it is necessary that the system should provide broad subject coverage. This would be beneficial when a business enterprise's activities overlap which implies that other business activities can benefit, as well, from the designed business information system. An example could be a situation where an enterprise is dealing in lodging services and at the same time handles ICTs

training, especially Internet access. This entrepreneur will need information to promote his/her lodging services on, for example,

- the best practices on public hygiene;
- the availability of trained catering personnel; and
- conferences that are due to take place in the country or in northern Uganda.

At the same time the entrepreneur may need information on Internet related issues, like

- prices of bandwidth for Internet access from different companies;
- Internet filtering software; and
- antivirus toolkits that are available and their prices, etc.

Similarly, some of the business activities that should be catered for by the BIS are banking/microfinance, leisure and hospitality, stationery and secretarial, breweries, commercial farming, manufacturing, tree planting, education, mechanical services and health services. This is because these business activities have a wider coverage of areas that need information. However, the researcher believes that the main business activities that need to be supported by the provision of business information should include transport services, construction, lodging services, farm produce sales and property management. This is because they are the business activities carried out by the majority of the respondents in northern Uganda - as indicated in Figure 6.2. Despite there being many business activities, the most important issue is the business information needs that are discussed in the following section.

7.4   BUSINESS INFORMATION FOR BUSINESS ACTIVITIES

The findings show that the SMEs in northern Uganda represent a wide spectrum of business information needs (see Chapter 6, Table 6.5) and this can be attributed, directly, to the diverse business activities taking place. Taken together, financial/capital/loan, local market and business management skills are areas in which the most critical business information is needed. The majority of both the SMEs managers and information providers rated information on financial/loan/capital, local market and business

management skills as that which is most needed (see Chapter 6, Tables 6.5 and 6.6). Although the majority know the kind of information that they need to be productive in their businesses, some business managers still lack adequate knowledge about their business information needs. For instance, Tables 6.5 and 6.6 show that although the majority of the SMEs - 60.1% - and information providers - 56.6% - consider information on business taxes and government policies and regulations as needed or most needed, 39.9% of the SMEs and 43.4% of information providers did not consider information on business taxes and government policies and regulations as needed or most needed. In Chapter 3, Section 3.2.3 Larvin and Zelko (2003) point out, *inter alia,* that information on taxes is needed by all business enterprises. The policy makers confirmed this when they said that accurate information on laws and taxes are crucial for the SMEs (see Chapter 6, Section 6.4).

Entrepreneurship has much to do with responsibility for profitable opportunities - by bearing uninsurable risks and uncertainty. Uncertainty is regarded as the inability to predict an outcome due to lack of information on the form/basis of a problem (Moyi 2000). The core quality of the entrepreneur is innovativeness (Kristiansen 1999). This requires adequate information on business management skills and future business trends. As pointed out by Ntsala (2000), many of the SMEs lack an entrepreneurial spirit, appropriate education, training and developmental initiatives - leading them to a confinement within a narrow spectrum of business information needs. According to the findings – as indicated in Table 6.5 - only 29.8% of the SMEs in northern Uganda need information on international markets.

An analysis of the findings - given in Table 6.7 - shows that although the SMEs need the business information indicated in Tables 6.5 and 6.6, they face difficulties in accessing this information. For instance, Table 6.7 shows that information on finance/capital/loans, international markets and foreign exchange, appropriate technologies, business laws and taxation and business management skills is difficult to access. However, it should be noted that information on finance/capital/loans, appropriate technologies, business laws and taxation and business management skills is among the business information that is

most needed by the SMEs (see Chapter 6, Table 6.5). Another finding that contrasts the SMEs and information providers' opinion is when it comes to the difficulty in accessing business information. The SMEs consider information on finance/capital/loan difficult to access, while information providers do not consider it difficult to access (see Chapter 6 Tables 6.7 and 6.8). It is not clear as to why this is so. When one of the business policy makers was interviewed in a follow up, he said:

> *Most of the SMEs managers do not go to the banks to find out about information on loans. Otherwise information on loans/finances can be easily got from the banks. Secondly, the banks also do not make enough efforts to advertise their loans to the business community. I only see Crane Bank, Stanhope billboards advertising loans whenever I travel to Kampala* (Okot 2006)

This finding suggests that if the BIS is designed and collaborative network is created, the SMEs could easily access information on finances/loans/capital.

Generally, as noted in Chapter 3, Section 3.2.3 and in the findings in Chapter 6, Section 6.4, the SMEs in northern Uganda mostly need information on finance/capital/loans, local markets, business management skills, appropriate technologies, business competitors and security, but they face difficulties in accessing them. How, then, is this information accessed or how can this information be accessed? The next section discusses the findings on means of access to business information by SMEs in northern Uganda.

7.5   MEANS OF ACCESS TO BUSINESS INFORMATION

Accessibility to information is crucial in any information system and service. This implies that the means used to access information should be reliable and easily accessible. As indicated in Tables 6.9 and 6.10, the telephone is the dominant means of accessing information among the SMEs in northern Uganda - followed by discussions with business colleagues and radio broadcasts. The dominance of the telephone and radio as a means of accessing business information could be attributed to the wide-spread availability of the mobile telephone network and the availability of FM radio stations in the country. Most business managers, today, own mobile telephones and have access to

radios, thereby facilitating easy access to business information. The availability of short message services (sms) is another motivating factor to the dominance of telephone usage in accessing business information. For example, when a businessman - who is interested in market prices - types "Beans price" and sends to 197 on the Mobile Telephone Network (MTN), Uganda Ltd, he receives an instant message on his mobile telephone giving him the prices of beans in most of the districts in Uganda - courtesy of FOODnet Uganda. This implies that if the BIS includes sms as a means of access to business information, the business community would benefit.

7.5.1 Public Libraries as business information providers

Public libraries and community resource centres are, generally, considered important for the supply of community information (see Chapter 4, Section 4.2.5). Contrary to the general understanding - that public libraries are supposed to support the information needs of the community they serve - the majority of the SMEs in northern Uganda do not visit public libraries to access business information (noted in Chapter 6, Tables 6.9, 6.11 and Figure 6.5). The SMEs managers do not consider libraries as a reliable means of access to business information (see Table 6.11). The lowest rated sources - in terms of importance - are libraries, telecentres, and resource centres (see Chapter 6, Table 6.13). The negative attitude towards the utilisation of libraries is attributed to the inadequacy of the services they provide and their inability to meet the users' information needs (see Chapter 6, Section 6.6.1). This findings concurs with the argument of many authors, such as Mostert (1999), Nixon and Kirkwood (2004) and Kinnell, Feather and Mathews (1994), who have castigated the efficiency of public library services to the community (see Chapter 4, Section 4.2.5).

A lack of trust in libraries and resource centres - as depicted in the findings – could, also, be attributed to a lack of awareness of services' capabilities (see Chapter 6, Figure 6.6, where 62.4% said that they do not visit public libraries). However, Brick (1999: 204) maintains that if a lack of awareness is the main cause of non-use of business information services, it must, surely, be interpreted as good news for the libraries because this is a problem that can be tackled by a systematic marketing strategy.

Although this study does not, exhaustively, examine the operation and service provision of libraries - especially public libraries in northern Uganda, the findings indicate that public libraries are not viewed as reliable means and sources of business information for the SMEs. No specific programmes or services are offered to address the specific business information needs of the SMEs. These problems are compounded, further, by a lack of adequate support from the Government of Uganda. Issak (2000) notes that there are three main factors that are thwarting the development of good public library services in Uganda: the absence of financial and moral support from the government; the lack of human resources capable of dealing with the library issues; and the political climate in the country. This implies that public libraries cannot be relied on to provide effective, quality business information - unless proactive services and programmes are initiated. Secondly, the SMEs require specialised services which are not provided by most public libraries.

7.5.2 Public notice-boards

Although 35.6% of the respondents – the SMEs – (see Table 6.9) do not use public notice-boards as a means of access to business information, they can be of help as a means of access to business information by the SMEs. The majority of the SMEs are literate and public notice-boards have become popular among the community in that local government frequently uses them to disseminate important information to the community. However, only a limited amount of information can be posted - due to the nature of notice-boards. Still, important news, such as foreign currency exchange rates, policy change alerts, new markets, local and foreign business opportunities, etc., can be posted on them to inform businesses.

Generally, the SMEs in northern Uganda have preferred business information access formats that may dictate the means of access. This is because if the SMEs prefer a printed format, visiting the libraries would probably be the means of access. Another example could be the online format which requires the Internet as the means of access. These formats are discussed in the following section.

7.5.3 Formats in which the SMEs access business information

As noted in Chapter 6, Section 6.5.3, the radio, telephone text messages and verbal formats are the most prominent formats for business information access among the business community in northern Uganda. The popularity of telephone text messages could be due to the fact that mobile telephones are affordable in Uganda and, hence, many people - including business people - are able to own and maintain at least one. Secondly, it could be due to the promotion of short messages services by the mobile telephone companies in Uganda that make communication cheaper. If adopted, this would facilitate communication and access to business information within a BIS.

7.5.4 Preferred formats for business information access

The SMEs widely access business information using the radio, telephone text message and verbal formats - as noted in Section 7.5.3. Chapter 6, Section 6.5.3 indicates that there is not much difference in the formats now used and the formats preferred. The majority (see Chapter 6, Section 6.5.3) prefer the telephone text message; the radio; a verbal form - through extension workers; and printed formats for business information access. The preference of telephone text messages could be attributed to the cell or mobile telephones' ability to help in easily keeping in touch with family members and business associates. Kingston (2004) suggests that cell phones are the perfect way to stay in contact with others and to provide the user with a sense of security. In the event of a business emergency, having a cell phone can help reach a person quickly and could, possibly, save business loses. Modern cell phones are capable of Internet access and sending and receiving photos and files. All these benefits make the telephone text message format a preferred one.

Chapter 6, Table 6.17, indicates that there is low level of preference of ICTs formats, like CDROMs, online delivery formats, diskettes, e-mails and faxes, which could be attributed to ignorance and a lack of skills in using ICTs facilities. The problem of ignorance and the lack of skills could be dealt with through appropriately user-tailored sensitisation and training programmes (see further discussions on ICTs in Section 7.7).

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However, the sources of information are of significant importance. A number of sources of information do exist, but the ones which relate to the business information needs of the managers of the SMEs in northern Uganda are discussed in the next section.

7.6 SOURCES OF BUSINESS INFORMATION USED AND PREFERED BY SMEs IN NORTHERN UGANDA

Entrepreneurs rely on diverse sources of information. The sources vary - depending on the nature of the problem; the incentives accruing; and the constraints involved in the running and managing of the business operations (Moyi 2000). The use of information on business and trade regulations is greatly dependent on the perceived reliability of the source. Different problems require different information sources. It is evident from this study that most of the SMEs in northern Uganda depend on a number of business information sources (see Chapter 6, Table 6.13). Although information sources, such as a printed trade literature, Industrial/Trade Associations, Uganda government departments, public libraries and the Internet exist, the SMEs consider radio broadcasts, personal contact with established entrepreneurs and friends and newspapers as the most important sources of business information (see Chapter 6, Table 6.13). These – the most important sources of business information - are discussed in the following section.

7.6.1 Radio broadcasts

Although the problem of costs of dry cells for radios remain a problem to most rural communities, for many decades now, radio has distinguished itself as a mass medium that attempts to reach out to all - rich and poor, literate and illiterate, alike. Radio is by far the most widely used electronic, mass medium in the rural areas of developing countries – primarily because of its versatility which allows for its use in various types of communication efforts (Mowlana and Wilson 1990: 151; Koert 2000). Mbaine (2001) argues that while radio lacks some of the flamboyance of television - a combined force of the senses of sight, sound and motion - it is still a very powerful influence on audiences in terms of its accessibility. It propels the imagination in the minds of its audiences and it is famed for cajoling listeners into visualising what they hear (Mbaine 2001). The consideration of the radio broadcast as the most important source of business information

could be attributed to the benefit associated with radio broadcasts - as highlighted above. The availability of the FM radio stations in Uganda - that has created competition and quality production of services - could be another contributing factor for the popularity of radio broadcasts among the SMEs managers. Thirdly, business information programmes on FM radio stations - where a government official is invited to the radio show - that include talk-radio services are, probably, having an impact on the business activities of the SMEs, although this was not established by this study.

7.6.2 Personal discourse

Personal discourse is a primary source of business information for business managers – probably because of the ability it provides in allowing for the verification of facts through interaction. In Chapter 3, Section 3.3.3, Moore (2003:301) observes that an important determinant of the impact - that is made by information providers and processors - is the value that users place in the information they provide. This implies that users will always continue to consult the sources they value. Personal discourse with established entrepreneurs, friends and relatives is considered a reliable source because of the ability to verify facts - there and then. There are also low costs involved - apart from instances where transport to reach the person to consult becomes a necessity.

7.6.3 Newspapers

The trust in - and frequent use of - newspapers as source for business information could be because the information provided is current; the low cost of the newspapers; their easy accessibility as they can be borrowed from a friend; and their presentation of a wider view of the business environment. Auster and Choo (1993:285) suggest that newspapers offer an opportunity not only to address specific problems, but also to get a wider view of the business environment and to search for information which might trigger a business opportunity. The newspapers in Uganda – especially the leading national papers, including the government-owned, *The New Vision,* and the privately-owned, *The Monitor* - provide business sections within their publications which give the latest information on market rates, private sector investment opportunities, inflation trends, etc. These sections provide current and researched business information that is useful to the

business community. The only disadvantage in using the newspaper is the poor road networks in some parts of northern Uganda that makes it difficult to deliver the newspaper in time. For example, in Kotido district, it takes a day to get the current newspaper. But with the introduction of free *Monitor* and *The New vision* newspapers online version, the problem could be minimised when online information services are adopted by the BIS.

The next section - based on the literature review in Chapter 3, Section 3.3.4; Chapter 4, Section 4.2.4; and the results reported in Chapter 6, Section 6.6.3 - discusses the application of ICTs in business operations.

7.7 APPLICATION OF ICTs IN BUSINESS TRANSACTIONS BY SMEs

Advances in computing and communication technology are shaping global information networking in ways that allow for a reduction in costs; the time taken; and the distances involved. In an effort to embrace electronic commerce [e-commerce], computerised information and records management systems and the Internet are crucial, today. Sharma and Bhagwat (2006) argue that information technology [IT] plays a vital role in the sustained growth of business organisations. The benefits of the information revolution are not limited to large businesses, only, but can, also, be exploited by the SMEs to make contacts; to check prices; to display goods; and to enter into contracts. For example, using Internet technology, companies can gather information from consumers which helps them to improve the quality of products; develop new products; and adopt an attitude of flexible response to the wants and needs of their potential customers (Mochrie and Galloway 2005). Web-based business can be an extremely attractive option for most of the SMEs (Tetteh and Burn 2001).

Despite the point recognised above, the SMEs in northern Uganda are, relatively, lagging behind in the use of ICTs in businesses (see Chapter 6, Table 6.17). The SMEs in northern Uganda do not consider Internet, e-mail, fax and accounting packages very useful even though they are the global ICTs used by business enterprises in the

transaction of business activities. There is a lack of familiarity with the constantly changing technology – especially the Internet - among the the SMEs in northern Uganda. Only 12.8% find the Internet most useful to access business information and this reflects the low Internet penetration rates in the SMEs sector. The 45.4% response of "not useful at all" can be interpreted in different ways. Most likely, it can be argued that the non-seriousness to adapt to ICTs or to realise ICTs benefits in business explains the "not useful" response given by the respondents. Secondly, the response may reflect the absence of local content on the Internet so that the SMEs see the technology as being irrelevant for them and being more relevant to larger enterprises. It may also be attributed to the SMEs lack of ICTs skills to manage and utilise such technologies and to the remoteness of some of the areas from which the SMEs operate. This view is shared by Kargbo (1997) when he points out that many competitors – especially in rural areas - are confronted with problems, such as a lack of strategic capacities to access business information as well as sufficient and sustainable structures needed to get connected to the Internet. This concurs with the argument of authors, such as Hawkins and Prencipe (2000); Fillis, Johansson and Wagner (2003); and Jones, Hecker and Holland (2003), who agree that the SMEs tend to lag behind larger firms "both in terms of awareness and implementation" of ICTs use. The lag in the use of the Internet, specifically, is even more marked (Mochrie and Galloway 2005).

Regardless of the situation of the SMEs in northern Uganda, they need to adopt Internet utilisation because of its enormous benefits. Liu (2000:234) observes that while the traditional ways of doing business are still in existence, e-commerce has opened up a new frontier for individuals and companies to engage in economic, business, and trade activities. The fast-growing use of the Internet has not only dramatically changed the way in which businesses are conducted, but it has also had a tremendous impact on the way business information is provided and used. Business information resources that have emerged on the Internet can be classified into major business areas, such as company information, economics, finance and investment, international business, real estate and marketing (Liu 2000:236). Those kinds of business information resources could be useful to some of the SMEs if Internet utilisation in businesses is adopted. Shokane (2003) - in

support of this - recommends that the increasing use of Internet, particularly the World Wide Web by modern business enterprises - including the SMEs - should make them consider investing in web technology to enhance their business activities and to increase productivity.

Fortunately, the majority of the SMEs - who did not have websites - indicated an interest in having them (see Chapter 6, Section 6.6.3.3). This shows the willingness of the SMEs in northern Uganda to embrace the application of ICTs as sources and means of access to business information for business transactions. Competency in the use of ICTs is also an important factor. Are the SMEs managers and information providers in northern Uganda competent in ICTs utilisation for business operations and information provision? The following section discusses the findings related to this question.

7.7.1   ICTs utilisation competencies of SMEs managers in northern Uganda

The findings in Chapter 6, Figure 6.7, show that over 55% of the SMEs managers are literate in some packages, like word-processing and accountancy programmes and e-mail/Internet and database management. An analysis of Tables 6.17 and 6.18 indicates that only a few of the SMEs managers use computer applications to transact business. The most widely used of the ICTs in transacting businesses is the mobile telephone. The utilisation of mobile phones could be attributed to the earlier discussion in Section 7.5.4 and the trust that SMEs managers have in the reliability of mobile phones as a means of access to business information (refer to Table 6.11). The reliance on mobile phones rather than other ICTs - especially computer applications - shows that the SMEs might be faced with a number of impediments affecting the use of ICTs. The next section discusses some of the problems the SMEs face in ICTs utilisation in business – especially the Internet.

7.7.2   Problems the SMEs faced in Internet utilisation

With the rapid expansion of ICTs and an increased use of the Internet to carry out business transaction, the SMEs should no longer be disadvantaged in the "knowledge economy" as they should be able to access a wide variety of business information to

generate knowledge. However, the SMEs managers often lack the skills and knowledge of ICTs which are needed for sustainability and growth. They also lack support for these services. In Chapter 6, Section 6.6.3.3, it is noted that both the SMEs managers and information providers cited a lack of appropriate Internet skills as the most serious problem in Internet applications for business transactions in northern Uganda. Duan *et al...*(2002:430) warn that the potential benefits of e-commerce and e-business for the SMEs would only be realised by capable managers who could deal, wisely, with the emerging technology and implement the technologies. This warning should be taken seriously. E-mail and Internet skills are prerequisites in ICTs application in businesses by the SMEs. Researches by Nath *et al.* (1998) and Duan *et al.* (2002:430) reveal that training and a lack of skilled personnel are the main impediments in implementing the Internet and e-commerce among the SMEs. An analysis of the findings in Figure 6.6 shows that there are also many information providers - above 35% - who are not skilled in Internet applications. It is difficult to imagine, then, how business information can be provided through the Internet by these information providers. The implication here is that tailor-made training and sensitisation in ICTs and, especially, the Internet is required for both the SMEs managers and information providers in northern Uganda.

7.8 BUSINESS INFORMATION PROCESSING AND CONTROL PARAMETERS

The processing of information has a direct bearing on the quality of information supplied to the users - and used by them. An analysis of the findings on the quality of business information accessed and used by the SMEs in northern Uganda - as reported in Chapter 6, Section 6.6.2 - shows that the issue of quality needs to be addressed. A number of factors, like sources of information and the identification of information needs and means of access, determine the quality of information accessed and used. However, more important is the way data is processed (see Table 6.16) - which determines the quality of information accessed and used. For instance, if data is processed - or information repackaged in video format - in the language which is understood by the community, some quality will be attached to it.   As noted in Chapter 3, Section 3.5, the quality of information also relates to the management of the information system and services. The

competency of the information providers is very important. Although 37% of the information providers - who responded - had reached university level (see Table 6.4), none had a Bachelor qualification in the field of Library and Information Sciences. Even if the 37% had degrees in Library and Information Sciences, the remaining 63% percent of the respondents is a big margin that puts a doubt on their competency in providing information services to the business community. None of the district commercial officers interviewed had qualifications in the field of Information Sciences or related fields. The staff who handle business information provision need training in business librarianship or they should be given short courses in business information selection, acquisition, processing, storage, retrieval and dissemination. The Internet, for example, has created many challenges - as well as opportunities - for business librarians. The researcher agrees with Liu's argument (2000:253) that Library and Information Sciences schools should maintain high standards in training business information workers. Additional training in business information-related courses, like marketing, accounting, management, economics, etc., is important. All these will, generally, be geared towards creating the desired standards and improvements in information provision.

Effective quality control measures cannot be achieved if isolated from other problems that affect access to quality business information. Problems that affect access need prudent measures of control for optimal quality business information access to be achieved. Some of these constraints - established and reported in Chapter 6 - are discussed in the next section.

7.9   CONSTRAINTS TO BUSINESS INFORMATION FLOW

Access to information about market incentives, credit, investment and other profitable opportunities, should be widely available to avoid the isolation of excluded sectors - including the SMEs (Moyi 2000). This implies that access to this information should be enhanced through ease of communication and movement of people. Although the SMEs are making a fundamental impact to the contribution of Uganda's economy (United Nations 2002), regrettably they face serious challenges, such as insecurity, inadequate electricity, lack of trained information professionals and a lack of appropriate technology,

to access electronic information in northern Uganda - as depicted in Table 6.19 in Chapter 6. The SMEs in northern Uganda lack meaningful, organised information/records management systems that facilitate the accessibility of required business information. Most of the business enterprises do not have relevant libraries. When the SMEs were asked about organised information/records management systems in their enterprises, 35.2% of the respondents saw the lack of an organised information/records management system in their enterprises as a hindrance to business information accessibility (see Table 6.19). This indicates that there is a lack of a shared and coordinated vision to establishing enterprise information systems to facilitate the flow of needed business information among many enterprises. This tallies with the opinion expressed by Lavrin and Zelko (2003:1) that the problems that affect business enterprises and impinge, negatively, on the access to business information include the lack of a shared and coordinated vision as well as management problems within the sector - at both the level of individual entrepreneurs and that of support programmes (see Chapter 3, Section 3.7). Moyi (2000) argues that the impediments to information flow generate transaction costs. For instance, if there is no nearby business information source for an enterprise, an employee might be forced to travel some distance in search of the information and costs are incurred in these movements. Either formal or informal institutions - available within the confines of the enterprise – would usually absorb such costs, indirectly. It would be the responsibility of the information provider to travel to look for the information that the SMEs want. The findings reported in Chapter 6, Table 6.15, show that most institutions that should have provided business information to the SMEs, such as the Uganda Chamber of Commerce and Industry, the Northern Uganda Manufacturers Association, the Ministry of Tourism, Trade and Industry, etc., are not widely known to the SMEs. Only the Uganda Revenue Authority is known and this could, probably, be because of its role in taxation. This situation suggests that there are limited formal mechanisms that support the flow and exchange of information in the SMEs sector.

Gumede and Rasmussen (2002) argue that support institutions or intermediaries must concentrate, largely, on the dissemination of accurate information to small businesses.

Unfortunately, in northern Uganda enterprises operate in an environment that lacks formal, supportive institutions. It can be argued that the proliferation of informal systems/networks is driven, partially, by the absence of formal organisations and as such networks play a substitution role. It is interesting to note that though the Government of Uganda offers business advisory services through trade officers stationed in each of the districts, many - 45.5% - of the SMEs maintain that the Government of Uganda lacks a commitment to business information provision (see Chapter 6, Table 6.19). There are two possible explanations for this: either the extension services discriminate against small enterprises or the small enterprises avoid dealing with these institutions in order to remain invisible and to avoid regulatory matters, such as paying taxes.

Nevertheless, over 40% of the SMEs are moderately satisfied with the business information accessed, with about 25% being either slightly satisfied or not satisfied at all (see Chapter 6, Figure 6.9). Mashego's (2002) argument - that the paucity of accessibility to information by the SMEs sector could be due to a lack of entrepreneurial behaviour and illiteracy - could not be confirmed by the findings of this study. This is because the findings (see Chapter 6, Table 6.3) show that the majority of the SMEs managers are literate and that the entrepreneurial behaviour of the SMEs managers was not determined in this study.

Amidst the problems of business information access, what do the SMEs, information providers and business policy makers propose for a business information system design? These proposals are discussed in the following section.

7.10 PROPOSALS FOR A BUSINESS INFORMATION SYSTEM DESIGN (BISD)

The positive responses by the SMEs, information providers and business policy makers to the researcher's suggestion that a business information system be set up (see Chapter 6, Section 6.8) is an indication that the business community values access to quality business information. This also shows that SMEs in northern Uganda are information conscious. In this context "information consciousness" means the value attributed to

information - a construct that emerges within the individual sphere and in the company's ways of doing things (Moyi 2000). Caruso and Marchiori (2003) note that an organisation that is able to treat information in a consistent and conscious way and that can analyse, structure and manage its own information flows, has a better ability to approach issues related to new information systems. The apparent suggestion by the respondents that the business information supplied should be selective (see Figure 6.10) is a further indication that the respondents want business information that can address their core business information needs. Some of the important proposals for the business information system are discussed in the following sections.

7.10.1 Language/s preferred for business information provision

In Chapter 6, Section 6.8, it is shown that the majority of the respondents – the SMEs managers, information providers and business policy makers - suggested the use of English and a local community language for each sub-region. This suggestion of the use of both English and a local community language is a positive one because English is the official language used in Uganda and the Government of Uganda also emphasises the use of a local language in teaching in the lower primary school phase. A striking finding is that although Kiswahili is a common language spoken among the business community in East Africa and a national language in Uganda, the majority of the SMEs do not prefer the use of Kiswahili for the dissemination of business information. This, probably, shows that although the majority of the SMEs might speak Kiswahili, they cannot read and write it well – as indicated in the results reported in Chapter 6, Section 6.2.7.

7.10.2 Choice of the district to house the Business Information Systems Centre (BISC)

According to the reported findings (see Chapter 6, Section 6.8), the choice of the district where the BISC should be based was a divided issue - where some participants responded, subjectively, preferring the district located in their sub-region. The Lira district would be ideal in terms of security, infrastructure and the availability of many of the SMEs, but it is not centrally located to effectively cater for the entire northern Uganda. Generally, the Gulu district was preferred for the location of the BISC (see

Chapter 6, Section 6.8 and the Districts Information Portal 2006 at http://www.gulu.go.ug/). The Gulu district is, generally, insecure in some parts but most activities take place within the town - which is secure - and the district is centrally located to cover all the sub-regions in northern Uganda. The problem of insecurity will soon come to end with the Lords Resistance Army movement and the Government of Uganda participating in peace talks - currently being mediated in the Juba district by Dr Riek Machar, the Vice President of Southern Sudan. Secondly, the Gulu district has long been considered the capital of northern Uganda with an adequate infrastructure (Uganda Communication Commission 2003).

7.10.3 Coordination of business information provision between district and BISC

The successful management and operation of a system is achieved when it is entrusted to appropriate management organs. Two possible management and coordination organs - at the district level for the business information systems design - are the Uganda National Chamber of Commerce and Industry (UNCCI) and the Department of Production and Marketing at the local government. The choice of the Department of Production and Marketing at the local government was, probably, manifested because of the shortfalls within the Chamber of Commerce and Industry. According to Dammert (1999), the Chamber of Commerce - in a developing country - is faced with the problems of

- low membership of the SMEs;
- poor leadership and a shortage of skilled staff;
- inadequate finance;
- non-acceptance as full partners by government; and
- organisational instability and an inefficient administration.

According to the study commission by NORAD (2002), the UNCCI has been ineffective and dormant for a number of years - wracked by internal conflicts. The manifesto of a recently elected management of the UNCCI states that it intends to resurrect the organisation, and it believes that it has a mandate from members for doing so. The UNCCI, supposedly, has 53 district branches throughout the country - a potential strength in its struggle to find a new role in the private sector development context in Uganda. The

nature of its membership and a lack of clear membership fee collection and monitoring systems mean that this organisation is in a very fragile financial situation (NORAD 2002). The UNCCI will have to be rebuilt - more or less from scratch (NORAD 2002).

It is important to note that small business promotion and the strength of the organisation are two sides of the same coin. For the Chamber of Commerce and Industry to be more effective in its service delivery to the SMEs, it needs to employ skilled and motivated staff with adequate representation from the small business community. This is lacking in Uganda, which has resulted in the SMEs in northern Uganda rejecting the Chamber of Commerce and Industry as an appropriate organ to facilitate business information provision. However, the Department of Production and Marketing at the local government is already established - with networks among the business community. There is already a programme for establishing market prices and disseminating information by means of radios in some of the districts. In other words, the Department of Production and Marketing at the local government is better placed to coordinate the business information system and services at the district level than the Chamber of Commerce and Industry - whose existence is not even known among the majority of the SMEs in northern Uganda (see Chapter 6, Table 6.15).

7.11 SUMMARY

Today's business environment is characterised by an increasing intensity of competition; globalisation of the world economy; rapid technological changes; and the growing expectations of customers, suppliers and the workforce. Surviving and growing - in this turbulent and dynamic business environment - requires strategic thinking and decision-making. This requires access to quality business information. Unfortunately, the dearth of information impacts more adversely on entrepreneurs running the SMEs than those owning larger enterprises. This restrains business creation, growth and survival.

This chapter discussed the salient issues pertaining to the information needs and information seeking behaviour of the SMEs as well as the constraints they face. These are important factors to consider in designing an information system. The wide variety of

needs exhibited in the diversity of business activities - and the preferences for certain types of sources and formats - provide enough data for designing a relevant BIS. The next chapter proposes a BIS that can enable the SMEs access to quality business information that would enhance their productivity.

CHAPTER 8

PROPOSED BUSINESS INFORMATION SYSTEM DESIGN (BISD) FOR SMEs IN NORTHERN UGANDA

8.1 INTRODUCTION

The findings of the study - reported in Chapter 6 and the subsequent discussion in Chapter 7 - indicate that the SMEs in northern Uganda need a proper, formal business information system to access quality business information. This is because a well-organised and carefully planned BIS could accelerate progress and enhance development. However, a disorganised information system could lead to a paralysis of decision-making and insufficiencies in an enterprise's growth and culture. To operate the SMEs in an extremely volatile and unpredictable business environment, the availability of appropriate kinds of information - at the right time - has become a prerequisite for successful business operations (Sharma and Bhagwat 2006). Unfortunately, the business community and - in particular - the SMEs in northern Uganda operate in an environment where there is inadequate access to business information (see Chapter 6, Section 6.7). This impinges on the scope of entrepreneurial operations and the development of new business ventures. To avert such a situation, there is a need for a business information system for business enterprises in northern Uganda. This system would be helpful in accessing, selecting and extracting pertinent and precise information and data from different databases or sources and repackaging the information in appropriate subsets for the convenient use of the different user groups at different stages of business planning.

What, then, should constitute a BISD? This Chapter proposes - and clarifies – an appropriate BISD. The design was determined by the information obtained from an analysis of the reported research – the theoretical and conceptual foundation - as discussed in Chapters 2-4; the findings reported in Chapter 6; and subsequent discussion and determination of the requirements for a BIS in Chapter 7. In the following Section, a Data Flow Diagram - indicating the flow of the data in the proposed BISD - is explained.

8.2   DATA FLOW DIAGRAM (DFD)

As noted in Chapter 2, Section 2.5.3.5, the choice of DFD was based on its simplicity and usefulness in communicating information in the system development process. Figure 8.1 illustrates the DFD for the expected flow of data and information through the system.

FIGURE 8.1

DFD SHOWING THE EXPECTED FLOW OF DATA THROUGH THE SYSTEM
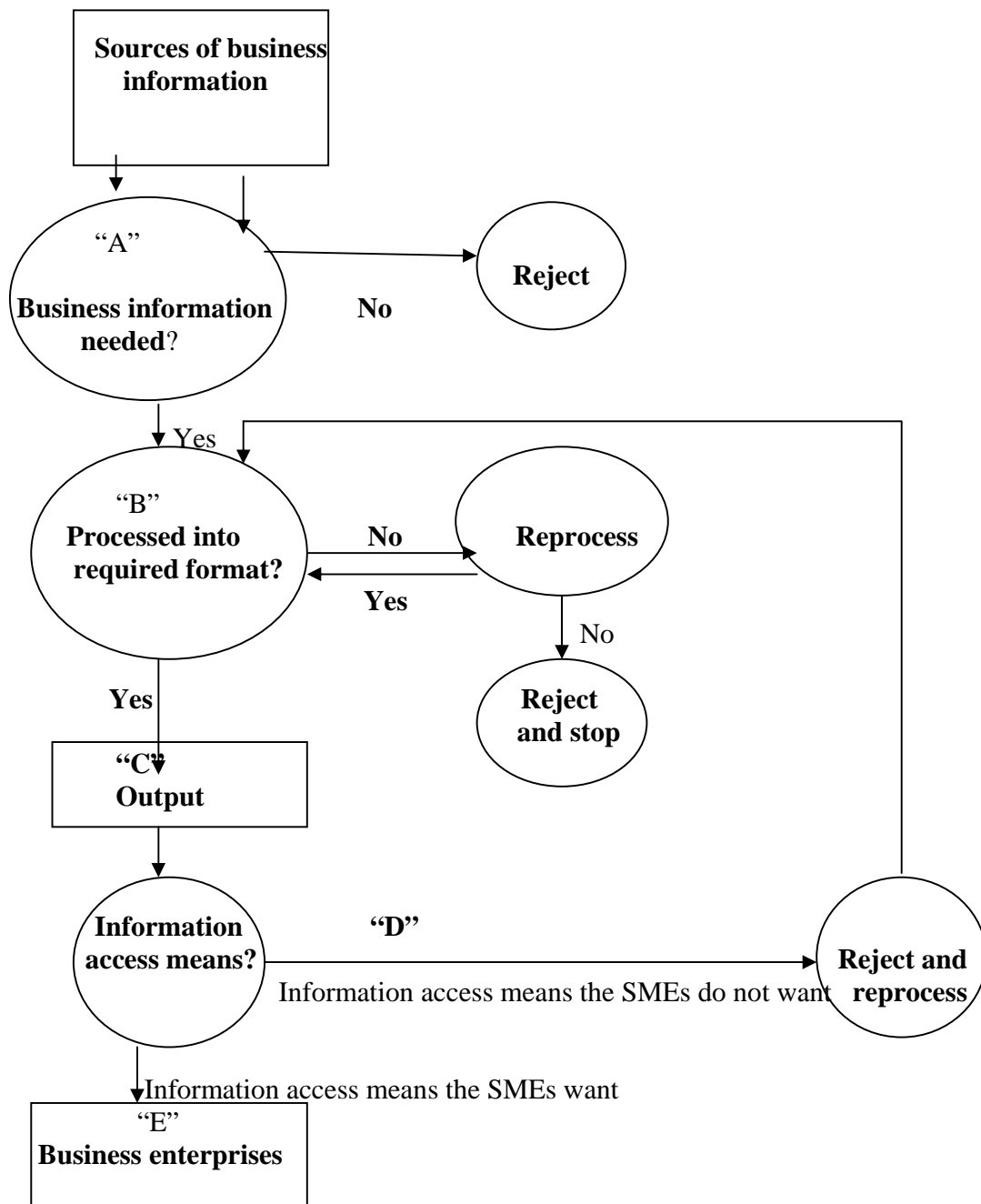
The DFD shows the expected flow of data in the system. The data will originate from different sources that were determined – as reported in Chapter 6, Section 6.6, and discussed in Chapter 7, Section 7.6. Not all of this data might be relevant to the system, so there is a need for a decision-making process to take place - based on the actual business information needs in "A". This business information should be processed into required formats (see Chapter 2, Section 2.2.2; Chapter 3, Section 3.4; and Chapter 7, Sections 7.5.4 and 7.8). This is where the proper management information system in terms of human resources becomes crucial. The issues of format and language become pertinent. If the data is processed as per the requirements of the SMEs, then the output should be availed for access in "C". If the processed data does not meet the required standard that is set, it should be reprocessed. If it cannot be reprocessed, it should be rejected from flowing into the system. When the data is fully processed to the desired standard, the information access means "D"- provided for the business enterprises ("E") to access the output - becomes important. With the guide of the DFD, the study makes a proposal in the next section for an appropriate BISD for the SMEs in northern Uganda.

8.3   PROPOSED BISD FOR SMEs IN NORTHERN UGANDA

Northern Uganda is presently [2007] a suitable location for the establishment of a formal, more flexible and decentralised model of a business information system for the SMEs. As noted in Chapter 1, Section 1.2.3, the level at which poverty is affecting the region calls for a multifaceted approach to reduce suffering. Since the SMEs serve as seedbeds for contributions to economic development (Moyi 2000), the provision of quality business information - to enhance their productivity - would help as one of the approaches to curtail poverty in the region. It is, therefore, imperative that an appropriate business information system design be proposed for the SMEs in northern Uganda.

Based on the literature review which was explored in Chapters 2-4; the findings given in Chapter 6; and the subsequent discussion in Chapter 7, the study proposes a suitable BISD - illustrated in Figure 8.2 - to improve the situation in northern Uganda.

FIGURE 8.2

PROPOSED BISD FOR THE SMEs IN NORTHERN UGANDA

8.3.1   Input into the system

The reliability, quality and usefulness of information from the system will depend on the reliability, quality and value of the information the system has received as input. The input into the system is of crucial importance. The literature review (see Chapters 2-4); the analysis of the findings and the discussion on the business activities; business information sources; and business information (see Chapters 6 and 7) describe the input into the proposed business information system. The following section proposes the sources of business information that are needed as input into the system.

8.3.1.1 Sources of business information needed

Figure 8.2 reflects the proposed BISD for the SMEs in northern Uganda. It is suggested that the BIS Centre be based in the Gulu district - as argued, earlier in Chapter 7, Section 7.10.2. The central business information processing will take place from the centre in the Gulu district. As can be seen in the proposed BISD, there should be sources of business information that would supply the system with the required business information. The sources of business information are many – some such sources include radio stations, newspapers, banks/financial institutions, Internet-based resources, printed literature, private sector consultants and the macro information services.

The SMEs singled out radio stations as they have a high trust in them for business information. It should be noted that some of the information from radio stations needs repackaging for the SMEs. This is because, sometimes, radio stations give general information that might not address the needs of specialised groups. That is why having data or information from these sources to go through the information system as input is very important. The system should have a good collaborative network with all radio stations in northern Uganda in order to access relevant business information that could go

into the system. Secondly, newspapers should be considered to be a key source of business information. The main national, regional and international newspapers - that are of value to businesses - should be considered as useful sources. Although the SMEs did not show much enthusiasm for Internet-based resources (see discussion in Chapter 7, Section 7.7), the BIS should integrate Internet-based resources as important ones for business information. The BIS should have links to other government on-line applications that cover the information needs of the SMEs - for instance, sources of business financing; business start-up assistance; district information portals; etc. The BIS could also have links to Internet-based applications which are provided through partnerships between the Government of Uganda and other countries. It should enable business clients to subscribe to a service that notifies them *via* e-mail of new or changing programmes - based on the client's self-defined business interest profile. This is, especially, applicable as the system will include a component of training in - and sensitisation to – the use of ICTs and their application in business activities for both the SMEs managers and the information providers in northern Uganda.

8.3.1.2 Needed business information for BISD

It is expected that the sources of business information – described above - will supply the needed business information to the system. The needed business information - indicated in the BISD, Figure 8.2 - emanated from the reported findings in Chapter 6, Section 6.4, and the discussion in Chapter 7, Section 7.4. It includes the following:

- Information on finance/capital/loans
- Information on local markets
- Information on business management skills
- Information on appropriate technologies
- Information on business competitors
- Information on security
- Information on international markets
- Information on foreign exchange
- Information on government policies, taxes, incentives and regulations

- Information on tender and contracts.

Put in a specific context, the SMEs in northern Uganda need the following business information that should be, carefully, filtered from the different available sources:

- *Business legal information*. Different kinds of business legal information exist, but that which is important for the SMEs in northern Uganda should include information on

    - national legislation or acts governing the importation of goods and services into the country, including technologies;
    - exchange control acts and regulations;
    - laws governing the registration of different types of companies, as well as other company laws;
    - laws governing the taxation of businesses in the country;
    - regulations governing the importing of selected goods/raw materials into the country; and
    - international trade conventions.

- *Business technical information*. This should include information on

    - details of relevant technologies available in the country and adequate information and knowledge on these for new products/services development, design or innovation;
    - the ICTs, especially the Internet and training opportunities for the SMEs and other business partners;
    - professional and technical expertise available in the country;
    - the status of patents relating to the selected technologies;
    - consultancy services that are available in the country and their terms and conditions for services/access;

- types and capacity of major laboratory equipment and production machinery that is available from manufacturing firms and other institutions in the country; and
- local and international standards/norms/specifications relating to the technologies under consideration.

- *Business economic information*. This should include information on

  - national economic indicators;
  - local markets, export markets and market trends for identified products;
  - comparative costs of identified technologies from different sources;
  - performance analysis of approved contracts in the country;
  - inflation rates in the country, future economic focus, foreign exchange rates and performances;
  - the different types of loans offered by the banks, financial institutions, like micro-finance and government;
  - raw materials; and
  - business opportunities in neighbouring countries, such as the Democratic Republic of Congo, Sudan and Kenya.

- *Business contacts information.* This should include information on

  - business and marketing partners, technology providers, public incentives bodies, etc.; and
  - telephone contacts, e-mail, web addresses [Uniform Resource Locators] of registered business competitors.

- *Business management skills information*. This should include information on

  - business book-keeping and accounting;
  - customer care and the provision of quality services;

- writing business proposals and technical reports; and
- business planning and forecasting.

All the business information – as listed above – which is needed by the SMEs in northern Uganda requires processing for the users to access it in a more digestible form – a reason why central information processing should exist in the Gulu district, as depicted in Figure 8.2.

8.3.2   Central information processing

Business managers need "encapsulated" information which has been processed and rendered meaningful in the context of their decisions. This implies that business information processing is a key step - just like any other step in the BISD. This is the point where value adding processes and quality controls must be in place and applied - before the information is sent/released to the Department of Production and Marketing at the District Local Government (DPMDLG). In Chapter 3, Section 3.4, it is noted that Onwubiko (1999:187) argues that the problem in information provision, today, lies in

- the format in which information is provided;
- the people for whom it is provided;
- the level of literacy users, especially information literacy;
- users' geographical contiguity to information base; and
- users' levels and patterns of information application to decision-making to achieve the desired results.

To make quality information available, it must be processed and packaged in a format that will allow for its accessibility, usage and dissemination (Jimba 2000: 253). This raises two issues/questions: In which format and language(s) should the needed business information be processed? and What control measures should be instituted to ensure quality information?

The study proposes the following business information format, languages to use and the management information system appropriate for the BISD - given in Figure 8.2.

8.3.2.1 Business information format

The processing system should ensure the packaging and repackaging of needed business information in different formats. This is because the information received can be from different sources with different formats, quality and type. Information can be retrieved from published materials; from raw data collected by research organisations; from grey literature; and from government statistical services. This information may require processing into the digestible formats. Information can also be derived, electronically, *via* on-line services and networks; publications from Ministries of Trade and Industry, Finance and Economic Development; the Uganda Revenue Authority; the Uganda Investment Authority; the Bank of Uganda; the World Bank and other similar agencies; and, indeed, from experienced business personnel and leaders in the community. All these different pieces of information would require further repackaging into the required formats for the SMEs. To generate the oral media of information for example, from business leaders and the community for repackaging, there is a need to have a conventionally trained professional with adequate formal instruction in the collection and recording of the oral tradition and literature. Information from databases or the Internet could be downloaded as a veritable source of information. The remodelling of information from these sources in the required formats is an effective and efficient way of using scarce funds.

The recommended formats for processing information - as reported in Chapter 6, Section 6.5.3, and discussed in Chapter 7, Section 7.5.4 - are the following:

- radio
- Telephone short text message (sms)
- Posters
- Online
- CD-ROM
- Printed formats, including business newsletters targeting SMEs.

Though the video format is not popular among the SMEs in northern Uganda (see Chapter 6, Section 6.5.3), this study suggests that video format should be used, selectively. For example, the ICTs training could be documented in the local language in video format and lent to users who can use it to train themselves in the use of computers - as is done in the Nakaseke telecentre in the Nakaseke District in Uganda. Secondly, the best practices - in, for instance, commercial farming; business management techniques; book keeping; and other different important business information - could be processed in video format and lent or sold to business enterprises. Since DVDs and VCDs are now popular in most parts of Uganda, the processing centre should use them to ensure that a variety of formats is available. This implies that the centre should have good ICTs facilities, including VCD and DVD burners.

The BIS should have a website with links to all districts information portals available at: http://www.dip.go.ug/english/ which gives local information relevant to the SMEs, such as government programmes; forex rates; commodities prices; and background to formation on other districts; etc. - as well as relevant sites for both national and international business information. There should also be built-in archiving mechanisms for relevant information - for instance, information on factors that lead to business failures; business securities; and methods employed elsewhere for success in business; etc. To ensure that access to business contact information is facilitated, all the registered SMEs in northern Uganda should be encouraged to register with the BIS for the SMEs database - that is to be created. The database should contain all contact details and areas of interest in business partnerships with other business enterprises. The registration should be done for a small, reasonable fee. The payment of this fee will not be a problem - given the willingness and the enthusiasm of the SMEs to having a business information system to address their information needs (see Chapter 6, Section 6.8). The language that the SMEs are comfortable in - when accessing the needed business information from this BISD – is also significant.

8.3.2.2 Language(s)

The business information for the SMEs in northern Uganda should be processed in languages, such as English, Kiswahili and the local languages used by the community, that are predominantly understood by the largest groups. This recommendation is based on the discussion in Chapter 7, Section 7.10.1.

During the pilot study, it was established that the most widely used local languages are Luo, Lugbara and Nyakarimojong. It was because of this that these languages were given as predefined languages for the SMEs managers to select from during the main study. Although the findings indicate that the majority of the respondents can read Luo quite well (see Chapter 6, Section 6.2.7), a cross-section of the respondents can also read Lugbara and Nyakarimojong quite well. Since Luo, Lugbara and Nyakarimojong are widely spoken in the Lango, Acholi, West Nile and Karamoja sub-regions, respectively, the local languages should be Luo for the Lango and Acholi sub-regions; Lugbara for the West Nile and Madi sub-regions, and Ngakarimojong for the Karamoja sub-region.

Although most of the SMEs managers do not prefer Kiswahili, the use of Kiswahili in information provision should be promoted because of the planned East African Community integration where Kiswahili would be the most widely spoken and where it is the national language of Kenya and Tanzania that form part of East Africa. Secondly, Kiswahili is a national language in Uganda which is widely spoken among the business community. Since the majority of the SMEs are illiterate in Kiswahili, it should be used as a secondary language. The core languages should be English and the community local language. The use of the three local languages - as proposed above - will minimise the costs of translation. Any of the SMEs manager who cannot understand the local language could access the business information in either English or Kiswahili.

In order to facilitate the success of this proposal for the BISD, an efficient management information system is required to ensure quality controls.

8.3.2.3 Management of the BIS

For the effective management of an information system to take place, the quality of the BIS workforce is important. Who processes the information and also ensure the effective management of the system? The system should be managed by competent information scientists who do not only have a qualification in Information Sciences, but who also have additional qualifications in Business Management and Computer Sciences. Since information should be packaged or repackaged in a desired format, an additional qualification in Business Management would enhance professional performance. This also raises a curriculum issue in the training of information scientists that needs exploring in a follow-up study. Should an information scientist be first trained as a subject specialist and, thereafter, go for information sciences training or should he/she have general training in information sciences and work without subject competence? This issue is beyond the scope of this study and should be investigated, separately.

8.3.3 Output (Quality business information)

Output depends on input and the processes involved in a system. A description of the expected quality of the output is a design concern in this study. Business managers should have access to a wide range of factual competitive business information and, also, be conversant with the dynamics to explore these information sources. Based on the findings and the discussion, the output should address the real needs of the business enterprises in northern Uganda. This study agrees with Bailey and Pearson (1983); Miller and Doyle (1987); Srinivasan (1985); King and Epstein (1983); and Gallway (2002) in Chapter 2, Section 2.2.4.2 and in Chapter 3, Section 3.5, and proposes that output from the information processing should be

- relevant - meets the criteria of the question and is useful;
- credible - the source is well-known;
- topical – up-to-date or a hot topic;
- balanced - represents an important and, perhaps, under-represented point of view;
- accessible - easily available and written in a clear way; and
- current or timely.

In addition to the above, efficient quality control of the Business Information System should ensure that

- quality control standards cover currency, accuracy and readability;
- the most popular national and international documents are updated as soon as the next publication is out;
- infrequently used documents are amalgamated into more general descriptions wherever possible; and
- changes are replicated overnight - amending all uses of the information on all modes of access.

The next significant aspect in the design is the procedure involved in accessing the above output - quality business information.

8.3.4 Information access procedure

It is worth noting that in developing countries there is often a lack of awareness of the value of business information (UNIDO 2003). It is, often, considered as something that should be made available free of charge by the government. The SMEs are, sometimes, not aware of the existence of national business information or they are discouraged from using it because of a cumbersome access procedure (UNIDO 2003). There is, often, a great deal of information and knowledge in national institutions, but it does not reach the private sector. Business information is only available from isolated institutions - not as integrated solutions, but only as *ad hoc* answers that are based on the particular competency of the information source. For quality business information to be accessed, strategic measures need to be put in place to minimise the problems that relate to business information access – as experienced by the SMEs in northern Uganda. An important issue in the design is the need for a mechanism for the promotion of information literacy among the SMEs for effective access to business information. As this is beyond the scope of this study, it should be handled in a separate research project.

Once the needed business information is processed in the desired formats - as illustrated in Figure 8.2, the information can be supplied to the respective districts through the

DPMDLG for access by the SMEs. The means of access is imperative to the success of the dissemination of the processed business information. The means of access to business information should include the following:

- Radio messages
- Public notice-boards
- Online deliver and faxes
- The use of newsletters
- Newspapers
- Telephone text messaging services.

To facilitate easy access, the study proposes that the following core services be initiated or developed in the BIS proposed in Figure 8.2:

- **Telephone services -** In each district in northern Uganda, a toll-free telephone inquiry service should be established by the Government of Uganda as a one-stop service centre for business information. In addition, the BIS should offer a single, national toll-free number for business inquiries. This national/regional toll-free number should – automatically - direct the call to the BISC in the Gulu district. The essence of a toll-free service is important as a subsidy to the SMEs operating in northern Uganda - given the deplorable circumstances in which the SMEs operate in northern Uganda (see the discussion in Chapter 1, Section 1.2.3). It should be noted that a toll-free service is proposed as a short term measure - given the situation in northern Uganda. A long term measure - and the issue of sustainability - could be further explored in the implementation stage of the BISD.

- **Clients' services** - Knowledgeable business information officers, using a variety of databases accessible on their computers, should serve clients. Information officers should promote web-based information sources; provide contact information and explanations, verbally; and offer to deliver information *via* the most appropriate format for the user. Frequently, questions can be complex and require investigation and research - using BIS resource collections. To manage

this assembled knowledge efficiently, each question and answer should be retained in a database for future reference by the BIS network and its regional access centres.

- **Fax services** - A toll-free, fax-on-demand service could be instituted to allow callers to order business information catalogues and documents which were available. This is an alternative to serve areas where Internet access is not adequate and for the SMEs who have access to fax machines, only.

- **In-person service** – The BISC in the Gulu district should offer a business information resource walk-in service, where clients may access information on their own - i.e., self-service - or obtain the assistance of business information officers. The business resource collections should focus on the information needs of the SMEs - as indicated in Section 8.3.1.2. Many business sources of information, such as directories and statistical databases, should also be available. Business registers comprising directories and databases of business associations, importers, exporters, manufacturers, service providers - for identifying and appraising potential trade contacts at the international level - are recommended. The BIS should, also, have extensive information collections available - on video; in print; and online - on a range of business topics, indicated in Section 8.3.1.2.

- **Internet-based services** - The BIS should provide easy access to a comprehensive inventory of districts, regional/national and international government programmes; regulatory requirements; services; and other sources of business information. This web site should be organised from the business clients' perspectives - with topics and search options to suit various needs. It is hoped that the BIS's web-based information resources would contribute, substantially, as a gateway for Uganda business on the international information portals. The BIS should have the following:

- *An Interactive business planner*. This is a version of award-winning interactive business planning software.

- *An online small business workshop.* This web-based workshop provides techniques and information for developing a business idea; starting, marketing and financing a new venture; and improving an existing small business.

- *The business start-up assistant.* This new, on-line product is, specifically, aimed at the information needs of entrepreneurs in the start-up phase.

- *Info-guides.* Brief overviews, describing how services and programmes are organised by topic - e.g., exporting, electronic commerce, lodgings, tree planting, construction, etc.

- *An e-mail service.* This service provides clients with another method of requesting and obtaining business-related information. Clients who use the service need to be assured of a response within one business day.

- *Talk to BIS!* This study proposes this unique service which could, equally, be described as part of telephone services where both the web and the telephone are used, simultaneously, to help business clients find information on the Internet. Although the Internet is aimed at self-service, the amount of information, available, can often lead to failed searches and frustrated SMEs managers. Talk to BIS will allow the BIS officers to use the Internet to deliver web-based information to clients while refining search parameters with them on the telephone. The potential of this enhanced user support is tremendous, as it extends the benefits of personal assistance to the Internet delivery channel and it helps people who are not comfortable in searching the Internet.

All the SMEs in the respective districts should register with the BIS centre - the central information processing centre based in the Gulu district - for an easy text message service

and the creation of the SMEs database. The centre should have a website in English with facilities to translate contents into Kiswahili and the local community languages proposed in Section 8.3.2.2. The measurable parameters for the quality of the business information from this system should include

- timeliness of information;
- a focus on the business needs of the SMEs;
- A level of understandability of the information - in English, Kiswahili and the local languages; and
- have enough local content which is provided through the preferred channels.

In order to promote the efficient utilisation of the available services, the SMEs managers in northern Uganda need to have tailored-made training in business information seeking and searching - for example, environmental scanning; and in the ICTs skills and applications in businesses - especially Internet and e-mail usage. The information providers, on the other hand, need to have training in these aspects as well as in business information repackaging and in business information filtering mechanisms for specialised users.

This tailored-made training is in line with Carroll and Rosson's (2003:390) argument that one of the principles of community networks or information systems should incorporate a model of lifelong learning. The training should be a continuous programme within the BIS operations to address changing needs in technologies and business information access and utilisation. The details of the training should be established during the development phase of the system life-cycle (see Chapter 2, Figure 2.1).

Since most of the SMEs are located in urban areas, access to the DPMDLG should not be a serious problem. This implies that the procedure of access would be through the DPMDLG. The DPMLG would devise an appropriate procedure for access that consists of personal visits to the DPMLG; telephone text messages; and through interactive online services at the Centre in the Gulu district - as proposed above. Regular updating of the

SMEs by radio stations - on the availability of needed business information - should be a dove-tailing programme. All the services should be provided at district level through the DPMDLG, but the processing, management of the system and coordination should be done at the central processing centre in the Gulu district. To avoid the duplication of services, the SMEs in the Gulu district will have their services provided in the Gulu district where central processing takes place.

8.3.5 Feedback

A proper reporting mechanism should be instituted in the system design. How will the system managers know what is being achieved or not being achieved? A feedback loop is included in the system design - based on the discussion in Chapter 2, Section 2.2.6. Feedback is crucial for the success of an information system. To ensure that the BIS performs, efficiently, in the successful business information provision, the centre - in the Gulu district - should have a feedback mechanism from the SMEs. The study suggests that the DPMDLG should sensitise the SMEs on the effect of telephone text messaging (sms) on feedback services. This should be done, annually, since it is a cost effective means of getting feedback from the users of the system. The comments and suggestions of the SMEs through the DPMDLG would, then, be relayed to the centre for action. The centre - in the Gulu district - should have a well-organised place where seminars, workshops and face-to-face interaction could be facilitated. This will, also, give the SMEs leaders the opportunity to give viable feedback in workshops and seminars which would be similar to China - as discussed in Chapter 4, Section 4.3.1 or which can be viewed at: (**http://www.sme.gcn.gov.hk/smeop/english/service.cfm**).

Another method of feedback proposed for the BIS includes an analysis of usage. Each use of a document is recorded - whether it is used on the Internet or by the business information officers serving the client in-person; by telephone; or through e-mail responses. Analysing these statistics should provide some insight into the priorities of business clients seeking information from the system. Information can be classified into the following four broad categories:

- *Programmes* - including all types of financial assistance, such as loans, loan guarantees, interest buy-down, grants and contributions.

- *Regulatory requirements* - including taxes, permits, required registrations or other regulatory steps.

- *Services* - including counselling, advisory services, networks, sources of business information, data bases of businesses that do not involve financial assistance, but are of some business benefit.

- *Other* - any business information that does not fall within the first three categories.

8.3.6 System Interface

The way the system interfaces with the environment it operates in is critical for its effective and efficient functioning. Organisations or institutions - that are potential suppliers of business information to the SMEs - should constitute the system interface. The way the BIS - as illustrated in Figure 8.2 - should interrelate with the outside environment would determine its success. This is because a lot of business information is produced and disseminated at a macro level - national and international (see Figure 8.2). Having contact with the information system is, also, important. Normally, there are experienced business managers who - in informal information systems - have a great deal of information based on their experience, but this information remains undocumented. A forum should be created that links experienced business managers with the BIS. Through the forum, the contributions of these experienced business managers may be documented and repackaged for consumption by the entire SMEs in northern Uganda. It is, therefore, important to link the BIS and the informal information systems through a flexible information system interface because problems increase when formal and informal systems become unsynchronised (Thoburn, Arunachalam, Gunasekaran 2000:252). Therefore, closer links and relationships that are created between macro information services (see Figure 8.2 above) and the BIS would enhance access to quality sources of business information for the system. This study, therefore, proposes a flexible interface that facilitates access to required business information from government agencies, community-based organisations, international bodies and all other development agencies.

Important private sector institutions include the following:

- ***The Uganda Manufacturers Association (UMA) -*** The UMA is one of the leading organisations in Uganda and the wider East African region that represents the broad industrial and commercial sectors of Uganda's economy and provides an important forum and voice for the private sector. Since it was revived in 1988, the UMA has championed the growth of a strong industrial base in Uganda (UMA 2006). The association ensures that the government - in formulating policies and legislation that affect them, in general - considers the views of its members as well as the Ugandan business community. The UMA has a membership comprising small, medium and large enterprises - drawn from both the private and public sector. The UMA has 751 members – of which, about 10 are specialist sector associations. In a bid to provide information to manufacturers, the UMA publishes current information on the association and its programme on the Internet (Zake 1993:17). The UMA is probably the most representative apex private sector organisation, today – and, relatively, effective in wider policy issues with different information sources. Part of the reason for this is that it is driven and operated by members and it has never been dependent on donor funding. The UMA is financially sound - with a functioning membership fee structure and a coherent revenue raising strategy. Not surprisingly, many members believe that their sector specific organisations are more effective in dealing with issues of more specific concern to their individual businesses.

- ***The Uganda National Chamber of Commerce and Industry (UNCCI)*** – The UNCCI has been ineffective and dormant for a number of years, wracked by internal conflict. The recently elected management states that it intends to resurrect the organisation and it believes that it has a mandate from members in doing so. Apparently, 6000 voted in the recent elections for a new president. The chamber, supposedly, has 53 district branches throughout the country - a potential strength in its struggle to find a new role in a private sector development context in Uganda. Although the UNCCI has some problems - as noted in the discussion

in Chapter 7, Section 7.10.3 - the chamber can still be a good interface node for the BISD for the SMEs in northern Uganda.

- *The Private Sector Foundation (PSF)* - The private sector is the main driving force of industrial development in, virtually, all countries. The changing patterns in international production, investment and trade shapes the economic globalisation process. A vibrant private sector - which builds on the combined strengths of, and linkages between, large, medium, small and micro enterprises - is an essential prerequisite for triggering economic dynamism; enhancing productivity; transferring and diffusing new industrial technologies; maintaining competitiveness; and contributing to entrepreneurship development and ultimately poverty reduction.

  The PSF was started in 1995 to implement the World Bank funded Private Sector Competitiveness Project. It is still, currently, receiving the bulk of its funding from the World Bank but, now, also manages a European Union funded SMEs project. It is a membership-based organisation with 41 members who are all representative associations.

  A major component of the work of the PSF is policy advocacy. It provides a forum for the discussion of policy issues and the impact these have on the private sector. Its staff members also undertake research, and it contracts research from other institutions and consultants. While the PSF is, generally, seen as producing reasonably effective research, a number of donors think it is too donor dependent and that this has separated it from its private sector membership. In response, the PSF is considering various options to enable it to generate non-donor revenue from its activities.

- *The Uganda National Farmers Association (UNFA)* - The UNFA is run by a national Farmers' Council and a national Executive Committee. Representatives from all the districts sit on the council. A national secretariat is based in Kampala. The UNFA provides consultancy services to its members and - at a district level - it is involved, mostly, in providing technical services, including the arranging of

mentoring by farmers to other farmers. The UNFA - at a policy level - has been involved in the formulation of the Plan for Modernisation of Agriculture (PMA) and Land Policy.

- *The Uganda Cooperative Alliance (UCA)* – The UCA is an umbrella body and the spokesperson of the co-operative movement in Uganda. It is a member of the Agricultural Policy Committee - the inter-ministerial policy body that initiates and implements policies within the agricultural sector. The UCA is, now, involved in designing the training curriculum for the national advisory and extension programme.

To strengthen the cooperatives, the UCA initiated so-called Area Marketing Enterprises (AMCEs) that bring together cooperative members to organise common input, handling, negotiation and selling of products. Disseminating market information is a vital aspect - ensuring that members plant what is demanded.

8.4   STRATEGIC NATIONAL VALUE OF BIS

One of the means for overcoming the gaps in catering for the business information needs of the SMEs is by making the BIS operate in the form of a national "info-mediary". This is a system - or established institution or framework - that would function as an information intermediary and network with national and international information sources (UNIDO: 2003). The BIS would provide operational linkages with other SMEs support programmes and offer integrated information solutions - tailor-made to the specific requirements of the SMEs.   Within the information chain - where data is translated into an appropriate form for decision-making - the BIS would support the needs of the SMEs. Raw data would be accessed, assessed, processed and transformed into quality business information. The info-mediary would provide services related to the search for relevant and reliable data at national and international level and - based on its accumulated knowledge - assess and apply it to a solution for the client SMEs in the region. The function of the info-mediary is to provide services that the SMEs cannot, efficiently, develop on their own - i.e., to network the scattered national and international

information sources into one focal point, a One-Stop-Centre (OSC). Based on the "network potential" of the BIS, it would be able to provide an integrated solution rather than a series of *ad hoc* information components. Depending on the SMEs needs and preferences, the OSC would be able to address a large variety of inquiries in an efficient manner - making it a cost-effective service for the SMEs in northern Uganda. The BIS should network with all relevant national SMEs support institutions and link with international sources of information. To assure sustainability, the proposed BIS is based on a model of accurate, demand-driven information needs of the SMEs. If all these suggestions are put into practice, it is assumed that there would be a new national out look - in terms of business information access and utilisation in northern Uganda.

8.5 LIMITATION OF THE DESIGN

This study only proposes the structural mechanism for business information to be gathered, processed and disseminated to the SMEs in northern Uganda. The design does not claim to handle the internal set-up of the business information system - both at the centre and at the DPMDLG. Where the resources should come from; the recruitment system; and all the human and financial resources required for the system, needs a follow-up study on the effective implementation of the BIS.

8.6 SUMMARY

In the preceding chapters, this study established that there is a clearly perceived need for a business information system in northern Uganda among, especially the SMEs. As shown in Figure 8.2 and the subsequent explanation, this study, therefore, suggests that having a formal system - where proper and needed business information is selected; processed into different formats based on the users' preferences; accessed, using appropriate means; and feedback is sought - would enhance the SMEs business productivity. The proposed BISD is a user-based system that - if implementation parameters are examined and the system is implemented - would enable business enterprises in northern Uganda to access desired business information.

In the next and last chapter, Chapter 9, the study draws a conclusion about the study and makes recommendations on the best practices to reduce the problems the SMEs in northern Uganda face in accessing business information.

CHAPTER 9

CONCLUSIONS AND RECOMMENDATIONS

9.1　INTRODUCTION

Information has become one of the most important resources for contemporary society. This is especially true for business and commercial ventures. Businesses create markets for their products and services through innovation, quality management, improved customer service, strategic planning and a host of other approaches and techniques. For these efforts to succeed, businesses require access to information that is relevant, current, accurate and comprehensive. The inability to access quality business information has caused a number of problems for the SMEs in northern Uganda. In a bid to facilitate access to quality business information by the business enterprises in northern Uganda, this study set out to establish information system requirements - with a view to designing a BIS for northern Uganda. The study was conducted on the basis of predefined objectives (see Chapter 1, Section 1.6) and the major findings of which are summarised below.

9.2　SUMMARY OF MAJOR FINDINGS

Each of the objectives that guided the study and the major findings are summarised in the following sections.

9.2.1　Objective 1: To establish a theoretical basis for an information system design

Information for this objective was obtained by means of a review and analysis of the relevant literature. The major findings include the following:

- The establishment of six phases for a system development life-cycle - i.e., a preliminary investigation, analysis, design, development, implementation and system evaluation. This helped to establish the parameters of the study (see Chapter 2, Figure 2.1).

- The information system concepts - interacting components - were established and they included input, processing, control, output [quality information], procedures, feedback and system interface. The BISD was based on these concepts.
- Relevant theories - i.e., the Metcalf, Actor-Network and Systems and Organisational theories were established and guided the study in which questions to ask during the data collection (see Chapter 2, Section 2.3).
- DFD - the common analysis process used in the design phase of an information system - was established and used in the design of a BIS.

9.2.2 Objective 2: To establish the conceptual framework of a business information system in relation to economic development

Information for this objective was obtained by means of a review and analysis of the relevant literature. The major findings were:

- The development of a conceptual framework for business information systems that brought into context the variables at play in the study (Chapter 3, Figure 3.1).
- The establishment of a conceptual link between business information and economic development (see Chapter 3, Figure 3.1).
- The establishment of possible questions for respondents - based on literature review, for instance (see Chapter 3, Section 3.3.4).
- Business information needs, sources, means of access and problems faced in accessing business information were established - based on literature review (see Chapter 3).
- Characteristics of the SMEs as an information user group were explored (see Chapter 4).

9.2.3 Objective 3: To establish the main business activities of the business enterprises in northern Uganda

An analysis of documents; structured questionnaires; and semi-structured interviews were used for data collection for this objective and the major findings include:

- The main business activities carried out by the SMEs in northern Uganda, including transport services, construction, lodging services, farm produce sales and property management.
- Other business activities that would benefit from the BIS (see Chapter 8). These include banking/microfinance, leisure and hospitality, stationery and secretarial, breweries, commercial farming, manufacturing, tree planting, education, mechanical services and health services.

9.2.4 Objective 4: To determine the business information needs of the business enterprises in northern Uganda

Information for this objective was obtained by means of the analysis of documents, structured questionnaires and semi-structured interviews. The major findings were:

- The SMEs in northern Uganda have a wide spectrum of business information needs.
- Business legal information, business technical information, business economic information, business contacts information and business management skills information are the most critical and most needed business information required by business enterprises in northern Uganda (see Chapter 8, Section 8.3.1.2 for details).

9.2.5 Objective 5: To determine the sources of business information being used by business enterprises in northern Uganda

The analysis of documents, structured questionnaires and semi-structured interviews were used for information collection for this objective and the major findings were:

- Most of the SMEs in northern Uganda depend on a number of business information sources.
- Radio broadcasts, personal contact with established entrepreneurs and friends and newspapers were determined to be the most important sources of business information.

- The SMEs in northern Uganda are, relatively, lagging behind in their use of ICTs in businesses.

9.2.6 Objective 6: To determine the means that business enterprises in northern Uganda use for accessing business information

Information for this objective was obtained from the analysis of documents, structured questionnaires and semi-structured interviews. The major findings were:

- Radio messages, telephone text messages and verbal formats were the most prominent information formats among the business community in northern Uganda for business information access.
- The SMEs prefer telephone text messages, radio, verbal forms through extension workers and printed formats for business information access.
- The means of access to business information should include radio messages; public notice-boards; online delivery; faxes; and the use of newsletters, newspapers and telephone text message services.
- To facilitate easy access, the following core services should be included in the BIS: telephone services, client services, fax services, in-person services and Internet-based services (see Chapter 8, Section 8.3.4).

9.2.7 Objective 7: To determine problems that business enterprises in northern Uganda face in accessing business information

Information for this objective was obtained from an analysis of documents, structured questionnaires and semi-structured interviews. The major findings were:

- The SMEs face serious challenges, such as insecurity, an inadequate electricity supply, a lack of trained information professionals and a lack of appropriate technology to access electronic information in northern Uganda (see Chapter 6, Table 6.19).
- Most institutions that should have provided business information to the SMEs - for example, the Uganda National Chamber of Commerce and Industry, the

Northern Uganda Manufacturers Association, the Ministry of Tourism, Trade and Industry, etc. are not ,widely, known to the SMEs. This suggests that there are very limited formal mechanisms supporting the flow and exchange of information in the SMEs sector.

- Most of the business enterprises do not have enterprise libraries.
- There is a lack of a shared and coordinated vision to establishing enterprise information systems to facilitate the flow of business needed information among many enterprises.
- Although the Government of Uganda offers business advisory services through trade officers stationed in each district, many - 45.5% of the SMEs - consider the Government of Uganda to lack any commitment to providing business information

9.2.8 Objective 8: To propose an appropriate Business Information System Design (BISD) for the effective and efficient provision of business information to the business enterprises in northern Uganda

Information for this objective was obtained by means of an analysis of documents, structured questionnaires and semi-structured interviews. The major findings were:

- The SMEs, business policy makers and information providers proposed that a business information system be set up. This proposal - and its acceptance - was an indication that the business community, policy makers and information providers value access to quality business information. It also showed that the SMEs in northern Uganda are information conscious.
- The business information that is supplied should be selective as *per* the needs of the SMEs in northern Uganda.
- The business information for the SMEs in northern Uganda should be processed in English, Kiswahili and the local languages used by the community. The local languages should be Luo for the Lango and Acholi sub-regions; Lugbara for the West Nile and Madi sub-regions; and Ngakarimojong for the Karamoja sub-region.

- The Gulu district was preferred for the location of the BISC (Central Information Processing Centre).

- The Department of Production and Marketing at the district local government was proposed for coordinating the business information systems and services - as opposed to the Uganda National Chamber of Commerce and Industry.

- There should be an established feedback mechanism within the BIS. This will give the SMEs leaders an opportunity to give viable feedback through workshops and seminars, similar to those in China - as discussed in Chapter 4, Section 4.3.1, or at: (**http://www.sme.gcn.gov.hk/smeop/english/service.cfm**).

- A proposed BIS for northern Uganda was designed and some aspects - to consider for its operations in the development stage - were proposed (see Chapter 8, Figure 8.2).

9.3   RECOMMENDATIONS

The development and promotion of the SMEs is urgently needed in today's world of business competition. There is an urgent requirement for planners and all stakeholders in Uganda to take a fresh look at the scope and spectrum of information services that should be provided to the SMEs. This will revitalise the economies of various, developing countries. Unfortunately, in northern Uganda a number of impediments affect the SMEs access to business information. A lack of appropriate target-based business information systems - to address the SMEs information needs - stands out as the most significant impediment. As proposed in Chapter 8, this study makes the following recommendations to facilitate the BISD's success:

- Before the BISD is implemented, further research should be conducted into some important topics that could not be handled in this study (see Section 9.4).

- The Government of Uganda should pursue clearly-defined policy objectives - both at the individual business enterprise level and at the national level - that include the establishment of well-coordinated and coherent information management systems to promote a culture of sound record keeping and

information management. This will enhance the use and dissemination of relevant business information for correct business decision-making.

- The Government of Uganda has prioritised the development of information and communication infrastructures through privatisation over the last few years. The establishment of the Uganda Communications Commission (UCC) to oversee the privatisation of Uganda Telecom and the introduction of private sector competitors to provide fixed and mobile telecommunications infrastructures has resulted in dramatic improvements in telecommunication, especially in urban areas. This is in line with a recognised position that business performance improves with good telecommunications - both by saving costs and by making information more available. However, the concentration in the urban areas and the current teledensity of 1 telephone per 100 people on average, disguises wide regional disparities. Therefore, a concerted effort should be made to ensure that an adequate telecommunications infrastructure in rural areas - and Internet points of presence - is available throughout most parts of northern Uganda. This will facilitate the enhancement of ICTs usage in the region. Secondly, in relation to ICTs and telephone usage, the Government of Uganda - through the Uganda Communications Commission (UCC) - should negotiate with telephone companies for a subsidised telephone rate for village telephone calls or a toll-free service. For example, if mobile phone calls are charged at Uganda Shs 450 *per* minute, a village telephone booth could charge Uganda Shs 100 *per* minute. This should be for all telephone booths in northern Uganda. The argument for this is that the SMEs in northern Uganda rely, heavily, on the telephone to transact their business and it is the mean of access that they prefer most.

- The BIS centre in the Gulu district should organise training and other human resource development activities to improve skills in the use, management and promotion of business information access. This will reinforce the capacity of information supply and increase the users' participation in the BIS operations. The study recommends that the tailored-made training programmes should be conducted in an interactive manner. There should be a sharing of experiences by successful entrepreneurs on business information search and use.

- Much as a lack of appropriate technology to access the electronic information was cited as a big problem, this study concludes that other factors are, also, associated with the lack of access to electronic resources and recommends that the constraints of awareness and skill shortages should be overcome. A major reason for the digital divide between large and small firms - in their use of the Internet – may, simply, be a lack of awareness among the SMEs of its potential benefits. Compared with large firms and their greater planning and analysis capacities, many of the SMEs are, unlikely, to have the resources for assessing the impact and advantages of e-commerce. Skills shortages are also a major constraint - the smallest firms often provide no training to their workforce; and some of the SMEs managers might not know what a powerful vehicle for training the Internet is. For example, help for small business is available from commercial online services, such as www.eLance.com or www.hotdispatch.com. For existing or new firms seeking help in creating an online presence, help can be found at the many online "malls". For example, www.CroatiaMall.com offers help in creating an online "store" - to be located in the mall or enterprise sales point. Similar offerings are also available from major dot.com presences, such as Yahoo.

- The Government of Uganda should enhance linkages and information flow between itself and the SMEs - through the proposed BISD. This will help the government achieve its priority action in its *Poverty Eradication Action Plan 2004/5-2007/8* which puts linkages and an information flow between government and the SMEs at number one on its priority list (Uganda, Ministry of Finance, Planning and Economic Development 2004).

9.4   SUGGESTIONS FOR FURTHER RESEARCH

As noted earlier, this study has proposed a business information system design for northern Uganda business enterprises to access quality business information. It does not claim to have addressed the requirements for its implementation (see Chapter 2, Figure 2.1). For any system to succeed, the development – working to bring the new system to the stage of implementation - is an important process of the system development life-cycle. The researcher, thus, recommends that

- further studies should be conducted to establish the strategic requirements for the implementation of the proposed system within the SMEs operational framework. For example, the question could be asked: Would selling of the information to the SMEs be possible? This would facilitate and promote the circulation of - and access to - sources of business information which represents an important input in the business information system.

- the physical design – i.e., the production of programme software, a working system, etc., which was beyond the scope of this study, should be a separate research.

- further research be done on the level of information literacy of the SMEs in northern Uganda that would enable a deeper understanding of information literacy levels and the level to which the training should be undertaken. If strategic measures, like training and sensitisations, are not put in place to address the problem of information illiteracy, access to business information through the proposed business information design – presented in Chapter 8 - may be difficult to achieve. This is so because - as Keynes (1936) warned 70 years ago - "the difficulty lies, not in the new ideas, but in escaping from the old ones." Tailor-made training and sensitisation programmes provide a departure from the traditional reliance on informal systems to a more established and reliable formal business information system.

- that Library and Information Sciences schools should set high standards for the training of business information workers - an echo of Liu's (2000:253) argument. There is a need to have additional training in business information-related courses, like marketing, accounting, management, economics, etc. for business information providers. All these will, generally, be geared to creating the desired standards and improvements in information provision. Since this was beyond the scope of this study, it is recommended for further investigation in a follow-up study.

- this study should be replicated in other regions of Uganda that are, relatively, developed - compared to northern Uganda. A holistic approach to policy

formulation for the SMEs in Uganda should be developed by carrying out comparative studies on the disadvantaged and more developed regions. It should also be replicated in other African countries and in other developing countries with similar conditions.

9.5   CONCLUDING REMARKS

Pritchett (1994:10) once said:

We live in an important world, with fierce competition and fleeting opportunities. Organisations that are lean, agile and quick to respond clearly have the edge.

If we apply the above quotation, then, for the business enterprises to compete, fairly; to obtain the available business opportunities, easily; and to adapt to modern business operations, there is a need to access quality information through an appropriate information system. An information system which helps a firm to improve its long term performance by achieving its corporate strategy, directly, helps increase the value added by the contribution to the industry value chain. Regrettably, as noted by Ikoja-Odongo (2002:333), an analysis of Uganda's information systems and services reveals that although the country has the essential laws, institutions and policies for information, the system of data and information management is haphazard, uncoordinated and ineffective. The analysis of the situation in northern Uganda - described in Chapter 1, Section 1.2.3 - depicts a deplorable state of affairs.

The way that business enterprises manage both planned and unplanned events and a rapidly changing economic and trading environment is now becoming a significant success factor. One of the most fundamental challenges that face the management of any company is the creation of a corporate culture which enables it to face the future and anticipate future trends - while at the same time improving the effectiveness of operational management systems and differentiating itself from its competition (Thoburn, Arunachalam, Gunasekaran 2000:248). Today, every company must be able to process a significant amount of information. Without information, no business can perform any of their required functions, properly. Every business must collect and blend a wide variety

of information, distribute and use it throughout its operations and provide accurate and timely output (Thoburn, Arunachalam, Gunasekaran 2000:250). Central to this is the effective utilisation and management of all of the information resources within and outside the company – its information system.

This study has attempted to address the problem and concludes that there is a need for Uganda and, in particular, northern Uganda to develop a strategy for business information access by the SMEs. The World Trade Organisation (WTO) has influenced most countries which are opening their economies to greater international competition. The SMEs need to be provided with more comprehensive services to ensure a successful adaptation to this changing scenario. Larger firms have the capacity to absorb costs or to quickly restructure their business operations. The SMEs, on the other hand, are not placed in this way. Consequently, the SMEs deserve special attention to receive services to enable them to face challenges and remain competitive.

In view of the above, the study concludes that the SMEs in northern Uganda need a post-modern approach to business. The post-modern approach to business refers to a new paradigm which encourages information systems to play a central role in business and which anticipates and accommodates a high level of inevitable change.

This study, therefore, proposes the BISD (see Chapter 8) as a strategy for the way forward.

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service+in+a+public+library&ButtonSearchTop=present&button_search.x=6&button_se arch.y=12 [accessed 24th January 2007].

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MAP OF UGANDA SHOWING NORTHERN UGANDA (STUDY AREA)

SUDAN

MOYO
1890.7

YUMBE
2276.0

Adjumani

ADJUMANI
3087.0

KITGUM
9645.6

KOTIDO
13244.9

ARUA
5511.1

Kotido

GULU
11715.7

Gulu

Pader

PADER
6776.8

MOROTO
8441.3

Moroto

NEBBI
2917.0

DEMOCRATIC
REPUBLIC OF
CONGO

APAC
6541.2

Apac

LIRA
7200.7

KATAKWI
5038.2

Katakwi

Nakapiripirit

MASINDI
9442.9

Masindi

KABERAMAIDO
1627.9

Kaberamaido

Soroti

NAKAPIRIPIRI
5826.3

HOIMA
5932.8

Hoima

NAKASONGOLA
3509.9

Nakasongola

SOROTI
3373.8

Kumi

KUMI
2848.0

KAPCHORWA
1731.7

Kapchorwa

KIBOGA
4045.5

KAMULI
4302.1

Kamuli

Pallisa

Sironko

SIRONKO
1090.8

PALLISA
1991.7

Mbale

KIBAALE
4246.1

Kibale

LUWEERO
5693.9

Luweero

KAYUNGA
1741.5

Kayunga

IGANGA
4264.8

Iganga

TORORO
1849.3

Tororo

MBALE
1377.6

BUNDIBUGYO
2261.6

Bundibugyo

Fort Portal

Kyenjojo

KYENJOJO
4040.3

Mubende

MUBENDE
6197.7

Wakiso

Mukono

JINJA
722.7

Jinja

Mayuge

Bugiri

Busia

BUGIRI
5670.9

BUSIA
728.4

KABAROLE
1818.8

KAMWENGE
2458.2

KAMPALA
197.0

MUKONO
13063.6

MAYUGE
3408.4

KENYA

KASESE
3389.8

Kasese

Kamwenge

MPIGI
3601.9

Mpigi

WAKISO
2814.6

SEMBABULE
2319.2

Sembabule

MASAKA
4601.8

Masaka

BUSHENYI
4292.5

Bushenyi

MBARARA
9875.9

Mbarara

Rakai

Kalangala

KALANGALA
9066.0

Lake Victoria

Rukungiri

Kanungu

KANUNGU 1529.0
1207.5

RUKUNGIRI

Ntungamo

NTUNGAMO
2199.0

RAKAI
4908.5

KISORO KABALE
729.7 1729.0

Kabale

Kisoro

TANZANIA

West Nile Region

Madi Region

Acholi Region

Lango Region

Karamoja Region

Photo 1: Cooperative Savings and Credit Institution in Nebbi.
- Finance and Credit business.

Photo. 2: An entertainment Center in Nebbi – Deals in a number of business activities

Photo . 3: A business enterprise in darkness due to electricity blackout

Photo. 4. Commercial farming in Nebbi

Photo. 5: One of the Information providers in Adjumani

Photo 6: Manager at one of the key enterprises in Adjumani.

Photo.7 Staff at Radio 4 providing information in Gulu.

Photo. 8: Workers in the Saw mill making furniture in Gulu

Photo.9: A researcher (right) with Research Assistants comparing notes after field work in Gulu District.

Photo. 10: Manager of Internet Café assisting Customers

Photo. 11: Sales of Produce goods in Lira

Photo. 12: Kotido ICT training and Internet Center

Photo 13: Credit and Financial Services in Nebbi

Photo. 14: Researcher in Nebbi proof reading the day's work.

Photo 15: Tree/ fruit planting as source of income in Nebbi

Photo 16: Grinding and Milling in Kotido District.

Photo17: Research Assistant in the Grinding mill with Staff in Kotido District.

Photo18: Research Assistant in Kotido District with a Respondent.

Appendix iii

UNIVERSITY OF SOUTH AFRICA, PRETORIA
DEPARTMENT OF INFORMATION SCIENCE

RESEARCH QUESTIONNAIRE FOR BUSINESS MANAGERS OF SMALL AND MEDIUM SCALE ENTERPRISES – MAIN STUDY

Dear Respondent,
I am Mr. C. Okello-Obura, a Ph.D Student in University of South Africa, Pretoria (South Africa). I am conducting research for the fulfillment of the requirements for a Ph.D degree on the topic "[1]Commercial/Business Information Systems Design for Uganda's Economic Development: The case of Northern Uganda". I hereby request you to kindly and candidly answer the questions in this questionnaire. The answers given here will strictly be used for academic purpose and nobody will be quoted without his or her consent. All the information given will be treated as confidential. Thank you for your cooperation and time.

A. BACKGROUND INFORMATION
For questions where options are provided, please, tick against the applicable choice/s

1. Your job title/position……………………………………………………………

2. Gender [1] Male   [2] Female

3. Age Bracket   [1]   15-20   [3]   31- 40   [5] 51 and above
                      [2]   21-30   [4]   41- 50

4. What is your highest level of education?
[1] Never went to school   [4] Technical College   [7] University
[2]Primary   [5] Business College
[3] Secondary   [6] Teachers' College

5. For how long have you been in business?
[1] Less than 5 year   [3] 6-10 years   [5]   11-15 Years
[2]   16-20 years   [4] More than 20 years

6. Which language/s are you able to read quite well?

Language	Read
1. English	
2. Kishwahili	
3. Luo	
4.Lugbara	
5. Ngakarimojong	
6. Other	

---

[1] *Commercial/Business information is information about trading companies, business firms; statistical information on (imports, exports, production, and markets); and economic information (financial conditions of the country, government commercial and foreign policy, tax information, legal information relating to business transaction, state of crops and industries and production details).*

B. BUSINESS ACTIVITIES

7. What is the name and address of your current enterprise/company?
Name …………………………………………………….Location: Urban [1]   Rural [2].
Physical address…………………………………………………………………..
Street………………………………………………………………………….
Postal Address……………………………………………… …………………………
Fax……………. Tel…………………Mobile ……… .   e-mail………………………….

8. Is your company or enterprise registered? [1] Yes   [2] No

9. How many people are employed in your enterprise/company?
[1]Male……………………… [2] Female………………………..

10. Does your company or enterprise use electricity? [1]Yes   [2] No

11. How would you classify the ownership of your business enterprise? Tick only one.
  [1] Cooperative enterprise/company   [5] Religious Organisation
  [2] Government   [6] Sole proprietorship
  [3] Limited Liability Company   [7] Unlimited liability company
  [4] Partnership enterprise.   [8] Other, please, specify ……………

12. What business activities are you involved in? Tick as many as apply.

[1] Baking/Microfinance   [9] Leisure and Hospitality   [17] Stationery & secretarial
[2] Breweries   [10] Lodging services   [18] Transport services
[3] Commercial farming   [11] Manufacturing   [19] Tree planting
[4] Construction   [12] Mass media   [20] Water supply
[5] Education   [13] Mechanical services   [21] Security
[6] Farm produce sales   [14] Mobile phone sales & repairs   [22] Other, please specify
[7] Health services   [15] Packaging and Printing
[8] ICT training   [16] Property management

13. What reasons motivate you to continue with this business? Tick as many as apply.
[1] It is profitable
[2] There is prompt supply of information for the business activity by the Government
[3] Information to run the business is easily accessed
[4] Private organizations promptly supply the information for its running.
[5] Does not require much capital.
[6] It is easy to run
[7] I get personal satisfaction from it
[8] It is my only means of livelihood
[9] Other, please specify…………………………………………..

C. BUSINESS INFORMATION NEEDS

14. What kind of information do you often need for your business? Tick as many as apply
and rank them according to the level of need (4 = most needed, 3 = sometimes needed, 2= least
needed and 1= not needed).

	4	3	2	1
Information on Finance/Capital/Loans				
Information on local markets				
Information on International markets and foreign exchange				

	4	3	2	1
Information on Business laws and taxation				
Information on business management skills				
Information on appropriate technologies				
Information on business competitors				
Information on Government policies and regulations				
Information on security				
Information on Trade Fair, Tender and Contracts				

D. MEANS OF ACCESS TO BUSINESS INFORMATION

15. Through which channels/means do you access/acquire business information for your business enterprise? Tick as many as apply and rank them according to the level of usage (4 = most used, 3 = sometimes used, 2= least used and 1= not used at all).

	4	3	2	1
By using telephone				
Discussions with business colleagues or customers				
Through E-mail				
Listening to radio broadcasts				
Listening and Watching Television broadcasts				
Communication in conferences				
Visiting a library and reading information sources				
Using the Internet				
Visiting a Telecenter and reading information sources				
Through the Public notice boards				
Listening to politicians				

16. How would you rate the reliability (trust put on) of these channels for accessing relevant business information for your business activities? Rank them according to the level of reliability (4 = most reliable, 3 = sometimes reliable, 2= least reliable and 1= not reliable at all).

	4	3	2	1
By using telephone				
Discussions with business colleagues				
Through E-mail				
Listening to radio broadcasts				
Listening and Watching Television broadcasts				
Communication in conferences				
Visiting a library and reading information sources				
Using the Internet				
Visiting a Telecenter and reading information sources				
Through the Public notice boards				
Listening to politicians				

17. Rate the accessibility of commercial/business information below by ranking them according to the level of difficulty of accessibility to (4 = most difficult, 3 =sometimes difficult, 2= least difficult and 1= not difficult at all). **Tick as applicable**

	4	3	2	1
Information on Finance/Capital/Loans				
Information on local markets				
Information on International markets and foreign exchange				
Information on Business laws and taxation				
Information on business management skills				
Information on appropriate technologies				

Information on business competitors				
Information on Government policies and regulations				
Information on security				
Information on Trade Fair, Tender and Contracts				

18. In which forms or formats do you receive business information? Tick as applicable**.**

[1] CD ROM format   [7] Printed form
[2] Demonstration format   [8] Verbal form through extension workers
[3] Diskettes   [9] Video tapes
[4] E-mail format   [10] Radio format (Using radios)
[5] Fax form   [11] Television format (Using television)
[6] Phone text messages format   [12]   Online format

19. What forms/formats of presentation of information would you prefer? Tick as applicable

[1] CD ROM format   [7] Printed form
[2] Demonstration format   [8] Verbal form through extension workers
[3] Diskettes   [9] Video tapes
[4] E-mail format   [10] Radio format (Using radios)
[5] Fax form   [11] Television format (Using television)
[6] Phone text messages format   [12]   Online format

E. SOURCES OF BUSINESS INFORMATION

20. a. What are your sources of business information?   Tick as many as apply and rate the information sources in relation to the importance as sources of business information, where (4 = most important, 3 = sometimes important, 2= least important and 1= not important at all).

	4	3	2	1
Radio stations				
Printed sources like trade literature, journals and reports bought/donated				
Extension workers				
Personal contact, for example established entrepreneurs and friends				
Industrial/Trade Associations				
Uganda Government Departments				
Private Sector Consultants				
Libraries, Telecenters and Resource Centers				
Sources available on the Internet				
Banks/Other Financial Institutions				
Television Stations				
Newspapers				

b. Do you access business information from these organizations? Tick as many as apply.

	Yes	No
Uganda Revenue Authority		
Uganda Manufacturers Association		
Northern Uganda Manufacturers Association		
Private Sector Foundation		
Ministry of Finance, Planning and Economic Development		
Ministry of Tourism, Trade and Industry		
Business Information Solutions Network Uganda -BISnet- Uganda		
Uganda Chamber of Commerce and Industry		
Uganda Investment Authority		
National Agricultural Organisation (NARO)		

Others, specify		

c. Do you visit Public Libraries for business information [1] Yes   [2] Sometimes   [3] No

If no, why?

[1] They do not satisfy my business information needs
[2] They lack ICTs facilities for use
[3] I am not aware of the services provided by public libraries
[4] I do not know where the public library is located
[5] It is too far away for easy access
[6] I do not know what a library is
[7] Other, please, specify…………………………………………………………….

21. Generally, rate the quality of the information you get for your business by answering the following questions.

   i.   Do you get the business information you need in time?
  [1] Always   [2] Sometimes   [3] Never

 ii. Does the business information you get help you to solve your business needs?
[1] Always   [2] Sometimes   [3] Never

  iii. Is the business information provided understandable? [1] Always [2] Sometimes   [3] Never

  iv. Does the business information you get have enough content?
[1] Always   [2] Sometimes   [3] Never

 v. Is the business information you get precise? [1] Always   [2] Sometimes [3] No

 vi. Do you access the business information you need from a convenient place to your business place of operation?
  [1]   Always   [2] Sometimes   [3] No

22.a. Which ICTs do you use in transacting business? Rate them on the basis of their usefulness in transacting business by ranking them according to the level of usefulness (4 = most useful, 3 = sometimes useful, 2= least useful and 1= not useful at all).

	4	3	2	1
Mobile Phone				
Landline Telephone				
Internet				
E-mail				
Teleconferencing				
Video conferencing				
Fax				
Computers to assist manufacturing				
Accounting software				
Others, Please, specify				

b. Which of the following ICT skills do you have?

[1] Accounting packages   [5] Faxing
[2] Database management systems   [6] Scanning
[3] Desktop applications   [7] Word processing
[4]   E-mail and Internet use   [8] Others, specify………

23. If you use Internet for business, what specifically do you use it for? Tick as applicable

[1] Accessing of video conferencing service
[2] E-mail communication
[3] Promotion of business products and services
[4] Provision of Frequently Asked Questions (FAQ)   about the enterprise
[5] Processing of online payments
[6] Processing of online sales
[7] Provision of online enquiry
[8] Other, specify ………………

24. What are the problems that you face when using Internet as a source and channel through which you can access business information? Tick as applicable

[1] Lack of appropriate skills to use
[2]   Lack of competent information providers
[3]   Lack of places to access Internet facilities from
[4] Too much information overload supplied by Internet that make me confused
[5] Other, please specify…………………

25a. Does your company or business enterprise have a website? [1] Yes   [2] No.

   b. If no, would you wish to have one?   [1] Yes   [2] No

F. BUSINESS INFORMATION ACCESSIBILITY PROBLEM

26. Which of these problems are you facing in accessing business information for your business activities? Tick as apply

	Yes	No
There is no organized information/records management system in our enterprise.		
There is lack of skills and expertise in information seeking and acquisition.		
Information received lack local content to address our business needs		
Lack of devotion of Government to providing information to the business community		
Lack of physical and human resources eg. Inadequate electricity, lack of trained information professionals		
Insecurity in the region		
It takes too long to get the needed information		
Lack of appropriate technology to access electronic information		
Information is always in the language not understandable		

27. Generally, how would you rate your satisfaction in the way business information is provided to the business community in northern Uganda? Tick only one

[1] Very satisfied   [2] Satisfied   [3] Moderately satisfied   [4] Slightly satisfied
[5] Not satisfied

G. PROPOSAL FOR BUSINESS INFORMATION SYSTEM DESIGN

28. Do you think that something should be done to ensure that appropriate business information is accessed at the right time, from the right place and in the right form/format by the Small and medium scale Business Enterprises in northern Uganda?
[1] Yes   [2]No

29. To what extent should the needed business information be supplied to you? Tick as applicable
[1] Selective Information   [2] Comprehensive information
[3] Precise information   [4] General

30. Which language/s would you prefer the information to be supplied to you? Choose one.
[1] English and a community local language   [2] English only
[3] Kiswahili and a community local language   [4] Kiswahili only
[5] English and Kiswahili   [6] Other, please, specify………………..

31. Do you think that a new business information system need to be set up to improve on the availability of business information to the business community in Small and medium scale enterprises in northern Uganda? [1] Yes   [2] No

32. a. If a new Business information system were to be set up and probably called Commercial/Business Information Resource Center, where would you think the center/headquarter be based?

 [1] In one of the districts in northern Uganda with nodes/centers in all other northern Uganda districts and Kampala.

[2] In a centrally located district in northern Uganda with nodes/centers in the Madi region, Acholi region, Lango region, Karamoja region and West Nile region.

[3] Other, please specify……………………………………………………….

b. At the District level who should have the responsibility of coordinating with the Commercial/Business Information Resource Center in relation to business information services?

[1] District Chamber of Commerce
[2] Department of Production and marketing at District Local Government
[3] Other, please, specify…………………………………………………..

33. If one district in northern Uganda were to be chosen to house the Business Information Resource Center, which district in particular would you recommend? Tick only one.
[1] Arua   [2] Gulu   [3] Lira

THANK YOU VERY MUCH FOR YOUR VALUABLE TIME

UNIVERSITY OF SOUTH AFRICA, PRETORIA
DEPARTMENT OF INFORMATION SCIENCE

RESEARCH QUESTIONNAIRE FOR INFORMATION PROVIDERS TO SMALL AND MEDIUM SCALE ENTERPRISES – MAIN STUDY

Dear Respondent,
I am Mr. C. Okello-Obura, a Ph.D Student in University of South Africa, Pretoria (South Africa). I am conducting research for the fulfillment of the requirements for a Ph.D degree on the topic "Commercial/Business Information Systems Design for Uganda's Economic Development: The case of Northern Uganda". I hereby request you to kindly and candidly answer the questions in this questionnaire. The answers given here will strictly be used for academic purpose and nobody will be quoted without his or her consent. All the information given will be treated as confidential. Thank you for your cooperation and time.

A. BACKGROUND INFORMATION
For questions where options are provided, please, tick against the applicable choice/s

1. **Your job title/position**……………………………………………………

2. **Gender**   [1] Male   [2] Female

3. Age Bracket   [1]   15-20   [2]   21- 30   [3] 31- 40
                            [4]   41- 50   [5]   51 and above

4. What is your highest level of education? [1] Primary   [2] Secondary/Technical College
 [3] Business College   [4] Teachers' College   [5] University

5. For how long have you been in information provision?
[1] Less than 5 year   [2] 6-10 years   [3]   11-15 Years   [4]   16-20 years
[5] More than 20 years

6. What is the name and address of your current enterprise/company/organisation?
Name ……………………………………………………..Location: Urban [1]   Rural [2].
Physical address……………………………………………………………..
Street…………………………………………………………………………….
Postal Address……………………………………………… …………………………
Fax…………………………….. Tel…………………… Mobile ………………………
e-mail………………………….

7. Is it registered?   [1] Yes   [2] No
8. Does your enterprise or company use electricity?   [1] Yes   [2] No

B. BUSINESS ACTIVITIES
9. How would you classify your organisation? Tick only one.
[1] Educational Institution   [4] NGO   [7] Resource Center
[2]Financial Institution   [5] Public Library   [8] Telecenter
[3] Internet Cafes   [6]Radio Broadcaster   [9] Other, specify………..

10. How many people are employed in your enterprise/company?
Male……………………	Female……………………..

11. Do you have specific programmes or services for the business community?
 [1] Yes			[2] Sometimes		[3] No

If yes, which programmes/services are they? Tick as applicable

[1] Selective dissemination of business information to the business community
[2] Translation services of business information for the business community
[3] Talk shows for the business community
[4] Advisory services to the business community
[5] Other, please, specify……………………………………………………..

C. BUSINESS INFORMATION NEEDS

12. What kind of information do the Small and medium scale business enterprises need for their businesses? Tick as applicable and rank them according to the level of need (4 = most needed, 3 = sometimes needed, 2= least needed and 1= not needed).

	4	3	2	1
Information on Finance/Capital/Loans				
Information on local markets				
Information on International markets and foreign exchange				
Information on Business laws and taxation				
Information on business management skills				
Information on appropriate technologies				
Information on business competitors				
Information on Government policies and regulations				
Information on security				
Information on Trade Fair, Tender and Contracts				

D. MEANS USED TO ACCESS BUSINESS INFORMATION

13. Through which channels do the business community in northern Uganda access/acquire business information for their business enterprises? Tick as many as applicable and rank them according to the level of usage (4 = most used, 3 = sometimes used, 2= least used and 1= not used at all).

	4	3	2	1
By using telephone				
Discussions with business colleagues and customers				
Through E-mail				
Listening to radio broadcasts				
Listening and Watching Television broadcasts				
Communication in conferences				
Visiting a library and reading information sources				
Using the Internet				
Visiting a Telecenter and reading information sources				
Through the Public notice boards				

Listening to politicians				

14. How would you rate the reliability (trust put on) of these means/channels/methods? Rank them according to the level of reliability (4 = most reliable, 3 = sometimes reliable, 2= least reliable and 1= not reliable at all).

	4	3	2	1
By using telephone				
Discussions with business colleagues or customers				
Through E-mail				
Listening to radio broadcasts				
Listening and Watching Television broadcasts				
Communication in conferences				
Visiting a library and reading information sources				
Using the Internet				
Visiting a Telecenter and reading information sources				
Through the Public notice boards				
Listening to politicians				

15. Rate the provision of business information below by ranking them according to the level of difficulty in provision (4 = most difficult, 3 = sometimes difficult, 2= least difficult and 1= not difficult at all).

	4	3	2	1
Information on Finance/Capital/Loans				
Information on local markets				
Information on International markets and foreign exchange				
Information on Business laws and taxation				
Information on business management skills				
Information on appropriate technologies				
Information on business competitors				
Information on Government policies and regulations				
Information on security				
Information on Trade Fair, Tender and Contracts				

16. In which forms or formats do you supply business information to the small and medium scale business community in northern Uganda? Tick as applicable.

[1] CD ROM format
[2] Demonstration format
[3] Diskettes
[4] E-mail format
[5] Fax form
[6] Phone text messages format

[7] Printed form
[8] Verbal form through extension workers
[9] Video tapes
[10] Radio format (Using radios)
[11] Television format (Using television)
[12]   Online format

E. SOURCES OF BUSINESS INFORMATION

17. What are the sources of business information for the small and medium scale business enterprises. Tick as many as applicable and rate the information sources in relation to the importance as sources of business information, where (4 = most important, 3 = sometimes important, 2= least important and 1= not important at all).

	4	3	2	1
Radio stations				
Printed sources like trade literature, journals and reports bought/donated				
Extension workers				
Personal contact, for example established entrepreneurs and friends				
Industrial/Trade Associations				
Uganda Government Departments				
Private Sector Consultants				
Libraries				
Sources available on the Internet				
Banks/Other Financial Institutions				
Television Stations				
Newspapers				
Information centers like Telecenter, Resource Centers				

18. Which ICT facilities does your organisation use for providing information to the business community? Tick as many as applicable and rate them on the basis of their usefulness by ranking them according to the level of usefulness (4 = most useful, 3 = sometimes useful, 2= least useful and 1= not useful at all).

	4	3	2	1
Mobile Phone				
Landline telephone				
Internet				
E-mail				
Teleconferencing				
Videoconferencing				
Fax machine				
Scanner				
Others, Please, specify				

b. Which of the following ICT skills do you have?

[1] Accounting packages   [5] Faxing
[2] Database management systems   [6] Scanning
[3] Desktop applications   [7] Word processing
[4] E-mail and Internet use   [8] Others, specify………

19. If the business community uses Internet from your organization or company, what specifically do they use it for? Tick as apply

[1] Promotion of business products and services
[2] Provision of Frequently Asked Questions (FAQ)   about the enterprise
[3] Provision of online enquiry
[4] E-mail communication
[5] Accessing of video conferencing service
[6] Processing of online payments
[7] Processing online sales

[9]Other, specify …………………

20. What are the problems that the business community face when using Internet as sources and channels of information? Tick as apply
[1] Lack of appropriate skills to use
[2] Lack of places to access Internet facilities from
[3] To much information overload supplied by Internet that make them confused
[4] Inadequate ICT facilities to facilitate Internet access
[5] Power breakdown
[6] Lack of translation facilities/services for Internet based resources for the business community
[7]Other, please, specify ………………………………………………….

F. BUSINESS INFORMATION ACCESSIBILITY PROBLEM

21. What are the problems that you face in providing business information to the business community in northern Uganda? (Tick as applicable)

	Yes	No
Lack of skills/ expertise in information handling by staff		
Lack of skills/ expertise in information seeking and handling by information seekers		
Information received lack local content to address business needs		
Lack of organized system for provision of business information to the business community		
Lack of physical resources eg. Inadequate electricity		
Cultural barriers within the community		
Insecurity in the region		
Business community is not enthusiastic regarding the need for information		
Lack of appropriate technologies to provide electronic information		

G. PROPOSAL FOR BUSINESS INFORMATION SYSTEM DESIGN

22. What form/format of presentation of information would be appropriate for the business community? Tick as applicable
[1] CD ROM format   [7] Printed form
[2] Demonstration format   [8] Verbal form through extension workers
[3] Diskettes   [9] Video tapes
[4] E-mail format   [10] Radio format (Using radios)
[5] Fax form   [11] Television format (Using television)
[6] Phone text messages format   [12] Online format

23. Which language would you prefer business information supplied to the business community in northern Uganda? Choose only one

[1] English and community local language   [4] English only
[2] Kiswahili and a community local language   [5] Kiswahili only
[3] English and Kiswahili   [6] Other, please, specify……………….
24. Do you think that something should be done to ensure that appropriate business information is accessed at the right time, from the right place and in the right form/format by the Small and medium scale Business Enterprises in northern Uganda?
 [1] Yes   [2]No

25. If yes, to what extent should the needed information be supplied to the SMEs? Tick as applicable
[1] Selective Information   [2] Comprehensive information
[3] Precise information   [4] General

26. Do you think that a new business information system need to be set up to improve on the availability of business information to the business community in Small and medium scale enterprises in northern Uganda? [1] Yes   [2] No

27. a. **If a new Business information system were to be set up, where would you want the center/headquarter (probably called Northern Uganda Business Information Resource Center) be based?**

[1] In one of the districts in northern Uganda with nodes/centers in all other northern Uganda districts and Kampala.

[2] In a centrally located district in northern Uganda with nodes/centers in the Madi sub-region, Acholi sub-region, Lango sub- region, Karamoja sub-region and West Nile sub-region.

[3] Other, please specify………………………………………………………….

b. **At the District level who should have the responsibility of coordinating with the Business Information Resource Center in relation to Commercial/Business information services?**

[1] District Chamber of Commerce
[2] Department of Production and Marketing at District Local Government
[3] Other, Please, specify…………………………………………………

28. If one district in northern Uganda were to be chosen to house the headquarter/ main center, which district in particular would you recommend? Tick only one
[1] Arua   [2] Gulu   [3] Lira

THANK YOU VERY MUCH FOR YOUR VALUABLE TIME

Appendix v

UNIVERSITY OF SOUTH AFRICA, PRETORIA
DEPARTMENT OF INFORMATION SCIENCE

INTERVIEW GUIDE FOR BUSINESS POLICY MAKERS IN NORTHERN UGANDA
-MAIN STUDY-

Topic: Commercial/Business[1] Information Systems Design for Uganda's Economic Development: The case of northern Uganda.

Interviewer:…………………………………………………………………………
District of the study………………………………………………………………..
Date of Interview…………………………………………………………………….

Good Morning/Afternoon/Evening Sir/Madam. I am C. Okello-Obura, a Doctoral Student in University of South Africa, Pretoria (South Africa). I am conducting research for the fulfillment of the requirements for a Ph.D degree on the topic **"Commercial/Business information Systems Design for Uganda's Economic Development: The case of Northern Uganda".** I have chosen you as one of the respondents to participate in this study and request you to kindly answer some questions for me. The interview will take less than an hour. The answers given here will strictly be used for academic purpose and nobody will be quoted without his or her consent. All the information will be treated as confidential.

 A. BACKGROUND INFORMATION AND BUSINESS ACTIVITIES
Please, I would like to ask you some few questions about yourself and the information you will give will be treated as confidential.

1. What is your job title/position?
2. Gender   [ ] Male   [ ] Female
3. What is your age bracket? [ ] 15-20   [ ] 21- 30   [ ] 31- 40   [ ] 41- 50 [   ] 51 and above
4. For how long have you been in this post?
5. What is your level of education?
6. What are your duties?

7. a. Which businesses are carried out in your district by the small and medium scale enterprises?

   b. Which policies are there in place regarding provision of business information to SMEs?

---

[1] *Commercial/Business information is information about trading companies, business firms; statistical information on (imports, exports, production, and markets); and economic information (financial conditions of the country, government commercial and foreign policy, tax information, legal information relating to business transaction, state of crops and industries and production details).*

B. BUSINESS INFORMATION NEEDS
8. What are the business information needs of small and medium scale business enterprises in northern Uganda?

9. How does the Government try to meet these information needs?

C. MEANS OR CHANNELS FOR ACCESSING BUSINESS INFORMATION

10. Which means do Small and medium scale business enterprises in northern Uganda use to access the required business or business information?

D. SOURCES OF BUSINESS INFORMATION
11. What are the sources of business information that the small and medium scale enterprises use to access business information?

E. PROBLEMS FACED IN ACCESSING BUSINESS INFORMATION
12. Which problems do the small and medium scale business enterprises face in accessing business information? How do you plan to address these problems?

F. PROPOSAL FOR BUSINESS INFORMATION SYSTEMS DESIGN
13. Do you think that something should be done to ensure that appropriate business information is accessed at the right time, from the right place and in the right form/format by the Small and medium scale Business Enterprises in northern Uganda?
 [ ] Yes No [ ]

14. If yes, how would you want business information provided to the small and medium scale enterprises in northern Uganda?
…………………………………………………………………………………..

15.   What form/format of presentation of information would you want for the business community in northern Uganda?
[ ] Printed format   [ ] CDROM format   [ ] Online format   [ ] Poster form
[ ] Radio format (Using radios)   [ ] Television format (Using Television) [ ] Verbal format through extension workers and Government Business Leaders.   [   ] others, please specify……………………………………………………..

16. Do you agree that a new business information system need to be set up to improve on the availability of business information to the business community in Small and medium scale enterprises in northern Uganda? [ ] Yes   [ ] No

17.a. If a new Business information system were to be set up, where would you think the center/headquarter (probably called Northern Uganda Business Information Resource Center) should be based?

 [ ] In one of the districts in northern Uganda with nodes/centers in all other northern Uganda districts and Kampala.
[ ] In a centrally located district in northern Uganda with nodes/centers in the Madi sub-region, Acholi sub-region, Lango sub-region, Karamoja sub-region and West Nile sub-region.

   b.   At the District level who should have the responsibility of coordinating with the Business Information Resource Center in relation to Commercial/Business information services?

[1] District Chamber of Commerce
[2] Department of Production and marketing at District Local Government
[3] Other, please, specify…………………………………………………..
Which information services would you want provided by that Business information System?

18. If one district in northern Uganda were to be chosen to house the headquarter/ main center, which district in particular would you recommend?……………………………………

19. Why do you think that district is the most appropriate?

20. What other suggestions do you have towards designing a viable business information system for northern Uganda?

THANK YOU VERY MUCH FOR YOUR VALUABLE TIME

WORKPLAN/TIMEFRAME

DLITT ET PHIL IN INFORMATION SCIENCE: OKELLO-OBURA, C.

No	Activity	J	F	M	A	M	J	J	A	S	O	N	D	Remarks	2004	2005	2006	2007
1	Registration	■	■												■			
2	Preliminary reading and Proposal preparation	■	■	■	■										■			
3	Proposal submission and refining					■									■			
4	Chap 1: Introduction to the study						■	■	■						■			
5	Chap 2: Information Systems: Concepts, theories and Design							■	■	■					■			
6	Chap 3: Conceptual Framework of Business Information Systems								■	■					■			
7	Chap 5: Research Design and Methodology										■	■	■		■			
8	Pilot study and report writing	■	■								■	■			■	■		
9	Chap 4: Overview of SMEs and Business information provision strategies		■	■												■		
10	Fieldwork				■	■	■											
11	Data Organisation and analysis							■	■	■								
12	Chap 6: Findings							■	■	■					■			
13	Chapter 7 Discussion of Research Findings										■	■			■			
14	Chapter 8 Proposed Business Information Systems Design	■	■														■	
15	Chapter 9 Conclusion and Recommendations			■	■												■	
16	First draft submission				■	■												
17	Second Draft Report submission					■	■											
18	Correction and Re-submission of Draft thesis							■	■								■	
19	Editing and Submission of final report for examination	■	■	■							■	■					■	■
20	Review of Examiners' comments				■	■												■
21	Correction and Submission of final copy				■	■												■
22	Graduation							■										■

Uganda National Council For Science and Technology
(Established by Act of Parliament of the Republic of Uganda)

Your Ref:.............................

Our Ref............ **IS 20**

Date:........ 03-Mar-05

The Resident District Commissioner
Arua District
ARUA

Dear Sir/Madam.

RE: RESEARCH CLEARANCE

We wish to introduce you to **Mr. Okello-Obura Constant** who would like to carry out a research project entitled **"Commercial information system design for Uganda's economic development: The case of Northern Uganda"** between March 03, 2005 and February 25, 2006 in your district. The Uganda National Council for Science and Technology has approved the research project.
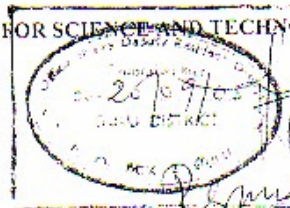
This letter is to request you to give the researchers the necessary assistance to facilitate the accomplishment of the research project.

Your cooperation in this regard is highly appreciated.

Yours Faithfully.

Leah Naweguto
for: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

cc   Mr. Okello-Obura Constant
      c/o EASLIS
      Makerere University
      KAMPALA

LOCATION/CORRESPONDENCE
PLOT 18, KAMPALA ROAD
UGANDA HOUSE, 11TH FLOOR
P.O. BOX 1884
KAMPALA, UGANDA

COMMUNICATION
TEL: (256) 41-250580
FAX: (256) 41-234579
E-MAIL: uncst@infocom.co.ug
WEBSITE: http://www.uncst.co.ug

Uganda National Council For Science and Technology
(Established by Act of Parliament of the Republic of Uganda)

Mr. Okello Obura
C/o EASLIS
Makerere University
KAMPALA

Dear Mr. Okello-Obura,

RE: RESEARCH PROJECT, "COMMERCIAL INFORMATION SYSTEM DESIGN
FOR UGANDA'S ECONOMIC DEVELOPMENT: THE CASE OF NORTHERN
UGANDA"

This is to inform you that the Uganda National Council for Science and Technology (UNCST)
approved the above research proposal on February 25, 2005. The approval will expire on
February 25, 2006. If it is necessary to continue with the research beyond the expiry date, a request
for continuation should be made in writing to the Executive Secretary, UNCST.

Any problems of a serious nature related to the execution of your research project should be brought
to the attention of the UNCST, and any changes to the research protocol should not be implemented
without UNCST's approval except when necessary to eliminate apparent immediate hazards to the
research participant(s)

This letter also serves as proof of UNCST approval and as a reminder for you to submit to UNCST
timely progress reports and a final report on completion of the research project.

Yours sincerely,

Julius Ecuru
for: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Uganda National Council For Science and Technology
(Established by Act of Parliament of the Republic of Uganda)

Date: 01-Aug-2005

The Resident District Commissioner
Adjumani District
Gulu District
Kotido District
Lira District
Nebbi District

[handwritten notes: Permission of / The attention & Comment of / CAO to be sought - 20-9-05.]

[handwritten notes: Okay, permission / is granted / 20/09/05]

Dear Sir/Madam,

RE: RESEARCH CLEARANCE

We wish to introduce to you **Mr. Constant Okello-Obura** who would like to carry out a research project entitled, **"Commercial information system design for Uganda's economic development: The case of Northern Uganda"** between August 01, 2005 and February 25, 2006 in your district. The Uganda National Council for Science and Technology has approved the research project.
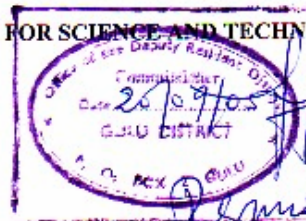
This letter is to request you to give the researchers the necessary assistance to facilitate the accomplishment of the research project.

Your cooperation in this regard is highly appreciated.

Yours faithfully,

Leah Nawegulo
For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

c.c.   Mr. Constant Okello-Obura
         C/O EASLIS
         Makerere University
         KAMPALA

Uganda National Council For Science and Technology
(Established by Act of Parliament of the Republic of Uganda)

Your Ref:................................

Our Ref:........**IS 20**............

Date:...**01-Aug-2005**...

The Resident District Commissioner
Adjumani District
Gulu District
Kotido District
Lira District
Nebbi District

Dear Sir/Madam,

RE: RESEARCH CLEARANCE

We wish to introduce to you **Mr. Constant Okello-Obura** who would like to carry out a research project entitled, **"Commercial information system design for Uganda's economic development: The case of Northern Uganda"** between August 01, 2005 and February 25, 2006 in your district. The Uganda National Council for Science and Technology has approved the research project.

This letter is to request you to give the researchers the necessary assistance to facilitate the accomplishment of the research project.

Your cooperation in this regard is highly appreciated.

Yours faithfully,

Leah Nawegulo
For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

c.c.   Mr. Constant Okello-Obura
C/O EASLIS
Makerere University
KAMPALA

Uganda National Council For Science and Technology

(Established by Act of Parliament of the Republic of Uganda)

Your Ref: ....

Our Ref .... **IS 20**

Date....01-Aug-2005...

The Resident District Commissioner
Adjumani District
Gulu District
Kotido District
Lira District
Nebbi District

Dear Sir/Madam,

RE: RESEARCH CLEARANCE

We wish to introduce to you **Mr. Constant Okello-Obura** who would like to carry out a research project entitled, **"Commercial information system design for Uganda's economic development: The case of Northern Uganda"** between August 01, 2005 and February 25, 2006 in your district. The Uganda National Council for Science and Technology has approved the research project.

This letter is to request you to give the researchers the necessary assistance to facilitate the accomplishment of the research project.

Your cooperation in this regard is highly appreciated.

Yours faithfully,

Leah Nawegulo
For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

c.c.   Mr. Constant Okello-Obura
         C/O EASLIS
         Makerere University
         KAMPALA

LOCATION/CORRESPONDENCE
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WEBSITE: http://www.uncst.go.ug

MAKERERE
P. O. Box 7062 Kampala
Uganda
Telegrams: "MAKUNIKA"

UNIVERSITY
Tel: +256 -41- 531530
Fax: 531275/530134
E-mail: direct@easlis.mak.ac.ug

EAST AFRICAN SCHOOL OF LIBRARY
AND INFORMATION SCIENCE

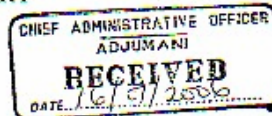*Your Ref:*

Our Ref:

19/09/2005

Dear Sir/Madam,

RE: ..... *MR. DEOGRATIUS KUMAKECH* ....

Please, this is to introduce to you ..MR... KUMAKECH..................who is a
Research Assistant for a study on the topic: ***COMMERCIAL/BUSINESS***
INFORMATION SYSTEMS DESIGN FOR UGANDA'S ECONOMIC
DEVELOPMENT: THE CASE OF NORTHERN UGANDA. The study is being carried
out by Mr. Constant Okello-Obura (Makerere University Lecturer) for a Doctoral award
in Information Science by University of South Africa, Pretoria.

MR. Kumakech ....has therefore been mandated to collect the required
data for the study on behalf of the researcher. The data collected will be used purely for
the purpose of the study and thus will be treated with the maximum confidentiality
possible. Any assistance rendered to him/her will be highly appreciated.

Thank you.

Yours Faithfully,

Constant Okello-Obura
Mob. 077590827 E-mail obura@easlis.mak.ac.ug
Researcher

MAKERERE UNIVERSITY

P. O. Box 7062 Kampala
Uganda
Telegrams: "MAKUNIKA"

Tel: +256 -41- 531530
Fax: 531275/530134
E-mail: direct@easlis.mak.ac.ug

EAST AFRICAN SCHOOL OF LIBRARY
AND INFORMATION SCIENCE

Your Ref:

Our Ref:

19/09/2005

Dear Sir/Madam,

RE. *MARING JOSEPH GARAMOCO (MR)*

Please, this is to introduce to you *MR: MARING - I GARAMOCO* who is a Research Assistant for a study on the topic: **COMMERCIAL/BUSINESS INFORMATION SYSTEMS DESIGN FOR UGANDA'S ECONOMIC** DEVELOPMENT: THE CASE OF NORTHERN UGANDA. The study is being carried out by Mr. Constant Okello-Obura (Makerere University Lecturer) for a Doctoral award in Information Science by University of South Africa, Pretoria.

MARING I GARAMOCO has therefore been mandated to collect the required data for the study on behalf of the researcher. The data collected will be used purely for the purpose of the study and thus will be treated with the maximum confidentiality possible. Any assistance rendered to him/her will be highly appreciated.

Thank you.

Yours Faithfully,

Constant Okello-Obura
Mob. 077590827 E-mail obura@easlis.mak.ac.ug   075628120
Researcher

H.O.DS

Please assist
Mr. Maring Josy
Garamoco in
the collection
the required
information.

17/1/06 CAO

17 JAN

OFFICE OF THE RESIDENT DISTRICT COMMISSIONER
KOTIDO DISTRICT
P.O BOX 1- KOTIDO

Our Ref.........................
Your Ref.........................

Date 25th Oct 2005

TO WHOM IT MAY CONCERN

Mr. Constant Okello –Obura has been cleared by the Uganda National council for sincere and technology to conduct research entitled "Commercial information system design for Uganda's economic department: The case of Northern Uganda" This it between August 01 2005 and February 25, 2006.

Any assistance hindered to him will be highly appreciated.

Kalyebi Higenyi
RESIDENT DISTRICT COMMISSIONER-KOTIDO

Uganda National Council For Science and Technology
(Established by Act of Parliament of the Republic of Uganda)

Your Ref: ....

Our Ref .... **IS 20**

Date: 03-Mar-05

The Resident District Commissioner
Arua District
ARUA

Dear Sir/Madam.

RE: RESEARCH CLEARANCE

We wish to introduce you to **Mr. Okello-Obura Constant** who would like to carry out a research project entitled **"Commercial information system design for Uganda's economic development: The case of Northern Uganda"** between March 03, 2005 and February 25, 2006 in your district. The Uganda National Council for Science and Technology has approved the research project.

This letter is to request you to give the researchers the necessary assistance to facilitate the accomplishment of the research project.

Your cooperation in this regard is highly appreciated.

Yours Faithfully,

Leah Nawegulo
for: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

cc   Mr. Okello-Obura Constant
      C/o EASLIS
      Makerere University
      KAMPALA

LOCATION/CORRESPONDENCE
PLOT 18, KAMPALA ROAD
UGANDA HOUSE, 11TH FLOOR
P.O. BOX 1884
KAMPALA, UGANDA

COMMUNICATION
TEL: (256) 41-250499
FAX: (256) 41-234579
E-MAIL: uncst@starcom.co.ug
WEBSITE: http://www.uncst.co.ug

Uganda National Council For Science and Technology
(Established by Act of Parliament of the Republic of Uganda)

Mr. Okello Obura
C/o EASLIS
Makerere University
KAMPALA

Dear Mr. Okello-Obura,

RE: **RESEARCH PROJECT, "COMMERCIAL INFORMATION SYSTEM DESIGN FOR UGANDA'S ECONOMIC DEVELOPMENT: THE CASE OF NORTHERN UGANDA"**

This is to inform you that the Uganda National Council for Science and Technology (UNCST) approved the above research proposal on February 25, 2005. The approval will expire on February 25, 2006. If it is necessary to continue with the research beyond the expiry date, a request for continuation should be made in writing to the Executive Secretary, UNCST.

Any problems of a serious nature related to the execution of your research project should be brought to the attention of the UNCST, and any changes to the research protocol should not be implemented without UNCST's approval except when necessary to eliminate apparent immediate hazards to the research participant(s)

This letter also serves as proof of UNCST approval and as a reminder for you to submit to UNCST timely progress reports and a final report on completion of the research project.

Yours sincerely,

Julius Ecuru
for: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Uganda National Council For Science and Technology
(Established by Act of Parliament of the Republic of Uganda)

UNCST

Your Ref ....

Our Ref .... IS-20 ....

Date   01-Aug-2005

The Resident District Commissioner
Adjumani District
Gulu District
Kotido District
Lira District
Nebbi District

Permission of
The attention & comment of
CAO to be sought - 20-9-05

Okay, permission
is granted
20/09/05

Dear Sir/Madam.

RE: RESEARCH CLEARANCE

We wish to introduce to you **Mr. Constant Okello-Obura** who would like to carry out a research project entitled, **"Commercial information system design for Uganda's economic development: The case of Northern Uganda"** between August 01, 2005 and February 25, 2006 in your district. The Uganda National Council for Science and Technology has approved the research project.
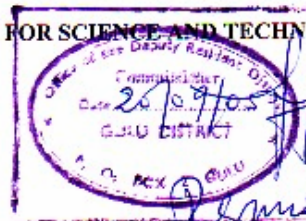
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Your cooperation in this regard is highly appreciated.

Yours faithfully,

Leah Nawegulo
For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

c.c.   Mr. Constant Okello-Obura
         C/O EASLIS
         Makerere University
         KAMPALA

Uganda National Council For Science and Technology

(Established by Act of Parliament of the Republic of Uganda)

Your Ref:...............................

Our Ref:........**IS 20**............

Date:...**01-Aug-2005**...

The Resident District Commissioner
Adjumani District
Gulu District
Kotido District
Lira District
Nebbi District

Dear Sir/Madam,

RE: RESEARCH CLEARANCE

We wish to introduce to you **Mr. Constant Okello-Obura** who would like to carry out a research project entitled, **"Commercial information system design for Uganda's economic development: The case of Northern Uganda"** between August 01, 2005 and February 25, 2006 in your district. The Uganda National Council for Science and Technology has approved the research project.

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Yours faithfully,

Leah Nawegulo
For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

c.c.   Mr. Constant Okello-Obura
C/O EASLIS
Makerere University
KAMPALA

Uganda National Council for Science and Technology

(Established by Act of Parliament of the Republic of Uganda)

Your Ref: ....

Our Ref: ....
IS 20

Date....01-Aug-2005..

The Resident District Commissioner
Adjumani District
Gulu District
Kotido District
Lira District
Nebbi District

Dear Sir/Madam,

RE: RESEARCH CLEARANCE

We wish to introduce to you **Mr. Constant Okello-Obura** who would like to carry out a research project entitled, **"Commercial information system design for Uganda's economic development: The case of Northern Uganda"** between August 01, 2005 and February 25, 2006 in your district. The Uganda National Council for Science and Technology has approved the research project.

This letter is to request you to give the researchers the necessary assistance to facilitate the accomplishment of the research project.

Your cooperation in this regard is highly appreciated.

Yours faithfully,

Leah Nawegulo
For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

c.c.   Mr. Constant Okello-Obura
C/O EASLIS
Makerere University
KAMPALA

LOCATION/CORRESPONDENCE
PLOT 19, KAMPALA ROAD
UGANDA HOUSE, 11TH FLOOR
P. O. BOX 6884
KAMPALA, UGANDA

COMMUNICATION
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E-MAIL: uncst@starcom.co.ug
WEBSITE: http://www.uncst.go.ug

EAST AFRICAN SCHOOL OF LIBRARY
AND INFORMATION SCIENCE

Your Ref:

*Our Ref:*

19/09/2005

Dear Sir/Madam,

RE: ....MR DEOGRATIUS KUMAKECH............

Please, this is to introduce to you ..MR. KUMAKECH........who is a Research Assistant for a study on the topic: ***COMMERCIAL/BUSINESS INFORMATION SYSTEMS DESIGN FOR UGANDA'S ECONOMIC*** DEVELOPMENT: THE CASE OF NORTHERN UGANDA. The study is being carried out by Mr. Constant Okello-Obura (Makerere University Lecturer) for a Doctoral award in Information Science by University of South Africa, Pretoria.

MR. Kumakech ....has therefore been mandated to collect the required data for the study on behalf of the researcher. The data collected will be used purely for the purpose of the study and thus will be treated with the maximum confidentiality possible. Any assistance rendered to him/her will be highly appreciated.

Thank you.

Yours Faithfully,

Constant Okello-Obura
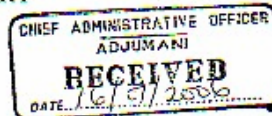*Mob. 077590827 E-mail obura@easlis.mak.ac.ug*
Researcher

MAKERERE UNIVERSITY

P. O. Box 7062 Kampala
Uganda
Telegrams: "MAKUNIKA"

Tel: +256 -41- 531530
Fax: 531275/530134
E-mail: direct@easlis.mak.ac.ug

EAST AFRICAN SCHOOL OF LIBRARY
AND INFORMATION SCIENCE

Your Ref:

Our Ref:

19/09/2005

Dear Sir/Madam,

RE. MARING JOSEPH GARAMOCO (MR)

Please, this is to introduce to you MR. MARING - J. GARAMOCO who is a Research Assistant for a study on the topic: *COMMERCIAL/BUSINESS INFORMATION SYSTEMS DESIGN FOR UGANDA'S ECONOMIC DEVELOPMENT: THE CASE OF NORTHERN UGANDA.* The study is being carried out by Mr. Constant Okello-Obura (Makerere University Lecturer) for a Doctoral award in Information Science by University of South Africa, Pretoria.

MARING J GARAMOCO has therefore been mandated to collect the required data for the study on behalf of the researcher. The data collected will be used purely for the purpose of the study and thus will be treated with the maximum confidentiality possible. Any assistance rendered to him/her will be highly appreciated.

Thank you.

Yours Faithfully,

Constant Okello-Obura
Mob. 077590827 E-mail obura@easlis.mak.ac.ug
Researcher

H.O.DS
Please assist
Mr. Maring Josy
Garamoco in
the collection
the required
information.

17/1/06 CAO

17 JAN

THE REPUBLIC OF UGANDA
OFFICE OF THE RESIDENT DISTRICT COMMISSIONER
KOTIDO DISTRICT
P.O BOX 1- KOTIDO

Our Ref..........................
Your Ref..........................

Date25th Oct 2005

TO WHOM IT MAY CONCERN

Mr. Constant Okello –Obura has been cleared by the Uganda National council for sincere and technology to conduct research entitled "Commercial information system design for Uganda's economic department: The case of Northern Uganda" This it between August 01 2005 and February 25, 2006.

Any assistance hindered to him will be highly appreciated.

Kalyebi Higenyi
RESIDENT DISTRICT COMMISSIONER-KOTIDO