THE REPUBLIC OF UGANDA

National Innovation Survey

2008 - 2010

2012 Report

UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY
Ministry of Finance, Planning and Economic Development

National Innovation Survey

2008 - 2010

2012 Report

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Acronyms and Abbreviations

ARIPO	African Regional Intellectual Property Office
ASL	Above Sea Level
CIS	Community Innovation Survey
COMESA	Common Market for East and Southern Africa
EC	European Community
EU	European Union
FY	Financial Year
GDP	Gross Domestic Product
IPR	Intellectual Property Right
MDAs	Ministries, Departments and Agencies
MTIC	Ministry of Trade Industry and Cooperatives
NEC	Not Elsewhere Classified
NEPAD	New Partnerships for African Development
NIS	National Innovation Survey
NSS	National Statistics System
OECD	Organisation for Economic Cooperation and Development
R&D	Research and Development
STI	Science, Technology and Innovation
UBOS	Uganda Bureau of Statistics
UK	United Kingdom
UNCST	Uganda National Council for Science and Technology
US	Unites States
USD	United States Dollar

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Executive Summary

The 2012 National Innovation Survey (NIS-2012) measures inputs and outputs of innovation efforts by Ugandan business enterprises. The survey method followed the Oslo Manual and covered the Mining, Manufacturing and Services sectors using a sample of 582 enterprises from a total population of 4912. The survey covered a three year period from 2008-2010 and registered a response rate of 83.5% which is well above the Eurostat optimal return rate of at least 70%. The data was entered using Epidata version 3.1 and analysed using Stata version 11 computer software. Descriptive statistics were generated and presented using cross tabulations and graphs.

Findings

- Seventy-seven percent of the survey respondents indicated that they carried out innovative activities during the reference period, 2008-2010. The results are summarized in Table S-1 below.

Table S-1: Innovative Rate: Percentage Innovation for Innovative and Non-innovative Enterprises, 2008-2010

Type of Innovation	Total (%)	Industry[a] (%)	Services[b] (%)
Enterprises with innovation activity	*77.0	77.8	76.5
Product only innovators	9.5	7.4	10.6
Process only innovators	11.5	9.3	12.6
Product and process innovators	51.6	56.6	48.9
Enterprises with 'ongoing only' activities	4.0	4.4	3.9
Enterprises with 'abandoned only' activities	0.07	0.2	-
Enterprises with ongoing and abandoned activities	0.39	-	0.6
Enterprises without innovation activity	23.0	22.2	23.5

[a] Industry comprises mining & quarrying, food processing, manufacturing excluding food processing, and construction.

[b] Services comprise utilities, transport & storage, accommodation & food, information & communication, financial & insurance services, real estate & business services, and recreation & personal services.

*Numbers do not always total exactly because of rounding off effects.

- The NIS-2012 addressed four types of innovation – product, process, marketing and organisational innovations. The results in Figure S-1 show that 51.6% of the enterprises engaged in 'product and process' innovations while 4.5% reported 'abandoned or on-going' innovation activities. Organisational and marketing innovations were found in 78.7% and 73.6% of the enterprises respectively.

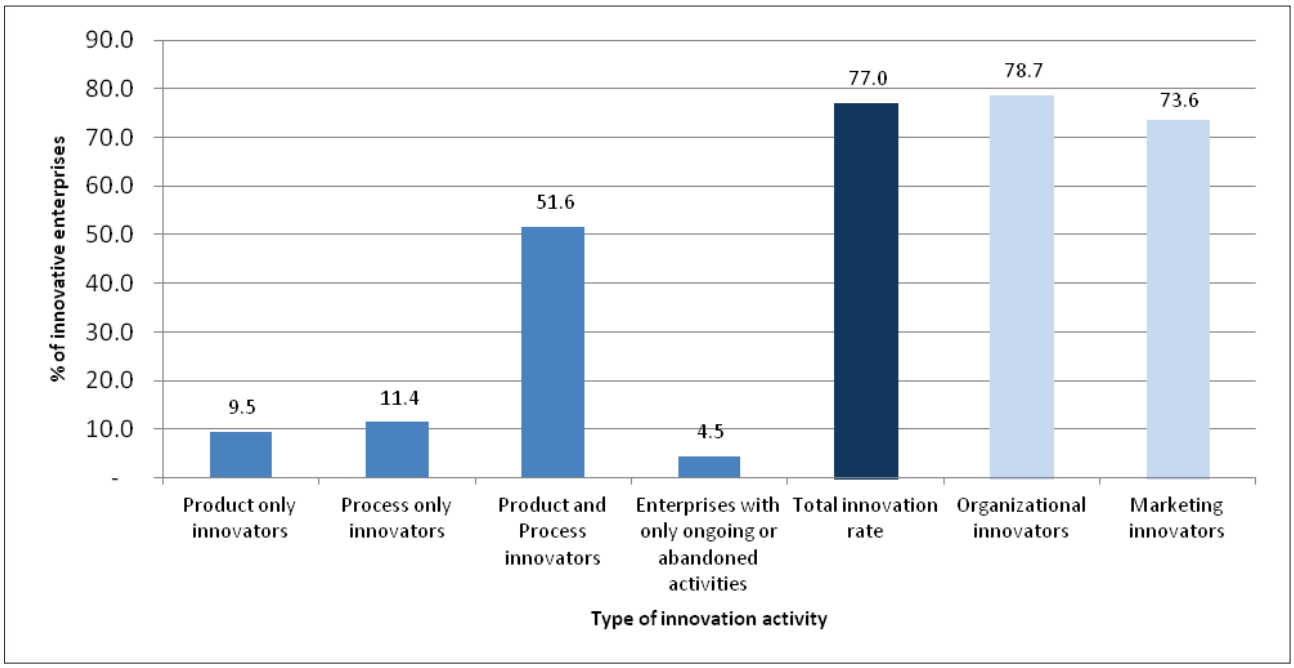


Figure S-1: Innovation Rate by Type of Innovation, 2008 - 2010

- Enterprises in both the services and industry sectors were on the whole more active in the organisational aspects of innovation. In terms of organisational innovations, 81.5% of enterprises introduced innovations pertaining to 'work responsibilities and decision making', while 73.8% introduced 'new business practices or improved knowledge management systems'.

- The majority of product innovations developed in Uganda were found in medium-sized (79.2%) and the very small (77.0%) enterprises. Majority (84.1%) of process innovators reported that their innovations originated in Uganda and only 14.7% developed innovations from abroad.

- The process innovations originating in Uganda were concentrated among the small and the very small enterprises (84.5% and 85.6% respectively).

- All innovative enterprises acquired new machinery, equipment or software as part of their innovation processes. Training was the second most important innovation activity (73.7%), and a substantial proportion (60.1%) of all innovative enterprises spent money on in-house R&D (Figure S-2).

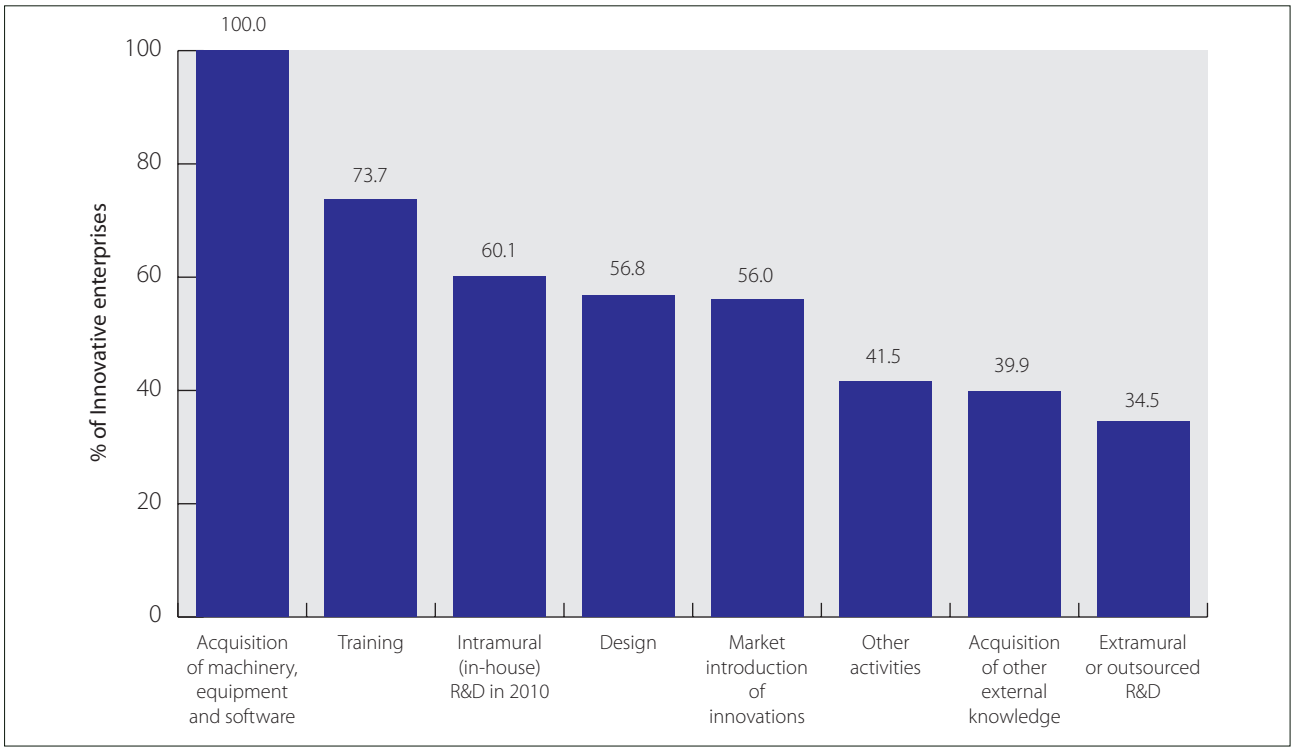


Figure S-2: Types of innovation activities among innovative enterprises, 2008 - 2010

- Innovative enterprises spent Ushs. 545.8 billion on innovation activities, which represents about 4.0% of the total turnover of all enterprises in both the industry and services sectors. Expenditure on innovation activities as a percentage of the turnover of innovative enterprises in 2010 was 4.4% overall.

- The services sector had a higher share of innovation expenditure, equivalent to 5.5% of the turnover of innovative service enterprises, compared to 1.8% for enterprises in industry.

- About 16.2% of innovative enterprises in industry and 22.9% of innovative enterprises in services received public funding for their innovation activities between 2008 and 2010. In total 20.5% of innovative enterprises received funding for their innovation activities from government sources.

- Universities and higher education institutions were rated as highly important sources of information for innovation activities by 3.2% of enterprises. The most important collaborative partnerships for innovation were between enterprises and their clients or customers, which comprised 25.0% of collaborative partnerships.

- Innovative enterprises ranked the importance of various market and operational objectives and outcomes resulting from both product and process innovations. The biggest proportion (60%) of innovative enterprises cited improving the quality of goods and services as having a 'highly important' effect on innovation, and this was more important for industrial enterprises (64.6%) than for service enterprises (57.1%).

- Improving the quality of goods and services was cited as having a 'highly important' effect on innovation by about 50% of innovative enterprises and this was more significant for industrial enterprises (52.8%) than for service enterprises (47.9%).

- A significant number (36.4%) of innovative enterprises experienced problems which seriously delayed innovation activities during the period 2008 - 2010. Majority (48.3%) of all enterprises indicated that the development of innovative activities within their enterprises was hampered or restrained by a 'lack of funds within the enterprise or group'.

- Innovative enterprises in industry are mainly hampered by the high costs of innovation (57.2%) while the majority of non-innovative enterprises in industry are hampered by the lack of funds for innovation (48.4%).

- The results show that 20% of innovative enterprises registered a trademark while 11% registered an industrial design, and 10% claimed a copyright. Only 1% of innovative enterprises secured a patent from the African Regional Intellectual Property Organisation (ARIPO), while 2.6% applied for a patent outside ARIPO.

- About 18% of innovative enterprises introduced or implemented new or significantly improved products or processes as 'a first in Uganda', while only 2.2% introduced new or significantly improved goods or services as 'a world first' (Table S-2)

Table S-2: Status of New or Significantly Improved Products or Processes for Innovative Enterprises, 2008 - 2010

Introduction status	Number of enterprises	Percentage of innovative enterprises
A first in Uganda	667	17.6
A world first	82	2.2
New or significant changes in external relations or public institutions	787	20.8
Total	**1536**	**40.6**

Source: Appendix C Table 4.24

- About 58.5% of all enterprises indicated that new ideas and creativity among staff were stimulated by 'training employees on how to develop new ideas or creativity'.

Uganda: Key Socio-Economic Indicators, 2011/2012

Geographical Indicators	
Latitude	4°12'N & 1°29'S
Longitude	29°34'E & 35°0'E
Altitude (minimum ASL)	620 metres
(maximum ASL)	5,110 metres
Total surface area	241,550.7 km^2
Area under land	199,807 km^2
Area under water and swamps	41,743 km^2
Temperature	16-31°C
Rainfall	700-2000 mm/year

Economic Indicators, 2011	
GDP at current market prices	45,607 billion Shs.
Per capita GDP at current market prices	1,384,566 Shs.
GDP growth rate at constant (2002) market prices	5.9 percent
Per capita GDP growth rate at constant (2002) market prices	2.2 percent
Contribution of agriculture to GDP at current market prices	22.9 percent
Balance of payments deficit	90.06 million US$
Inflation rate	18.7 percent
Budget deficit excluding grants as a percentage of GDP (2011/12)	7.2 percent

Demographic and socio-economic indicators	
Total population (2012 mid-year)*	34.1 million
Percentage urban (2012 mid-year)*	14.7 percent
Population of Kampala city (2012 mid-year)*	1.72 million
Sex ratio of total population (2002 census)	95 males per 100 females
Population density (2002 census)	123 persons /km^2
Infant Mortality rate (2002 census)*	76 per 1000 live births
Life Expectancy at birth (2002 census)*	50.4 years
Male	48.8 years
Female	52.0 years
Pupil Teacher ratio (Primary 2011)	49
Pupil Classroom ratio (Primary 2011)	58
Student Teacher ratio (Secondary 2011)	19
Student Classroom ratio (Secondary 2009)	35

Note: * Demographic estimates were based on the Census 2002 final results. Only population of gazetted city, municipalities and towns was considered as urban population.

Source: Uganda Bureau of Statistics, 2012 Statistical Abstract

Chapter 1

INTRODUCTION

1.1 Background

Innovation is vital for improving productivity, competitiveness and growth of both developed and developing economies. Providing the right economic conditions and using appropriate policy instruments to encourage innovation in the developing nations is an imperative for their economic growth and structural transformation. Measuring the level of innovation activity in such nations and identifying where policy might be best targeted contributes to the pursuit of that objective. The 2012 National Innovation Survey (NIS-2012) complements other indicators of innovativeness by providing a measure of innovation results and examining the constraints faced by Ugandan business enterprises in their innovation efforts. The results provide the basis for regional comparison of innovation outcomes.

The NIS-2012 was conducted by the Uganda National Council for Science and Technology (UNCST) in collaboration with the Uganda Bureau of Statistics (UBOS) and the Ministry of Trade, Industry and Cooperatives (MTIC) with financing from the New Partnerships for Africa's Development (NEPAD) and the Government of Uganda. The survey collects scientific data to measure the relative importance of the key drivers and barriers to innovation across a broad spectrum of Ugandan enterprises. The data also helps to identify a combination of factors that lead to innovation success for different enterprises. The results are used for public policy, investment decision making, and for international comparisons.

The survey method adopted for the NIS-2012 was based on recommendations of the Organisation of Economic Co-operation and Development's (OECD) Oslo Manual (OECD 2005)[1] as well as the Fourth Community Innovation Survey (CIS-4)[2]. The 2012 National Innovation Survey (NIS-2012) retains some of the features in the pilot innovation surveys conducted in 2005 and 2009 while at the same time adopting different approaches in some areas. The NIS-2012 has a three year reference period, covering the years 2008-2010. The survey was carried out between April and June 2012.

[1] Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data. OECD/European Communities 2005.

[2] The Community Innovation Surveys (CIS) are national innovation surveys carried out by countries in the European Community (EC). The previous Community Innovation Survey, CIS 6, took place in 2009. Prior to this CIS5 took place in 2007, CIS4 in 2005, CIS3 in 2001, and CIS2 in 1997.

1.2 Basic Definitions

The NIS-2012 uses definitions of types of innovation and innovative activities provided in the Oslo Manual and used in the most recent Community Innovation Surveys.

1.2.1 Innovation

An ***innovation*** *is the implementation of a new or significantly improved product (good or service), or process, new marketing method, or a new organisational method in business practices, workplace organisation or external relations*. This definition encompasses a wide range of possible innovations, the minimum requirement being that the product, process, marketing method or organisational method must be ***new (or significantly improved) to the firm***. This includes products, processes and methods that firms are the first to develop and those that have been adopted from other firms or organisations.

1.2.2 Innovation activities

Innovation activities *are all scientific, technological, organisational, financial and commercial steps which actually, or are intended to lead to the implementation of innovations.* Some innovation activities are themselves innovative, others are not novel activities but are necessary for the implementation of innovations. Innovation activities also include R&D that is not directly related to the development of a specific innovation.

A common feature of an innovation is that it must have been ***implemented***. A new or improved product is implemented when it is introduced on the market. New processes, marketing methods or organisational methods are implemented when they are brought into actual use in the firm's operations.

1.2.3 Innovative firm

An ***innovative firm*** *is one that has implemented an innovation during the period under review.* The broad definition of an innovative firm may not be appropriate for all policy and research needs. More narrow definitions can be useful in many cases, particularly for comparisons of innovation across sectors, firm size categories or countries. An example of a more narrow definition is a product or process innovator.

A product/ process innovative firm is one that has implemented a new or significantly improved product or process during the period under review.

1.2.4 Product Innovations

A ***product innovation*** *is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics*. Product innovations can utilise new knowledge or technologies, or can be based on new uses or combinations of existing knowledge or technologies.

1.2.5 Process Innovation

A ***process innovation*** *is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software*. Process innovations can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products.

1.2.6 Marketing Innovation

A ***marketing innovation*** *is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing*. Marketing innovations are aimed at better addressing customer needs, opening up new markets, or newly positioning a firm's product on the market, with the objective of increasing the firm's sales.

1.2.7 Organisational Innovation

An ***organisational innovation*** *is the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations*. Organisational innovations can be intended to increase a firm's performance by reducing administrative costs or transaction costs, improving workplace satisfaction (and thus labour productivity), gaining access to non-tradable assets (such as non-codified external knowledge) or reducing costs of supplies.

1.3 Outline of the Report

The Report is divided into five chapters. Chapter 1 introduces the report and defines the key concepts and terms used. Chapter 2 discusses the survey method. The main characteristics of the survey are discussed in Chapter 3. The fourth and final chapter presents the main findings of the survey.

Chapter 2

SURVEY METHODS

2.1 Introduction

The 2012 National Innovation Survey (NIS) was based on the Oslo manual guidelines. It also benchmarked the Community Innovation Surveys (CIS) implemented by EU member states. This chapter discusses the methods employed in implementing the survey.

2.2 The Oslo Manual

The Oslo Manual was first published in 1992 by the Organisation for Economic Co-operation and Development (OECD) and the European Commission (EC) in response to the need for a systematic and internationally standardised methodology for collecting data on innovation. It provides guidelines on data collection for technological and non-technological innovations. The objectives of the Oslo Manual are two-fold: (i) to provide a framework within which existing surveys can evolve towards comparability; and (ii) to assist newcomers to collect and analyse innovation data.

2.3 Community Innovation Surveys

The Community Innovation Surveys are executed by national statistical offices in the European Union to provide information on innovativeness of different sectors and regions. The Community Innovation Surveys have been carried out in six waves, from the mid-1990s (CIS-1) to the late 2000s (CIS-6).

2.4 Questionnaire Design

The questionnaire used for the survey was based on the CIS-4 Survey questionnaire. The questionnaire was customized to the national context (see Appendix A).

2.5 Survey Design

The survey design was informed by Eurostat guidelines and the structure of the National Business Register[3] maintained by the Uganda Bureau of Statistics (UBOS). The survey design involved:

[3] UBOS Census of Business Establishments Register, 2010/2011

- A stratified sampling design with simple random sampling within the strata. The strata were defined according to economic activity, and Neymann method was used for sample allocation.
- An in-field survey with at least two telephone contacts and one supervision visit.
- A non-response survey, which was to be conducted if the response rate was below 70%.
- The extrapolation of results to the target population based on the weighted sample.

2.6 Sampling Method and Determination

The target population was the businesses in the mining, manufacturing and services sectors whose sample frame was obtained from the Register of Business Establishments. It was restricted to businesses with a turnover of at least 10 million shillings and employing at least 10 persons. It excluded businesses in the sectors of health and education, the public sector, agriculture, fishing & forestry, and trade. The total population as per the definition was, N= 4912 businesses.

A stratified sampling method was used whereby the stratification of the random sample is based on the size and the principal activity of the units as recommended by the Oslo Manual. The size of the establishment was defined in terms of its employment size and turnover.

The sample size ***n*** was determined using optimum allocation as follows:

$$n = \frac{\Sigma(N_h S_h \sqrt{C_h})\,(\Sigma(N_h S_h/\sqrt{C_h})}{N^2B^2+\Sigma(N_h S_h^2)}$$

Where N_h is the population in each stratum

S_h is the standard deviation of the employment in each stratum

C_h is the cost of administering a questionnaire in h^{th} stratum (in United States Dollars)

N is the total population

B is E^2/k^2

In order to estimate the average number of innovative businesses and to be 95% (k=1.96) confident that the estimate would be close to the true value, an error of not more than 3 businesses (E=3) was allowed. Using this formula, the sample size (***n***) was 448 businesses and providing for a 30 percent non-response accounting for 134 businesses which were proportionately distributed across the strata. The actual sample became 582 businesses.

2.7 Sample Allocation and Selection

The 4912 enterprises were categorised into 11 clusters of economic activity from which a sample of 582 enterprises was selected and allocated using Optimum Allocation. The choice of optimum allocation was based on the premise that it yields the least standard error. The sample size per stratum was allocated as follows:

$$n_h=(N_hS_h/C_h\text{^}.5)/sum(n_hS_h/C_h\text{^}>5).$$

A summary of the various enterprises included in the survey is highlighted in Table 2.1 below.

Table 2.1: Enterprises included in the NIS-2012

Industry	N_h	Sample	S_h	C_h
Mining and quarrying	55	8	39	341
Food processing	499	179	295	7687
Other manufacturing	764	71	95	3059
Utilities	63	7	34	312
Construction	412	33	61	1436
Transport and storage	331	14	29	608
Accommodation and food services	1025	33	38	1404
Information and communication	186	25	67	1065
Financial and insurance services	687	55	77	2359
Real estates and business services	604	129	193	5527
Recreation and personal services	286	28	61	1202
Total	**4912**	**582**	**987**	**25000**

Source: Uganda Bureau of Statistics

The selection of enterprises that responded to the survey was done using simple random sampling with the aid of computer generated random numbers.

2.8 Field Work Organisation and Data Processing

A team of 31 enumerators was engaged in survey data collection between April and June 2012. During this time, enterprises that did not respond promptly received at least two telephone reminders to participate in the survey; and this was complemented with field supervision visits by the survey supervisors. The survey registered a response rate of 83.5% which is well above the Eurostat optimal return rate of at least 70%.

All returned questionnaires were checked for completeness and accuracy prior to entry. The data was entered using double-entry system where the results were compared for consistency and accuracy of the entries. Cleaned and accurate data files were captured using Epidata version 3.1 and analysed using Stata version 11 computer software. Descriptive statistics were generated and presented using tabulations and graphics.

Chapter 3

CHARACTERISTICS OF THE SURVEY

3.1 Introduction

This chapter provides a broad review of innovation characteristics in the sectors of mining, manufacturing and services. It compares the level of innovation across the different business enterprises as well as their inherent characteristics.

3.2 Status of Mining, Manufacturing and Services

The mining, manufacturing and services sectors are important contributors to Uganda's economic growth and development. These sectors currently contribute more than half of Uganda's gross domestic product (GDP) as highlighted below[4].

Mining and Quarrying

Mining and quarrying activities were estimated to have grown by 12.8 percent in fiscal year (FY) 2009/10 compared to 4.3 percent during the FY2008/09. The growth in the mining and quarrying activities was due to increased demand for limestone, clay and quarry products. The sector's contribution to total GDP, at current prices, has been the lowest since FY2005/06 with a share of only 0.3 percent. The mineral sector is increasingly becoming very important in responding to the labour needs of the country. There are currently over 180 artisanal and small scale miners in Uganda providing employment to over 20,000 miners with indirect and induced labour numbering over 54,000. This sector has a multiplier effect of US$28.3/year according to recent studies by artisanal and small scale miners.

Manufacturing

Uganda's manufacturing sector has been one of the fastest growing sectors in the country with manufacturing output expanding by more than 10% annually over the last five years. However, the preliminary estimates for FY2011/12 indicate that total manufacturing activity declined by 1.8 percent, from growth of 8 percent in FY2010/11. Formal manufacturing declined by 4.4 percent, compared to the 9.1 percent growth in FY2010/11. The decline occurred across food processing, chemicals, paint, soap and cement, reflecting the difficult macroeconomic climate. The unreliable electricity supply in the first half of the financial year raised costs,

[4] Background to the Budget 2009/2010-2011/2012, Ministry of Finance, Planning and Economic Development.

particularly affecting the cement industry. Temporary closures for routine maintenance of a number of sugar factories had a significant impact on the food processing subsector.

Services

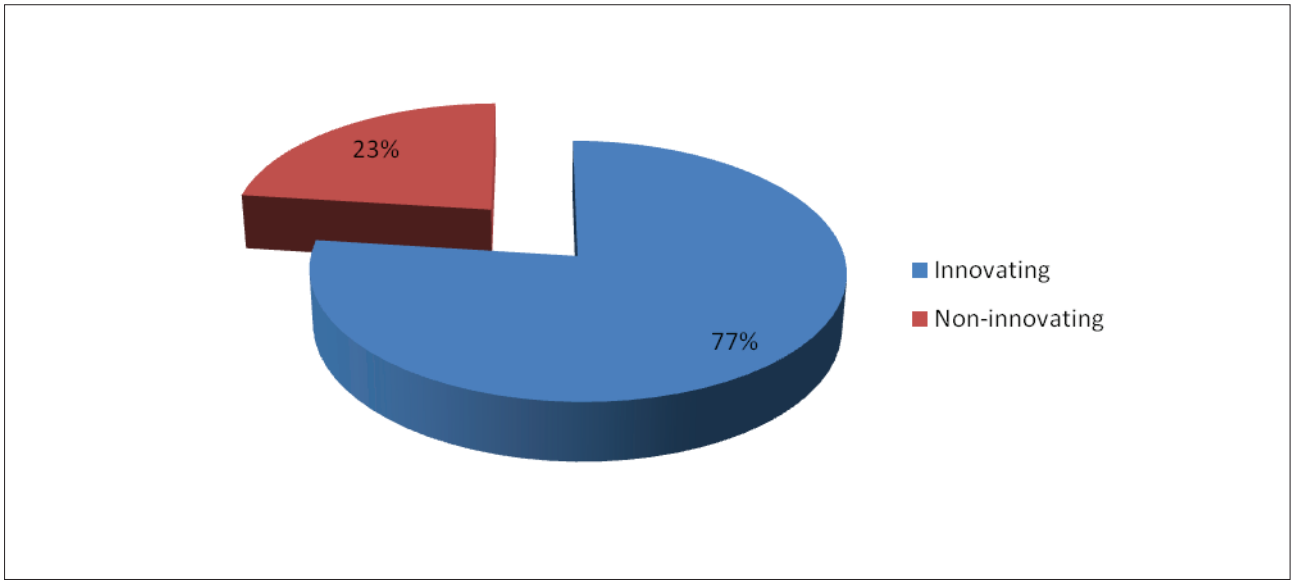
Services sector growth slowed from 8.4 to 3.1 percent. The sector has helped to drive Uganda's impressive recent economic record, but in FY2011/12 two of the most important sources of this growth – wholesale and retail trade and financial services – experienced contractions. This was partly offset by good performance from telecommunications and hospitality services.

The critical challenge for Uganda's manufacturing and services sectors in the next few years will be how to maintain the country's competitiveness in a global trade environment that will become increasingly competitive. The need for Uganda to improve its manufacturing and services sectors to meet both the regional and global competitiveness challenges via scientific and technological innovation have for a long time been recognised by the government. In this regard, the 2012 National Innovation Survey provides an opportunity to assess the state of innovation in the sectors of mining, manufacturing and services.

3.3 Innovation across Industrial Sectors

3.3.1 Profile of Innovative Industrial Sectors

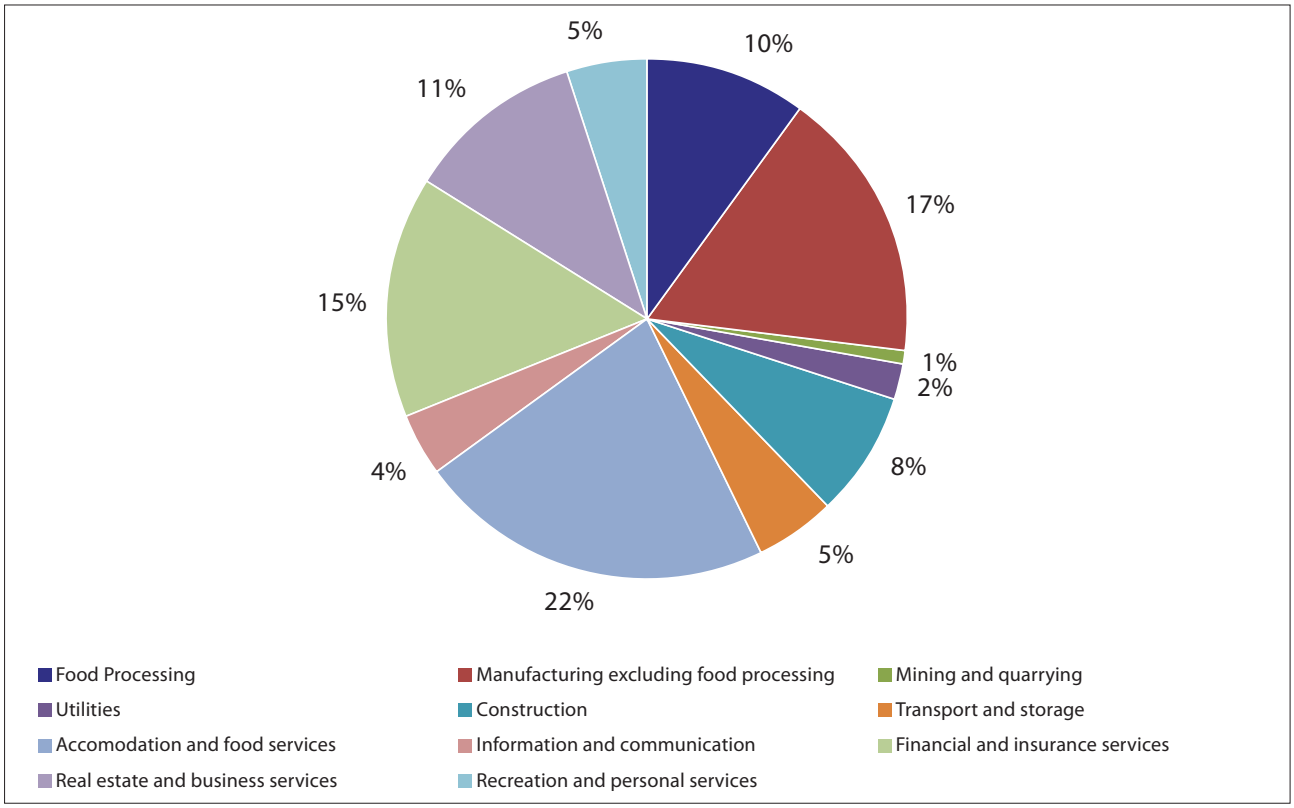
The 2012 National Innovation Survey (NIS-2012) represents a total population of 4912 business establishments in the mining, manufacturing and service sectors. Of these 3783 (77%) indicated that they carried out innovative activities while 1129 enterprises (23%) indicated that they did not carry out innovative activities during the reference period of 2008-2010 (Figure 3.1).



Source: Appendix C Table 4.1

Figure 3.1: Innovating and Non-innovating Enterprises in the Mining, Manufacturing and Service Sectors (%), 2008-2010

Figure 3.2 shows the distribution of the 3873 innovative companies by industrial sectors. Accommodation and food services had the largest number of innovative enterprises (820 enterprises or 22% of the total number of innovative enterprises). This was followed by manufacturing excluding food processing (631 enterprises or 17% of the total) while financial and insurance services was the industrial sub-sector with the third largest number of innovative enterprises (570 or 15% of the total). Real estate and business services industrial sub-sector was the fourth largest in terms of the number of innovative enterprises (435 or 11% of the total). Food processing accounted for 10% of the total number of innovative enterprises with 392 enterprises.



Source: Appendix B Tables 3.1 to 3.3

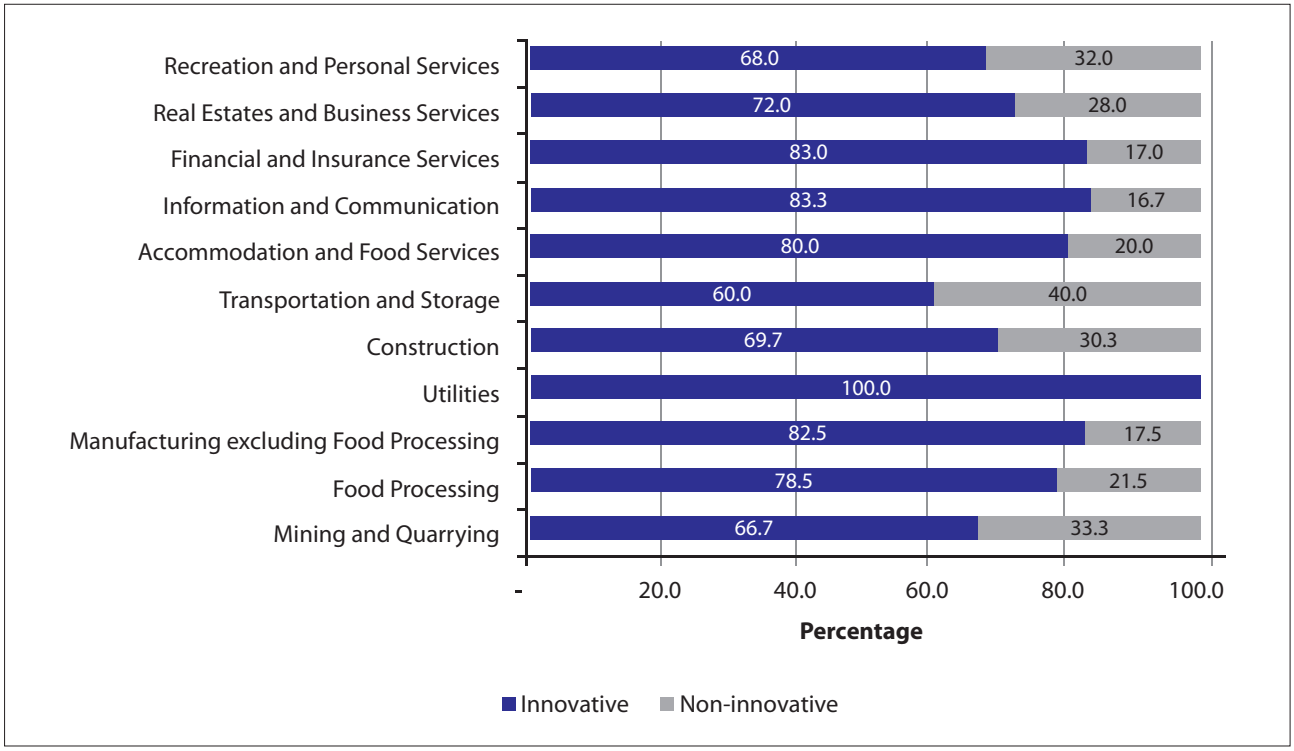
Figure 3.2: Innovative Enterprises by Industrial Sectors (%), 2008-2010

3.3.2 Incidence of Innovation across Industrial Sub-sectors

There are no significant variations in the incidence of innovation across the different industries (see Figure 3.3). Results from the survey indicate that the incidence of innovation from four industrial sub-sectors was 70 percent or less - transportation and storage (60%); mining and quarrying (67%); recreation and personal services (68%); and construction (70%).

A biggest proportion of the industrial sub-sectors surveyed posted an incidence of innovation of above 70%. Industrial sectors that fall into this category include real estate and business services (72%); food processing (78%); accommodation and food services (80%); manufacturing excluding food processing (83%); information

and communication (83); financial and insurance services (83%); and utilities (100%). The results of the survey indicate a higher level of innovation incidence for almost all industrial sectors.



Source: Appendix B Table 3.4

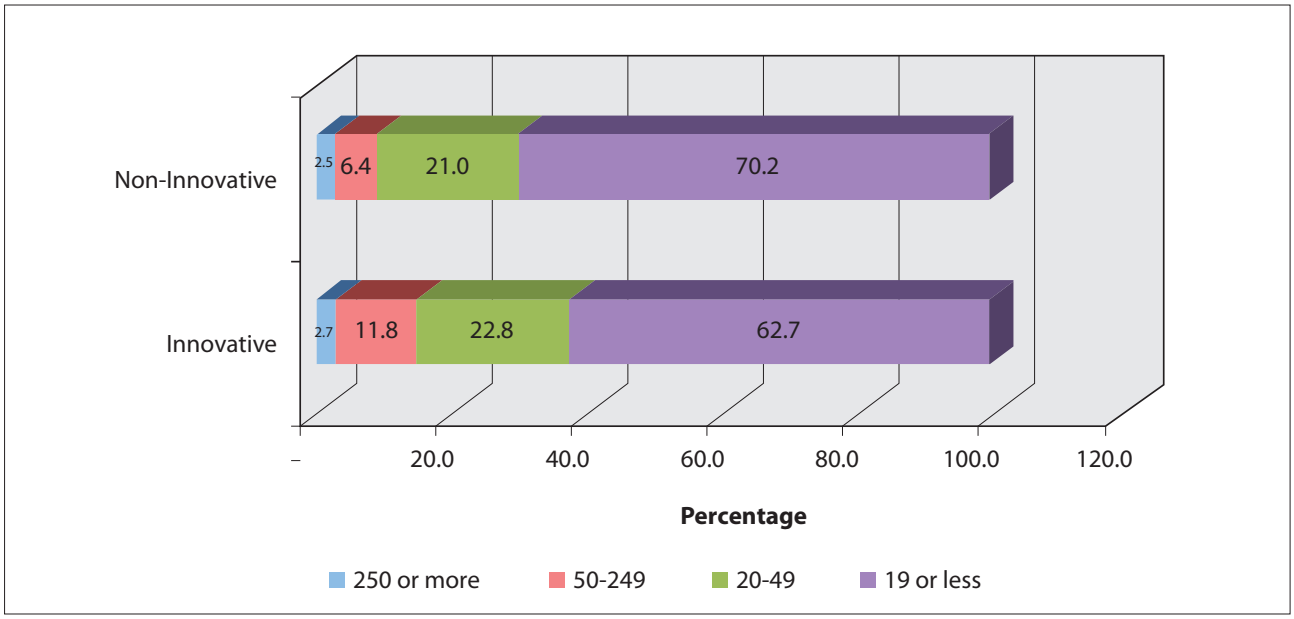
Figure 3.3: Innovation Profile in Mining, Manufacturing and Service Sectors, 2008-2010

3.4 Characteristics of Innovative and Non-Innovative Enterprises

This section presents the differences between innovative and non-innovative enterprises involved in the survey in terms of firm size (employment and turnover), age of establishment, and nationality.

3.4.1 Firm Size (Employment)

The survey indicates that innovative enterprises tend to be more or less the same as non-innovative enterprises when firm size is measured in terms of the number of employees. According to Figure 3.4, 70.2% of non-innovative enterprises have less than 20 employees while the corresponding figure for innovative enterprises is 62.7%. Enterprises employing 250 or more persons account for 2.7% and 2.5% in innovative and non-innovative enterprises respectively.

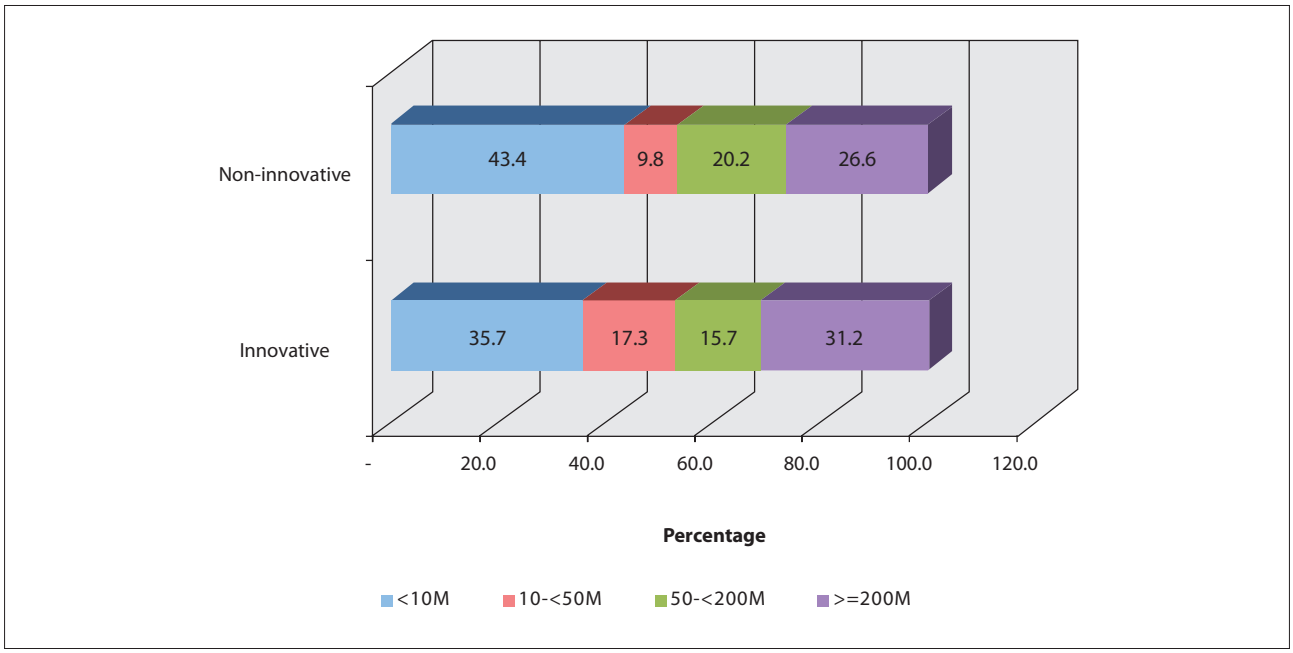


Source: Appendix B Tables 3.5

Figure 3.4: Size of Innovative and Non-innovative Enterprises by Employment, 2008-2010

3.4.2 Firm Size (Turnover)

The survey indicates that innovative enterprises tend to be slightly larger than non-innovative enterprises when firm size is measured in terms of turnover. Figure 3.5 shows that 43.4% of non-innovative enterprises have a turnover of less than 10 million shillings while the corresponding percentage for innovative enterprises is 35.7%. A substantial proportion of enterprises have turnover of above 200 million shillings (26.6% and 31.2% for non-innovative and innovative enterprises respectively).

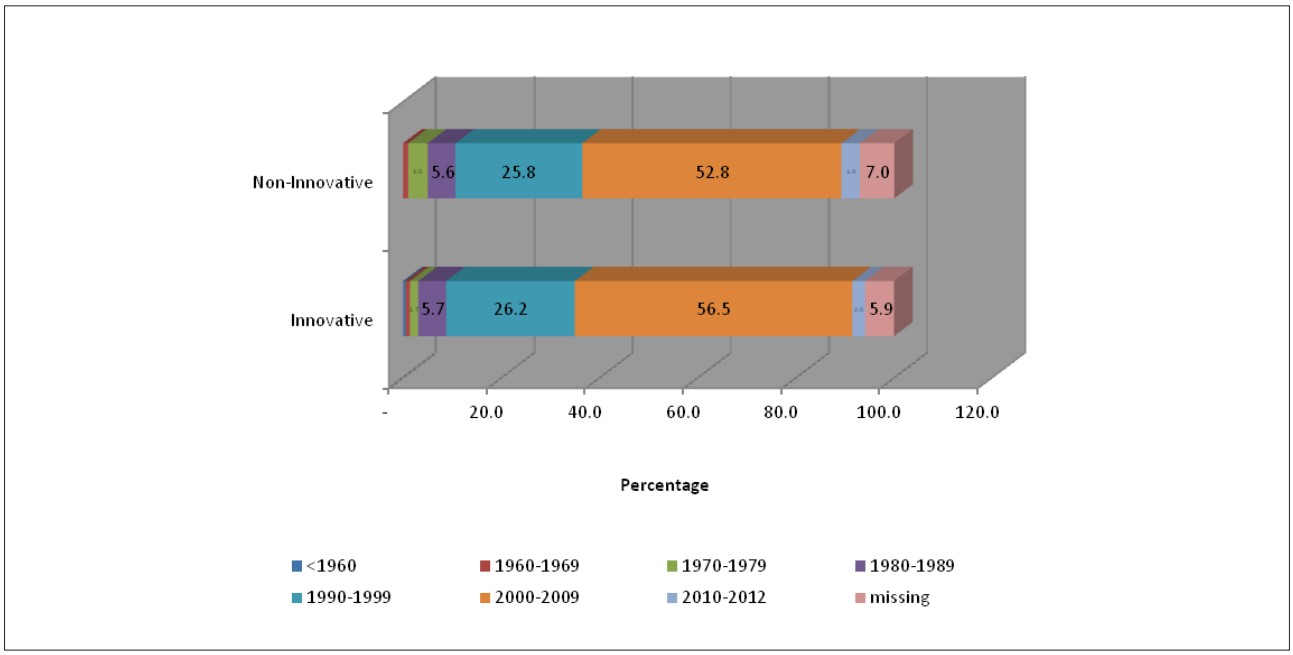


Source: Appendix B Tables 3.6 and 3.7

Figure 3.5: Size of Innovative and Non-innovative Enterprises by Turnover, 2008-2010

3.4.3 Firm Age

The survey indicates that the majority of the enterprises were established in the 1990s and 2000s. Figure 3.6 indicates that 52.8% of non-innovative enterprises were established in the 2000s while the corresponding figure for innovative enterprises is 56.5%. In addition, 25.8% and 26.2% of non-innovative and innovative enterprises respectively were established in the 1990s.

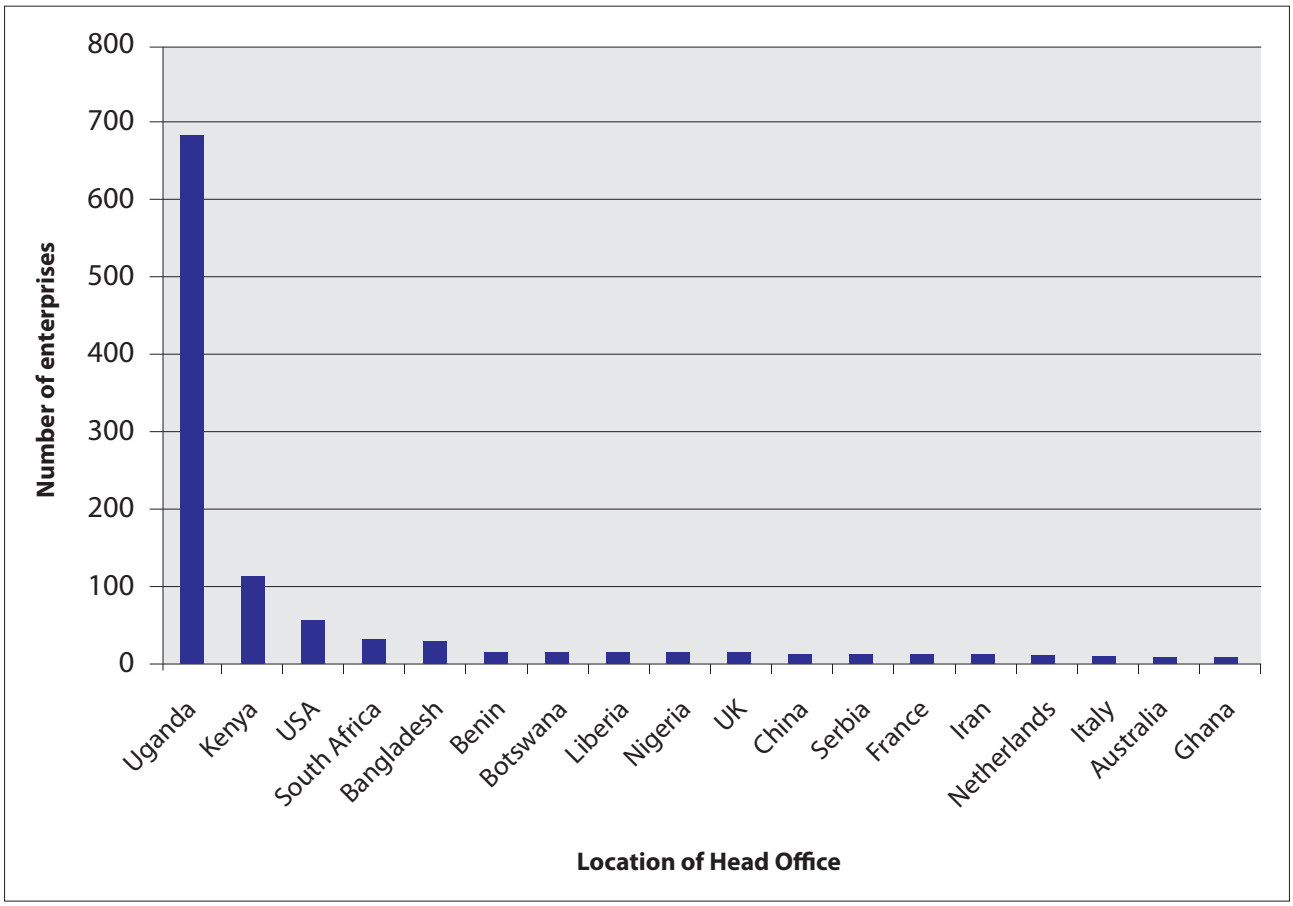


Source: Appendix B Tables 3.6 and 3.7

Figure 3.6: Innovative and Non-innovative Enterprises by Age, 2008-2010

3.4.4 Innovative Enterprises by Nationality

Figure 3.7 shows that 2725 of innovative enterprises (or 72% of the total number enterprises) are not subsidiaries of another company or an enterprise group. Of the enterprises that reported being subsidiaries of another company, 687 reported having their headquarters in Uganda, Kenya (112 enterprises) while 56 had their headquarters in the United States of America. This is followed by South Africa (32 innovating enterprises) and Bangladesh (26 innovating enterprises).



Source: Appendix B Table 3.8

Figure 3.7: Innovative Enterprises by Nationality, 2008 - 2010

Chapter 4

SURVEY RESULTS

4.1 Innovation Activity

This section presents the results on innovation activity of the firms covered by the 2012 National Innovation Survey (NIS-2012) in terms of the level of innovation activities, employment, turnover, education attainment, and the geographical markets for goods and services of both innovative and non-innovative enterprises in Uganda.

4.1.1 Level of Innovation

The NIS-2012 results represent the activities of a total of 4912 business enterprises. Technological innovation activities were reported in 3783 (77%) enterprises of which 72.6% had successful technological innovations. This means that these enterprises completed product and/or process innovations during the period 2008 - 2010. In addition, 4% indicated that they had 'on-going only' activities; 0.1% had 'abandoned only' innovation activities, with the remaining 0.4% indicating that they had both abandoned and on-going activities.

The technological innovative enterprises comprised 9.5% with 'product only innovations'; 11.5% with 'process only' innovations; and 51.6% with both 'product and process' innovations. Regarding non-technological innovations, 78.7% of enterprises had organisational innovations and 73.6% had marketing innovations. Table 4.1 shows that 77.8% of industrial enterprises were innovative compared to 76.5% of service enterprises.

Table 4.1: Innovative Rate: Percentage Innovation for Innovative and Non-innovative Enterprises, 2008-2010

Type of innovation	Total (%)	Industry[a] (%)	Services[b] (%)
Enterprises with innovation activity	*77.0	77.8	76.5
Product only innovators	9.5	7.4	10.6
Process only innovators	11.5	9.3	12.6
Product and Process innovators	51.6	56.6	48.9
Enterprises with 'ongoing only' activities	4.0	4.4	3.9
Enterprises with 'abandoned only' activities	0.07	0.2	-
Enterprises with ongoing and abandoned activities	0.39	-	0.6
Enterprises without innovation activity	23.0	22.2	23.5

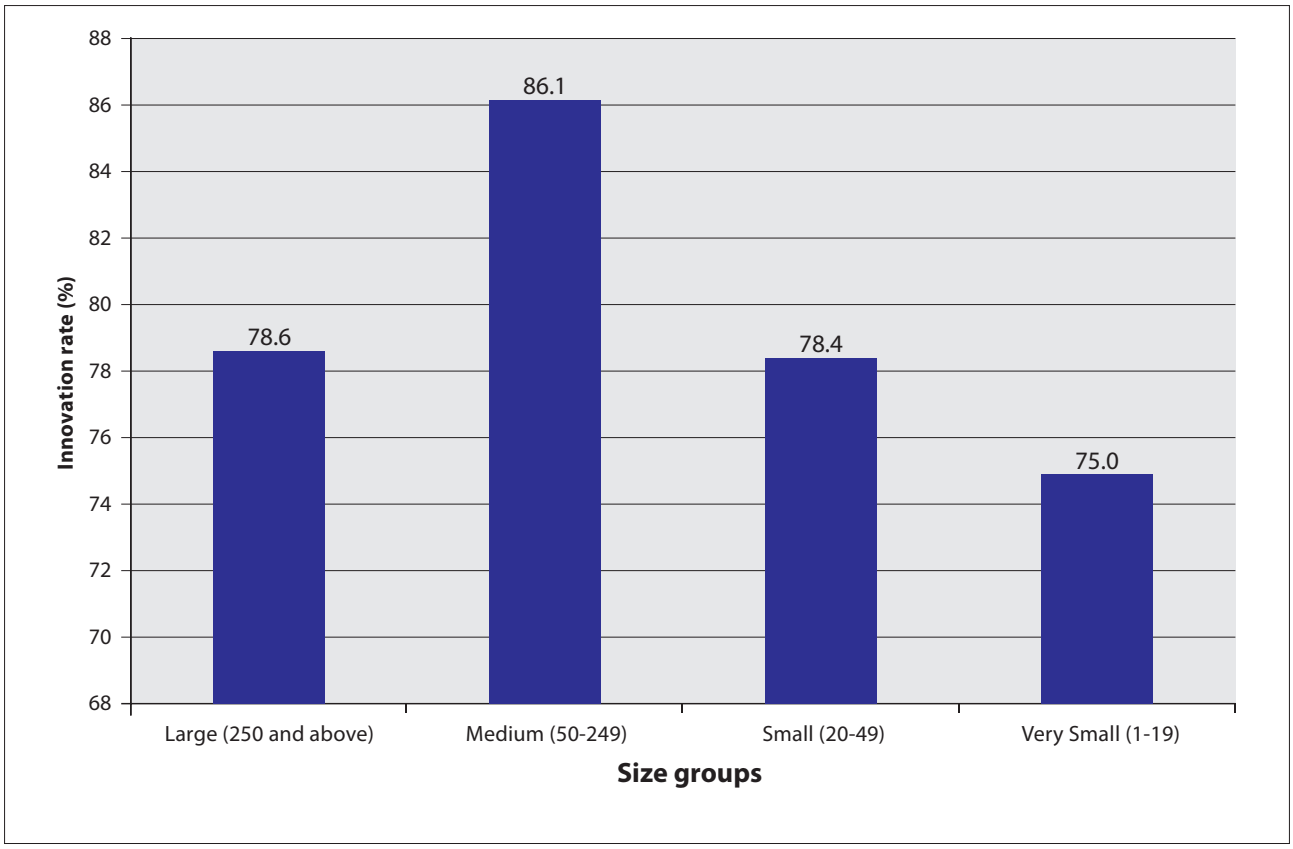
[a] Industry comprises mining & quarrying, food processing, manufacturing excluding food processing, and construction.

[b] Services comprise utilities, transport & storage, accommodation & food, information &communication, financial & insurance services, real estate & business services, and recreation & personal services.

Source: Appendix C Table 4.1

*Numbers do not always total exactly because of rounding off effects.

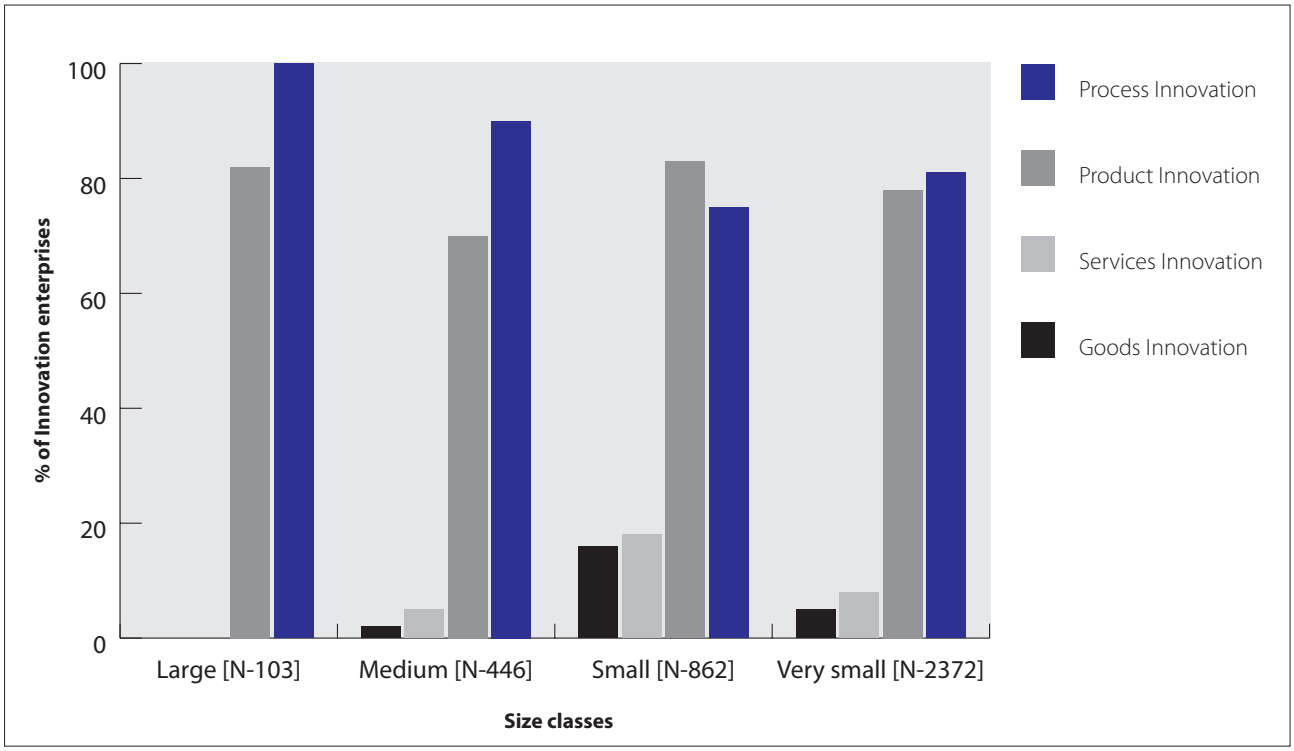
Figure 4.1 shows that the biggest proportion of enterprises with innovation activity were in the medium enterprise group (employing 50-249 persons) at 86.1% compared to an innovation rate of 75% in the group of very small enterprises (employing less than 20 persons).



Source: Appendix D Tables 5.1a

Figure 4.1: Percentage of Enterprises with Innovation Activity, by Size Class, 2008 - 2010

Figure 4.2 gives an indication of innovation rate according to types of innovation within the four different size classes of enterprises. The most active innovators were process and product innovators in almost all the categories of size class with average innovation rates of over 80%. There is a contrasting pattern among 'goods innovators' and 'service innovators', where the average innovation rates are far below 20%.



Source: Appendix D Tables 5.1b

Figure 4.2: Innovation Activities According to Size Class, 2008 - 2010

4.1.2 Employment and Turnover

The target population comprised 4912 enterprises employing 275,558 persons, 85% of whom worked in innovative enterprises. The total turnover of the enterprises was recorded as Ushs.13,345 billion. Enterprises with innovation activities accounted for about 96.4% of this turnover. The industry sector which was more innovation intensive, accounted for 92.2% of turnover compared to the services sector with a turnover of 82.8% (Table 4.2).

Table 4.2: Total Enterprises, Number of Employees and Turnover: Comparison of Enterprises with Innovation Activities, 2008 - 2010

Total enterprises, number of employees and turnover	Total	Industry (%)	Services (%)	Total (%)
Total number of enterprises	4,912	35	65	100
Enterprises with innovation activities	3,783	77.8	76.5	77.0
Number of employees	275,558	59.4	40.6	100
Number of employees in enterprises with innovation activities	235,143	85.3	82.9	88.9
Turnover (Ushs. billion)	13,345	31.0	69.0	100
Turnover (Ushs. billion of enterprises with innovation activities)	12,300	92.2	82.8	96.4

Source: Appendix C Tables 4.1, 4.2 and 4.3

Table 4.3 indicates that innovative enterprises accounted for 92.1% of the turnover. The very small innovative enterprises were responsible for the greatest contribution (95.9%) to turnover through innovation activities. While non-innovative firms accounted for 23% of all enterprises covered in the survey (see Table 4.1), they were responsible for only 7.8% of the total turnover recorded.

Table 4.3: Number and Percentage of Enterprises with Innovation Activity by Size Class and Turnover, 2010 (year specific question)

Turnover category	Size class				Total
	Large	Medium	Small	Very small	
All enterprises: turnover (Ushs. billion)	908	5,280	1,560	5,600	13,348
Enterprises with innovation activity: turnover (Ushs. billion)	768	4,900	1,260	5,370	12,298
Percentage of total turnover contributed by enterprises with innovation activity	84.6	92.8	80.8	95.9	92.1
Enterprises without innovation activity: turnover (Ushs. billion)	141	379	299	227	1,046
Percentage of total turnover contributed by enterprises without innovation activity	15.5	7.2	19.2	4.1	7.8

Source: Appendix D Table 5.3

The results of the survey indicate that innovative enterprises employed more staff than non-innovative enterprises. Table 4.4 shows that enterprises with innovation activity employed the highest percentage (85.3%) of employees in 2010. Large enterprises that were active in innovation employed 89.2% of the total number of employees and medium-sized innovative enterprises employed 85.2% of all employees in the respective groups.

Table 4.4: Enterprises with Innovation Activity by Size Class and Number of Employees, 2010 (year specific question)

Number and percentage of employees by innovation activity	Size				Total
	Large	Medium	Small	Very small	
All enterprises-number of employees	140,065	65,433	35,967	34,093	275,558
Enterprises with innovation activity - (% of employees)	89.2	85.2	79.1	76.3	85.3
Enterprises without innovation activity - (% of employees)	10.8	14.8	20.9	23.7	14.7

Source: Appendix D Table 5.2

4.1.3 Enterprise Affiliation

The majority of enterprises in the population were independent enterprises and not part of a larger group (Table 4.5). Only 29.9% of enterprises were part of a larger group, and most of these were the very small enterprises.

Table 4.5: Enterprises Stating that they were Part of a Larger Group, 2008 - 2010

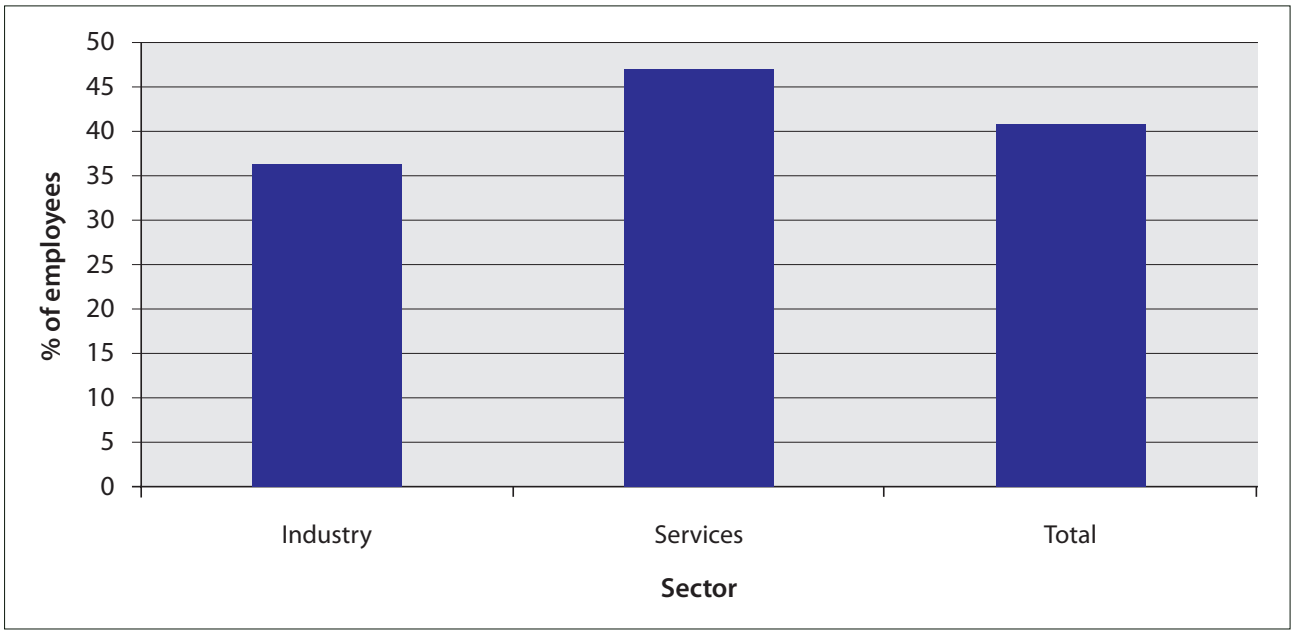
Size class	Large	Medium	Small	Very small	Total
Status					
Part of a larger group	42	214	297	917	1470
Not part of a large group	89	291	791	2146	3317
Enterprises which did not respond to the question	0	13	11	102	125
Percentage					
Part of a larger group	0.9	4.4	6.0	18.7	*29.9
Not part of a large group	1.8	5.9	16.1	43.7	67.5
Enterprises which did not respond to the question	0.0	0.3	0.2	2.1	2.5

Source: Appendix D Table 5.8

* Numbers do not always total exactly because of rounding off effects.

4.1.4 Education Attainment

Innovative enterprises employed 235,143 staff of whom 95,932 employees (40.8%) had a tertiary education qualification (diploma or degree). Innovative enterprises in the services sector had the highest number of employees with a tertiary qualification (46.8%), compared to 36.4% of innovative enterprises in industry (Figure 4.3).



Source: Appendix C Table 4.18

Figure 4.3: Percentage of Employees in Innovative Enterprises with a Degree or Diploma, 2010 (year specific question)

4.1.5 Export Orientation

The export orientation in both innovative and non-innovative enterprises was not significantly different (Table 4.6). The same proportion (24%) of both innovative and non-innovative enterprises sold goods and services only within Uganda. The participation of innovative firms in African markets was varied – East African (48.4%), COMESA (44.2%) and other African markets (49.6%). A number of international markets were also an important destination for goods and services produced by innovative enterprises – the Americas (46.1%), Asia (45.8%) and Europe (44.9%).

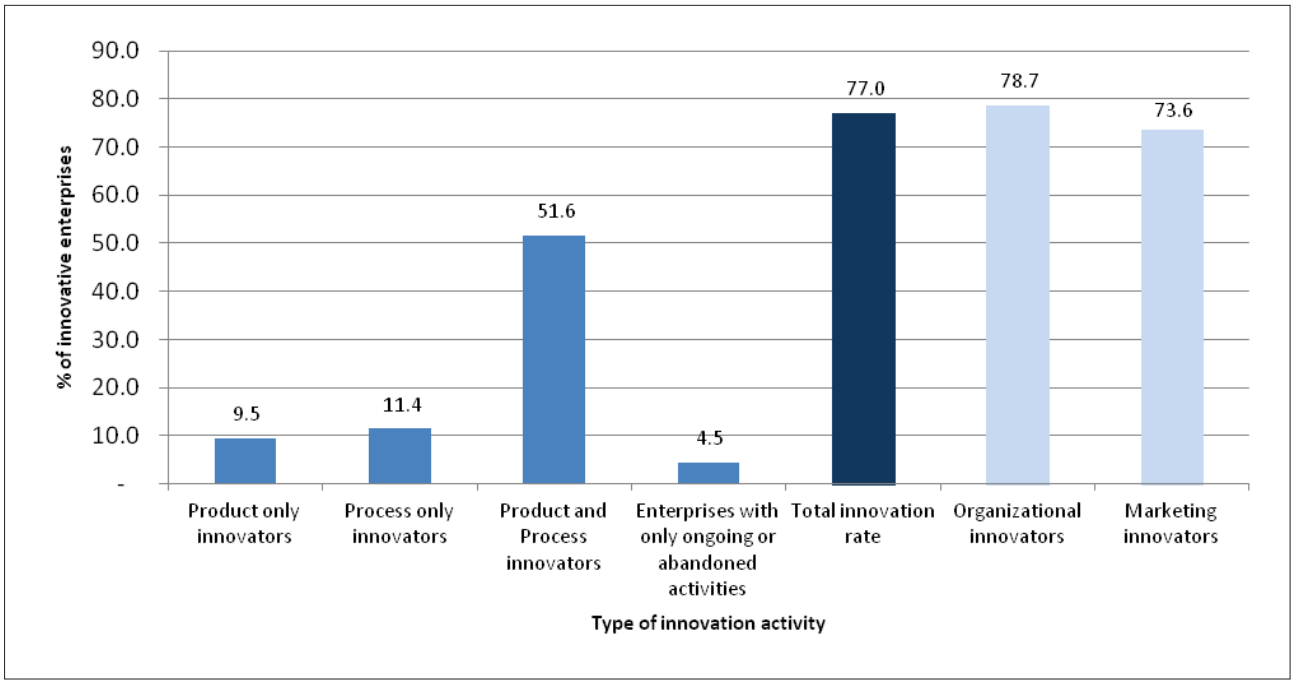
Table 4.6: Geographic Distribution of Goods and Services Sold by Innovative and Non-Innovative Enterprises, 2008 - 2010

Proportion of enterprises (%)	Total	Industry	Services
Geographic distribution – All enterprises			
Local Market (Uganda)	24.1	23.3	24.5
East African Markets	48.0	51.1	46.3
COMESA Markets	44.3	46.3	43.2
Other African Markets	47.6	49.7	46.4
Europe Market	44.6	45.6	44.1
The Americas	45.7	46.5	45.3
Asia Market	45.1	45.8	44.8
Other Markets (nec)	41.3	43.0	40.4
Geographic distribution – Enterprises with innovation activity			
Local Market (Uganda)	24.1	22.2	25.2
East African Markets	48.4	54.7	45.0
COMESA Markets	44.2	49.6	41.1
Other African Markets	49.6	55.2	46.4
Europe Market	44.9	48.7	42.8
The Americas	46.1	49.9	44.0
Asia Market	45.8	49.5	43.8
Other Markets (nec)	42.6	47.2	40.1
Geographic distribution – Enterprises without innovation activity			
Local Market (Uganda)	24.0	27.0	22.5
East African Markets	46.5	38.4	50.7
COMESA Markets	44.5	34.3	49.8
Other African Markets	40.9	30.2	46.5
Europe Market	43.4	34.3	48.1
The Americas	44.5	34.3	49.8
Asia Market	42.8	32.5	48.1
Other Markets (nec)	24.0	27.0	22.5

Source: Appendix C Table 4.15a and 4.15b

4.2 Types of Innovations

The NIS-2012 addressed four types of innovation – product, process, marketing and organisational innovations. Figure 4.4 shows that 51.6% of the enterprises engaged in 'product and process' innovations while 4.5% reported 'abandoned or on-going' innovation activities. Organisational and marketing innovations were found in 78.7% and 73.6% of the enterprises respectively.

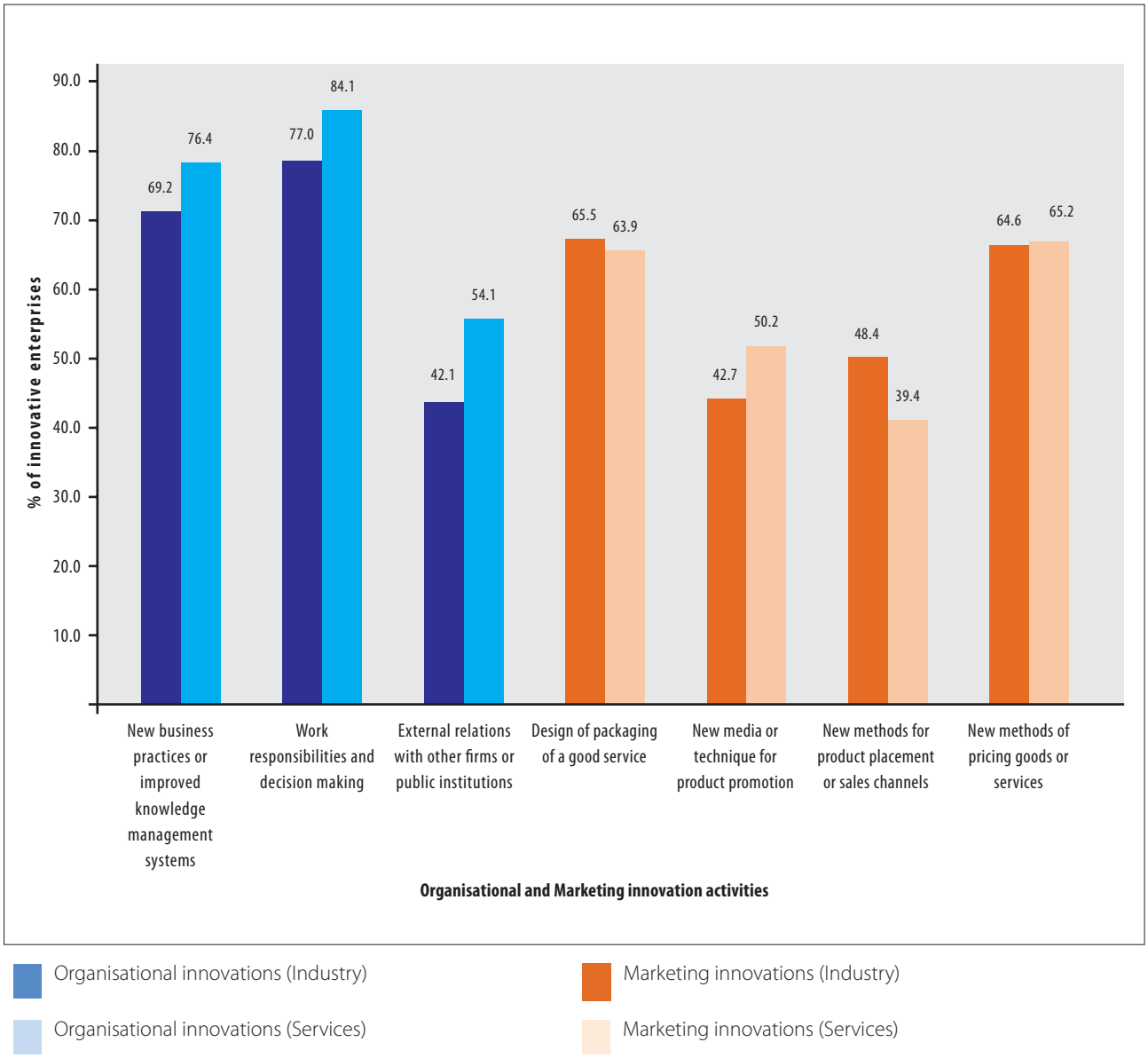


Source: Appendix C Tables 4.1 and 4.19

Figure 4.4: Innovation Rate by Type of Innovation, 2008 - 2010*

* Figure 4.4 to be read in conjunction with Table 4.1.

Details on the organisational and marketing innovations undertaken by innovative Ugandan enterprises during 2008-2010 are provided in Figure 4.5. Enterprises in both the services and industry sectors were on the whole more active in the organisational aspects of innovation. In terms of organisational innovations, 81.5% of enterprises introduced innovations pertaining to 'work responsibilities and decision making', while 73.8% introduced 'new business practices or improved knowledge management systems' (see Appendix C Table 4.13).



Source: Appendix C Tables 4.13a and 4.13b

Figure 4.5: Percentage of Innovative Enterprises that Introduced Organisational or Marketing Innovations, 2008 - 2010

4.2.1 Product (Goods or Services) Innovation

Table 4.7 indicates that product innovations new to the firm generated 25.3% of the turnover of product innovators. A total of 10.4% of turnover was generated by the sale of products that were new to the market but not new to the enterprise concerned.

Table 4.7: Product Innovators: Proportion of Turnover Attributed to Types of Product Innovations, 2010 (year specific question)

Type of product innovations	Turnover generated (Ushs. billion)	% turnover generated
Product innovations new to the market	693	10.4
Product innovations new to the firm	1,692	25.3
Products unchanged or marginally modified	4,300	64.3
Total	6,685	100.0

Source: Appendix C Table 4.5a and 4.5b

Table 4.8 shows that medium-sized enterprises generated the highest percentage of turnover based on product innovations that were new to the market (14.9%), whereas large enterprises generated the highest percentage of turnover based on product innovations new to the firm (68.3%). Overall, medium-sized enterprises generated the highest turnover from product innovations (56.7%).

Table 4.8: Product Innovators: Proportion of Turnover in 2010 Attributed to the Types of Products, by Size of Enterprises (%)

Type of Product Innovations	Size Class				Total (%)
	Large (%)	Medium (%)	Small (%)	Very small (%)	
Product innovations new to the market	5.5	14.9	5.1	3.6	13.0
Product innovations new to the firm	68.3	28.0	15.7	10.0	36.5
Products unchanged or marginally modified	26.2	57.0	79.2	86.4	50.5
Total (% of turnover by product innovators by enterprise size class)	7.5	56.7	13.2	22.7	*100.0

Source: Appendix D Tables 5.4a and 5.4b

* Numbers do not always total exactly because of rounding off effects.

Table 4.9 shows that product innovations were mainly developed by the enterprises themselves (54.4%), while 'own enterprise groups' were the source of 13.5% of these product innovations.

Table 4.9: Responsibility for the Development of Product Innovations in Innovative Enterprises, 2008 - 2010

Product innovations developed by:	Number of enterprises	Percentage of enterprises
Mainly own enterprise	1634	54.4
Mainly own enterprise group	404	13.5
Own enterprise in collaboration with other enterprises or institutions	360	12.0
Other enterprises or institutions	171	5.7
Enterprises which did not respond to the question	434	14.4
Total	***3002**	**100.0**

Source: Appendix C Table 4.6

*Numbers do not always total exactly because of rounding off effects.

About 60% of the small innovative enterprises and 54% and 53% of medium-sized and the very small innovative enterprises respectively reported that their product innovations were developed mainly by themselves (Table 4.10). A total of 32% of the large enterprises and 5.8% of innovators in the small enterprises reported collaborating with other enterprises or institutions in developing product innovations.

Table 4.10: Responsibility for the Development of Product Innovations by Innovative Enterprises by Size Class, 2008 - 2010

Product innovations developed by:	Size class				Total
	Large	Medium	Small	Very small	
Mainly own enterprise (%)	41.2	54.2	59.7	53.0	54.4
Mainly own enterprise group (%)	15.0	8.1	15.4	13.5	13.5
Own enterprise in collaboration with other enterprises or institutions (%)	32.2	10.5	5.8	13.8	12.0
Other enterprises or institutions (%)	7.5	7.9	4.3	5.8	5.7
Enterprises which did not respond to the question (%)	4.0	19.3	14.9	13.9	14.4
Total	**86**	**313**	**736**	**1867**	**3002**

Source: Appendix D Table 5.5

The majority of product innovations (74.7%) were developed within Uganda (Table 4.11) while only 16.1% originated from abroad. A similar pattern emerges when the industry and services sectors are considered separately. In both sectors, a substantial number of enterprises – industry (67.9%) and services (78.7%) – reported that their innovations were developed predominantly in Uganda.

Table 4.11: Origin of Product Innovations, 2008 - 2010

Origin of product innovation (%)	Total	Industry	Services
All product innovative enterprises (number of enterprises)	3002	1106	1896
Uganda (%)	74.7	67.9	78.7
Abroad (%)	16.1	19.7	14.0
Enterprises which did not respond to the question (%)	9.2	12.5	7.2

Source: Appendix C Table 4.7

In terms of size class, the majority of product innovations developed in Uganda were found in medium-sized (79.2%) and the very small (77.0%) enterprises (Table 4.12).

Table 4.12: Origin of Product Innovation by Size Class, 2008 - 2010

Origin of product innovation (number)	Size class				Total
	Large	Medium	Small	Very small	
Uganda	51	248	507	1437	2243
Abroad	29	55	123	277	484
Enterprises which did not respond to the question	6	10	105	153	*275
Origin of product innovation (%)					
Uganda	59.3	79.2	68.9	77.0	74.7
Abroad	33.1	17.5	16.8	14.9	16.1
Enterprises which did not respond to the question	7.5	3.3	14.3	8.2	9.2

Source: Appendix D Table 5.6

*Numbers do not always total exactly because of rounding off effects.

4.2.2 Process Innovation

Process innovation is the use or implementation of a new or significantly improved production or delivery method of goods and services. New or significantly improved methods of manufacturing or production were reported by 48.9% of process innovators (Table 4.13).

Table 4.13: Enterprises Involved in Specific Process Innovations, 2008 - 2010

Number of enterprises	Total	Industry	Services
Methods of manufacturing or production	2402	927	1475
Delivery or distribution methods	2248	732	1516
Supporting activities	2254	791	1463
Percentage process innovators (%)			
Methods of manufacturing or production	48.9	53.6	46.4
Delivery or distribution methods	45.8	42.3	47.6
Supporting activities	45.9	45.7	46.0

Source: Appendix C Table 4.21

Very few enterprises developed process innovations: in-house (9.3%), own group enterprise (4.5%), collaboration with other enterprises (2.3%), and only 0.5% mainly relied on other enterprises or institutions for the development of process innovations (Table 4.14).

Table 4.14: Responsibility for the Development of Process Innovations, 2008 - 2010

Process innovations mainly developed by:	Total	Industry	Services
Number of process innovators	3099	1140	1959
Mainly own enterprise	289	71	217
Mainly own group enterprise	139	26	113
Own enterprise in collaboration with other enterprises or institutions	71	39	32
Other enterprises or institutions	16	3	13
Enterprises which did not respond to the question	2584	1000	1584
Process innovations mainly developed by:			
Percentage process innovators (%)	100.0	100.0	100.0
Mainly own enterprise	9.3	6.3	11.1
Mainly own group enterprise	4.5	2.3	5.8
Own enterprise in collaboration with other enterprises or institutions	2.3	3.4	1.6
Mainly other enterprises or institutions	0.5	0.3	0.7
Enterprises which did not respond to the question	83.4	87.7	80.9

Source: Appendix C Table 4.22

Table 4.15 shows that of the 3,099 product innovative enterprises, 84.1% reported that their innovations originated from Uganda and only 14.7% developed innovations from abroad.

Table 4.15: Origin of Process Innovation, 2008 - 2010

Origin of process innovation (%)	Total	Industry	Services
All process innovative enterprises (number of enterprises)	3099	1140	1959
Uganda (%)	84.1	81.8	85.5
Abroad (%)	14.7	16.7	13.5
Enterprises which did not respond to the question (%)	1.2	1.5	1.0

Source: Appendix C Table 4.23

Table 4.16 shows the disaggregation of data by size class. The majority of the process innovations originating from Uganda were concentrated among the small and the very small enterprises (84.5% and 85.6% respectively).

Table 4.16: Origin of Process Innovation by Size Class, 2008 - 2010

Origin of process innovation (number)	Size Class				Total
	Large	Medium	Small	Very small	
Uganda	81	309	546	1672	*2607
Abroad	23	84	93	256	455
Enterprises which did not respond to the question	-	3	7	26	37
Origin of process innovation (%)					
Uganda	78.1	77.9	84.5	85.6	84.1
Abroad	21.9	21.3	14.4	13.1	14.7
Enterprises which did not respond to the question	-	0.9	1.1	1.3	1.2

Source: Appendix D Table 5.7

*Numbers do not always total exactly because of rounding off effects.

4.2.3 Organisational Innovation

Table 4.17 shows that organisational innovations by enterprises were mainly in 'work responsibilities and decision making' (81.5%), while 'new business practices or improved knowledge management systems' accounted for 73.8% of organisational innovations.

Table 4.17: Number of Innovative Enterprises that introduced Organisational Innovations, 2008 - 2010

Enterprises with innovation activity	Total	Industry	Services
New business practices or improved knowledge management systems	2793	932	1861
Work responsibilities and decision making	3085	1037	2048
External relations with other firms or public institutions	1885	568	1317

Source: Appendix C Table 4.13

4.2.4 Marketing Innovation

Marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing. New methods of pricing goods or services were reported by 65% of all innovative enterprises. This was followed by the 'design or packaging of a good and service' at 64.5% of all innovative enterprises (Table 4.18).

Table 4.18: Number of Innovative Enterprises that introduced Marketing Innovations, 2008 - 2010

Enterprises with innovation activity	Total	Industry	Services
Design or packaging of a good or service	2440	883	1557
New media or technique for product promotion	1798	575	1225
New methods for product placement or sales channels	1613	653	960
New methods of pricing goods or services	2459	871	1588

Source: Appendix C Table 4.13

4.2.5 Organisational and Marketing Innovation

The NIS-2012 indicated that enterprises with organisational and/or marketing innovation accounted for 85% of all enterprises (83.5% in industry and 86.6% in services). Enterprises with organisational innovations and marketing innovations accounted for 78.7% and 75.6% respectively (Table 4.19).

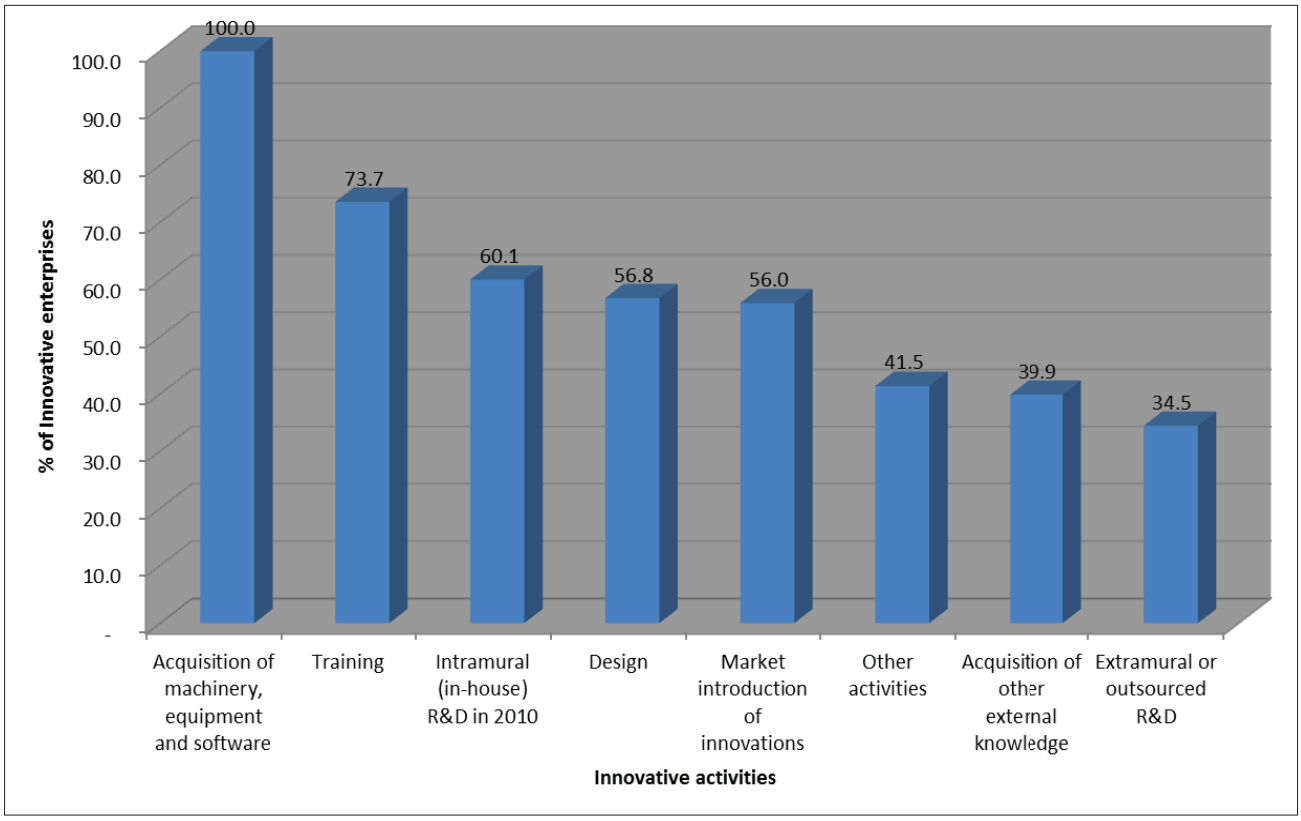
Table 4.19: Enterprises with Organisational and/or Marketing Innovations, 2008 - 2010

Enterprises	Total	Industry	Services
Enterprises with organisational innovation	3865	1308	2557
Enterprises with marketing innovation	3615	1277	2339
Enterprises with organisational and/or marketing innovations	4201	1444	2757

Source: Appendix C Table 4.19

4.3 Innovation Activities and Expenditures

Innovative activities are all scientific, technological, organisational, financial and commercial steps which actually, or are intended to, lead to the implementation of innovations. Figure 4.6 shows that all innovative enterprises (100%) acquired new machinery, equipment or software as part of their innovation processes. Training was the second most important innovation activity (73.7%), and a substantial proportion (60.1%) of all innovative enterprises spent money on in-house R&D.



Source: Appendix C Table 4.4

Figure 4.6: Types of Innovation Activities among Innovative Enterprises, 2008 - 2010

Innovative enterprises spent Ushs. 545.8 billion on innovation activities, which represents about 4.0% of the total turnover of all enterprises in both the industry and services sectors (Table 4.20). Expenditure on innovation activities as a percentage of the turnover of innovative enterprises in 2010 was 4.4% overall. The service sector had a higher share of innovation expenditure, equivalent to 5.5% of the turnover of innovative service enterprises, compared to 1.8% for enterprises in industry.

Table 4.20: Enterprises that Declared Innovation Expenditure by Sector, 2010 (year specific question)

Type of expenditure (Ushs. millions)	Total	Industry	Services	% of turnover of all enterprises
Intramural (in-house) R&D	149,400	15,400	134,000	1.1
Extramural or outsourced R&D	285,510	3,510	282,000	2.1
Acquisition of machinery, equipment and software	85,300	40,100	45,200	0.6
Acquisition of other external knowledge	25,560	2,060	23,500	0.2
Total	**545,770**	**61,070**	**484,700**	**4.0**
Type of expenditure (% of turnover of innovative enterprises)	**Total**	**Industry**	**Services**	
Intramural (in-house) R&D	1.2	0.4	1.5	
Extramural or outsourced R&D	2.3	0.1	3.2	
Acquisition of machinery, equipment and software	0.7	1.2	0.5	
Acquisition of other external knowledge	0.2	0.1	0.3	
Total	**4.4**	**1.8**	**5.5**	

Source: Appendix C Table 4.4a

4.4 Financial Support for Innovation Activities

Approximately 9% of innovators in the services sector received funding for innovation activities from the central government (Table 4.21). National funding agencies provided funding to 4.7% of innovative enterprises in industry and 3.2% in the services sector. Altogether 16.2% of innovative enterprises in industry and 22.9% of innovative enterprises in services received public funding for their innovation activities between 2008 and 2010. In total 20.5% of innovative enterprises received funding for their innovation activities from government sources.

Table 4.21: Percentage of Innovative Enterprises that Received Financial Support for Innovation Activities from Government Sources, 2008 - 2010

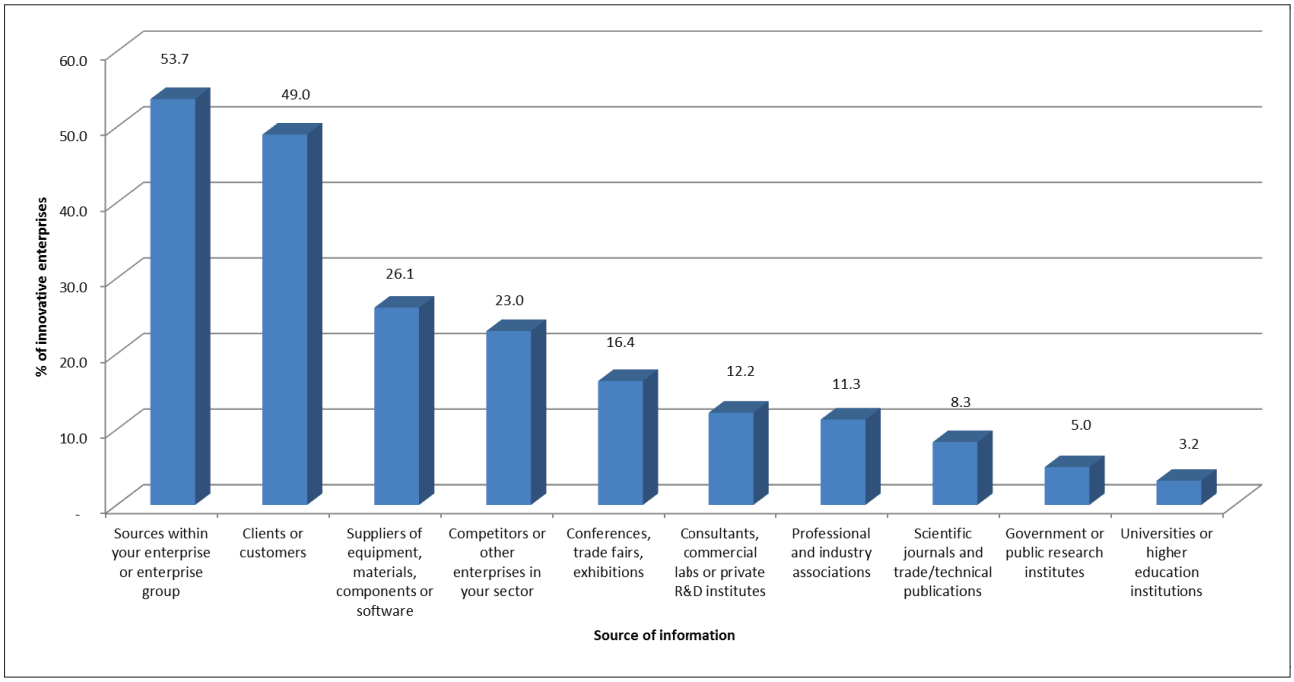
Source of financial support	Percentage of innovative enterprises (%)		
	Total (%)	Industry (%)	Services (%)
Central government	6.5	2.6	8.6
Local government/authorities	4.1	3.8	4.3
National funding agencies	3.8	4.7	3.2
Foreign governments	6.2	5.2	6.8
Total	*20.5	16.2	22.9

Source: Appendix C Table 4.17

*Numbers do not always total exactly because of rounding off effects.

4.5 Sources of Information and Co-operation for Innovation Activities

Figure 4.7 shows that 'sources of information within the enterprise' and 'clients and customers' were highly important for innovation activities standing at 53.7% and 49% respectively. Universities and higher education institutions were rated as 'highly important sources of information' for innovation activities by 3.2% of enterprises.

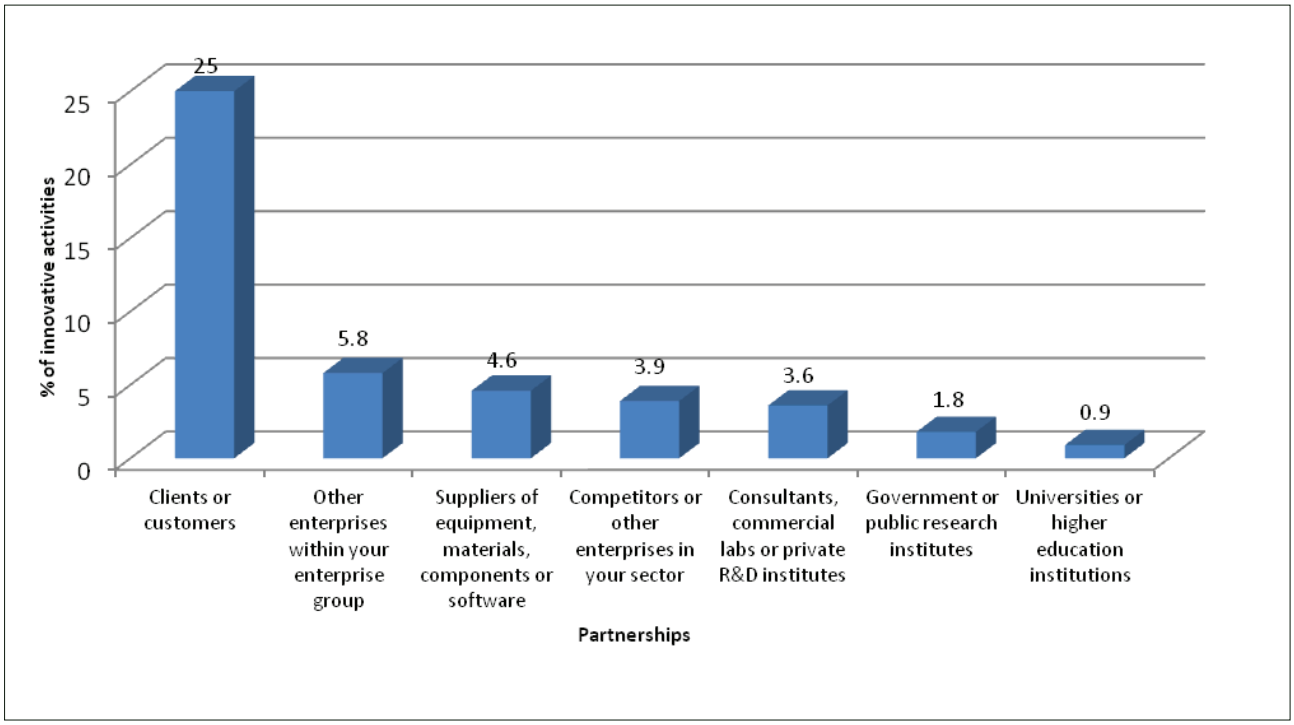


Source: Appendix C Table 4.10a and 4.10b

Figure 4.7: 'Highly Important' Sources of Information for Innovative Enterprises, 2008 - 2010

4.6 Co-operation Partners for Innovation Activities

The most important collaborative partnerships for innovation were between enterprises and their clients or customers, which comprised 25.0% of the partnerships (Figure 4.8). Collaborative efforts between enterprises and 'other enterprises within the enterprise group' and 'suppliers of equipment, materials, components or software' were at 5.8% and 4.6% respectively.



Source: Appendix C Table 4.20

Figure 4.8: Innovative Collaborative Partnerships by Type of Partner, 2008 - 2010

Table 4.22 provides a comparison of co-operation partners in industry and services. Both the industry and services sectors co-operate mostly with 'clients or customers' (22.1% and 26.6% respectively). 'Universities and higher education institutions were rated as 'highly important' collaborative partners by only 0.9% of innovative enterprises.

Table 4.22: Collaborative Partnerships for Innovation Activities by Type of Partner (%), 2008 - 2010

Collaborative partnerships	Percentage of enterprises (%)		
	Total (%)	Industry (%)	Services (%)
Clients or customers	25.0	22.1	26.6
Other enterprises within your enterprise group	5.8	4.9	6.3
Suppliers of equipment, materials, components or software	4.6	4.9	4.5
Competitors or other enterprises in your sector	3.9	1.2	5.4
Consultants, commercial labs or private R&D institutes	3.6	1.7	4.6
Government or public research institutes (e.g. Research Councils)	1.8	1.7	1.8
Universities or other higher education institutions	0.9	0.5	1.1

Source: Appendix C Table 4.20

4.7 Effects of Innovation

Innovative enterprises ranked the importance of various market and operational objectives and outcomes resulting from both product and process innovations.

4.7.1 Market and Operation Objectives

The largest proportion (60%) of innovative enterprises cited improving the quality of goods and services as having a 'highly important' effect on innovation, and this was more important for industrial enterprises (64.6%) than for service enterprises (57.1%) (Table 4.23). 'Increased range of goods and services' was also an important outcome for 53.0% of the enterprises (43.9% of industrial and 58.0% of service enterprises).

Table 4.23: 'Highly Important' Effects of Innovation on Objectives for Innovative Enterprises, 2008 - 2010

Objectives	Percentage of enterprises (%)		
	Total	Industry	Services
Increase range of goods or services	53.0	43.9	58.0
Replace outdated products or processes	30.8	29.8	31.3
Enter new markets	38.1	35.3	39.6
Increase market share	41.1	31.0	46.7
Improved quality of goods or services	59.8	64.6	57.1
Improve flexibility for producing goods or services	45.1	43.1	46.1
Increase capacity for producing goods and services	39.6	42.6	37.9
Reduce production costs per unit output (labour, materials, energy)	29.2	31.7	27.8
Improve working conditions - health and safety	31.5	28.9	33.0

Source: Appendix C Tables 4.8a and 4.8b

4.7.2 Market and Operation Outcomes

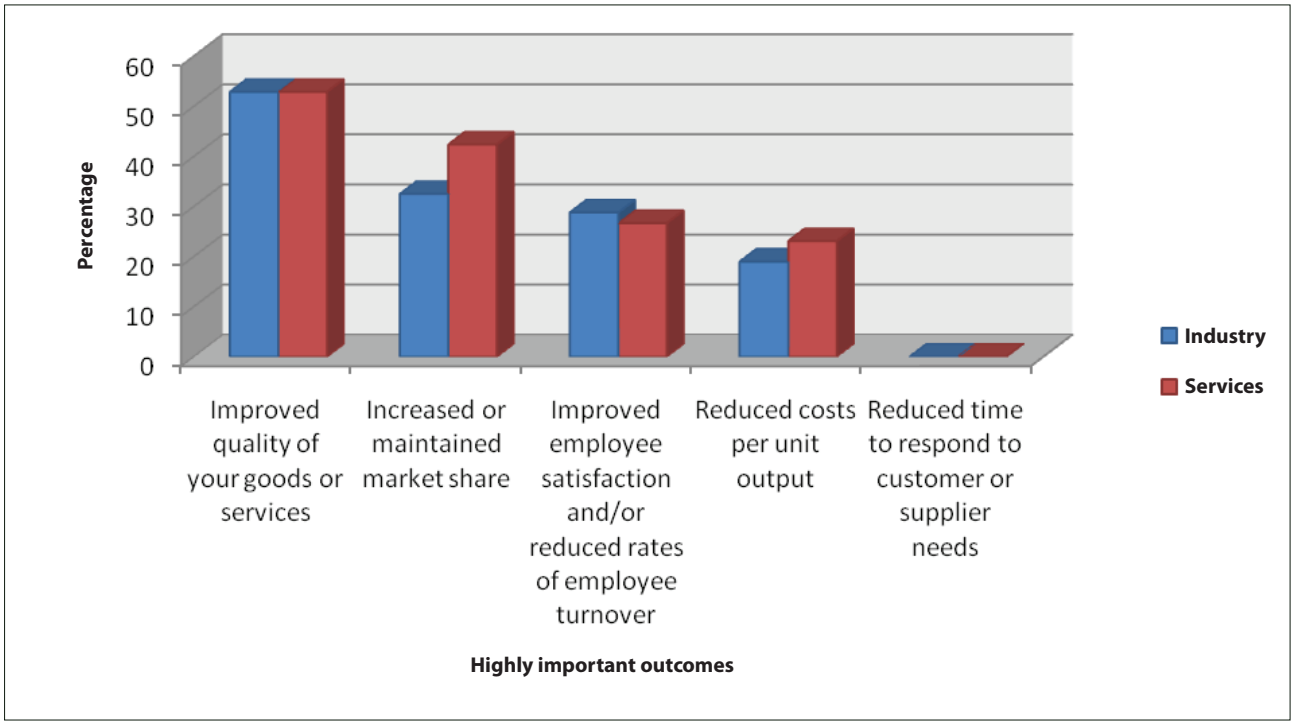
Improving the quality of goods and services was cited as having a 'highly important' effect on innovation by about 50% of innovative enterprises (Table 4.24), and this was more significant for industrial enterprises (52.8%) than for service enterprises (47.9%). 'Increased range of goods and services' was also an important outcome for 43.1% of enterprises (39.4% of industrial and 45.2% of service enterprises).

Table 4.24: 'Highly Important' Effects of Innovation on Outcomes for Innovative Enterprises, 2008 - 2010

Effects of innovation on outcomes	Percentage of enterprises		
	Total	Industry	Services
Product outcomes			
Increased range of goods and services	43.1	39.4	45.2
Entered new markets	30.3	25.4	33.0
Increased market share	32.2	27.4	34.8
Improved quality of goods or services	49.7	52.8	47.9
Process oriented effects			
Improved flexibility of production or service provision	32.8	32.8	32.7
Increased capacity of production or service provision	30.2	28.7	31.1
Reduced production costs per unit of labour, materials, energy	22.2	23.7	21.4
Other effects			
Reduced environmental impacts	19.7	19.9	19.6
Improved working conditions on health and safety	31.0	25.4	34.0
Met governmental regulatory requirements	37.3	32.9	39.7

Source: Appendix C Tables 4.9a and 4.9b

Figure 4.9 shows that both the innovative enterprises in industry and services sectors that introduced organisational innovations reported 'improved quality of goods and services' as 'highly important' (52.9%). This was followed by increasing or maintaining market share, which 38.9% of all innovative enterprises rated as 'highly important'. Reduction on time to respond to customer or supplier needs was not considered as highly important by all innovative enterprises.



Source: Appendix C Table 4.16

Figure 4.9: Innovative Enterprises that Introduced Organisational Innovation and Rated Various Outcomes as 'Highly Important', 2008 - 2010

4.8 Factors Hampering Innovation Activities

As shown in Table 4.25, 36.4% of innovative enterprises experienced problems which seriously delayed innovation activities during the period 2008 - 2010. Up to 18.2% of innovative enterprises reported abandoning innovation projects during the concept stage, while 14.8% abandoned innovation projects that had already begun.

Table 4.25: Enterprises with Innovation Activity that Cited Problems with their Innovation Activity, 2008 - 2010

Enterprises with innovation activity	Number of innovative enterprises		
	Total	Industry	Services
Cited problems			
Abandoned in the concept stage	689	286	404
Abandoned after the activity or project was begun	559	273	286
Seriously delayed	1377	452	*926
	Percentage of innovative enterprises		
Cited problems			
Abandoned in the concept stage	18.2	21.2	16.6
Abandoned after the activity or project was begun	14.8	20.2	11.8
Seriously delayed	36.4	33.5	38.0

Source: Appendix C Table 4.11

*Numbers do not always total exactly because of rounding off effects.

Enterprises were asked to rate the degree to which a number of specified factors hampered their innovation activities during the period 2008 - 2010. Table 4.26 shows that 48.3% of all enterprises indicated that the development of innovative activities within their enterprises was hampered or restrained by a 'lack of funds within the enterprise or group'. The second most-cited hindrance was the cost of innovation which was perceived as being too high (46.2%).

Table 4.26: 'Highly Important' Factors that Hampered Innovation Activities of all Enterprises, 2008 - 2010

Highly important factors	Percentage of enterprises				
	Industry (Total %)	Services (Total %)	*Total (%)	**Total (%)	
				Innovative	Non-innovative
Hampering factors					
Cost factors					
Lack of funds within your enterprise group	52.8	45.9	48.3	50.3	41.6
Lack of finance from sources outside your enterprise	40.8	34.6	36.8	40.2	25.4
Innovation costs too high	53.1	42.5	46.2	51.1	29.8
Excessive perceived economic risks	35.2	30.1	31.9	32.7	29.1
Knowledge factors					
Lack of qualified personnel	20.5	9.0	13.0	13.3	12.0
Lack of information on technology	20.6	17.5	18.6	19.7	14.9
Lack of information on markets	14.1	14.2	14.2	15.2	10.6
Difficulty in finding co-operation partners for innovation	28.9	22.4	24.7	26.3	19.3
Market factors					
Market dominated by established enterprises	31.4	30.9	31.1	28.3	40.5
Uncertain demand for innovative goods or services	21.6	23.4	22.8	22.9	22.3
Innovation is easy to imitate	19.6	16.3	17.5	16.5	20.6
Reasons not to innovate					
No need due to prior innovations	5.4	8.8	7.6	5.8	13.6
No need because of no demand for innovations	8.2	7.7	7.9	7.6	8.9
Other factors					
Organisational rigidities within the enterprise	10.6	12.9	12.1	12.2	11.6
Insufficient flexibility or regulations or standards	15.6	14.1	14.6	15.1	13.2
Limitations of science and technology public policies	26.7	21.4	23.3	24.2	20.1

*Total includes all enterprises

** Total = percentage innovative or non-innovative enterprises in both services and industry

Source: Appendix C Tables 4.12a, 4.12b, 4.12c and 4.12d

Table 4.27 provides additional detail on the factors hampering innovation activities in innovative and non-innovative enterprises in industry and services sectors. Innovative enterprises in industry are mainly hampered by the high costs of innovation (57.2%) while the majority of non-innovative enterprises in industry are hampered by the lack of funds for innovation (48.4%). Both innovative and non-innovative enterprises in the services sector cited the 'lack of funds within the enterprise group' as hampering their innovation activities.

Table 4.27: 'Highly Important' Factors that Hampered Innovation Activities of Innovative and Non-innovative Enterprises, 2008 - 2010

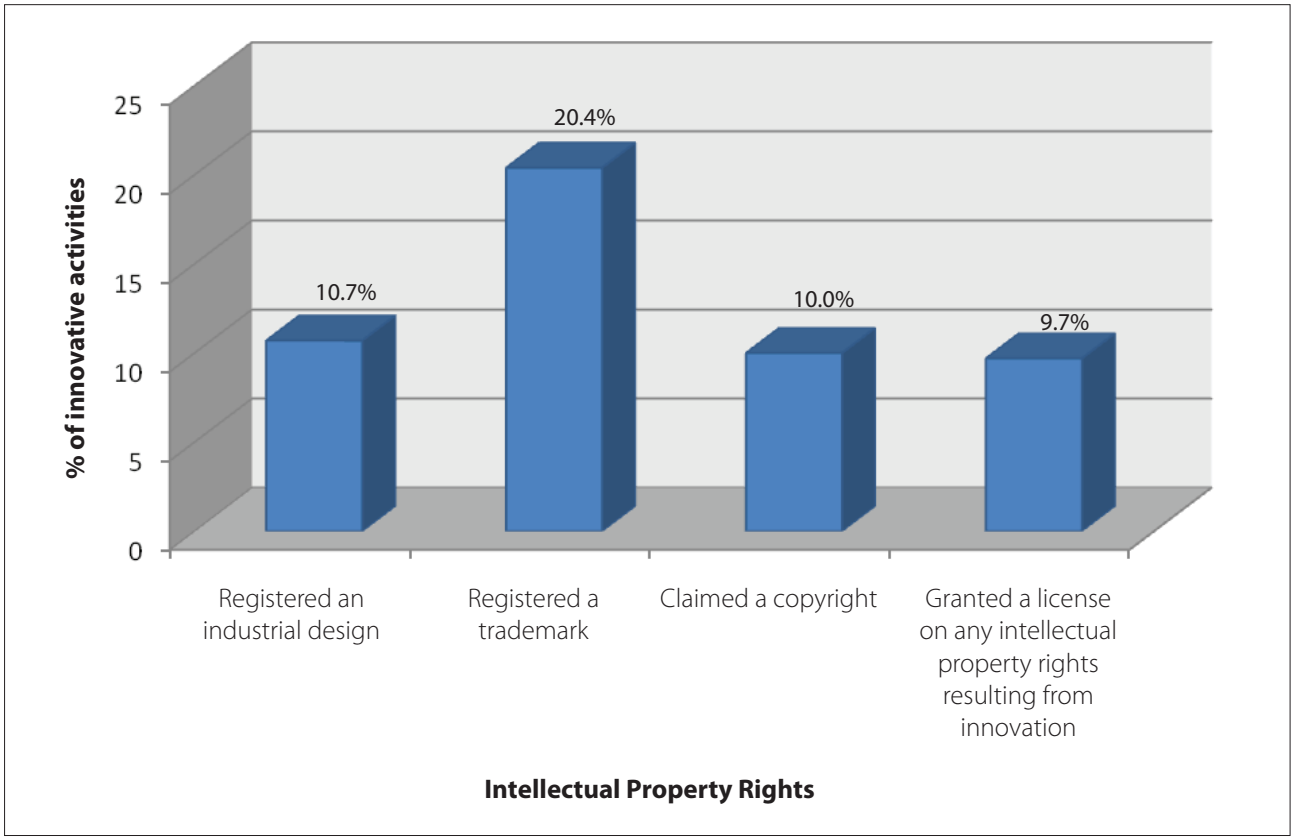
Factors hampering innovation activities	Percentage of enterprises					
	Industry		Services		Total	
	Innovative	Non-Innovative	Innovative	Non-Innovative	Innovative	Non-Innovative
Cost factors						
Lack of funds within your enterprise group	54.0	48.4	48.3	38.2	50.3	41.6
Lack of finance from sources outside your enterprise	43.6	30.6	38.2	22.8	40.2	25.4
Innovation costs too high	57.2	38.4	47.7	25.4	51.1	29.8
Excessive perceived economic risks	33.5	40.8	32.3	23.1	32.7	29.1
Knowledge factors						
Lack of qualified personnel	20.6	20.0	9.3	7.9	13.3	12.0
Lack of information on technology	21.3	18.1	18.8	13.2	19.7	14.9
Lack of information on markets	14.6	12.2	15.6	9.8	15.2	10.6
Difficulty in finding co-operation partners for innovation	33.5	12.8	22.3	22.6	26.3	19.3
Market factors						
Market dominated by established enterprises	31.1	32.6	26.7	44.7	28.3	40.5
Uncertain demand for innovative goods or services	24.3	12.0	22.1	27.7	22.9	22.3
Innovation is easy to imitate	18.4	23.9	15.5	19.0	16.5	20.6
Reasons not to innovate						
No need due to prior innovations	5.9	3.6	5.7	18.8	5.8	13.6
No need because of no demand for innovations	8.6	6.9	7.0	9.9	7.6	8.9

Factors hampering innovation activities	Percentage of enterprises					
	Industry		Services		Total	
	Innovative	Non-Innovative	Innovative	Non-Innovative	Innovative	Non-Innovative
Other factors						
Organisational rigidities within the enterprise	10.1	12.3	13.4	11.2	12.2	11.6
Insufficient flexibility or regulations or standards	17.4	9.1	13.8	15.3	15.1	13.2
Limitations of science and technology public policies	28.4	20.8	22.0	19.8	24.3	20.1

Source: Appendix C Tables 4.12a, 4.12b, 4.12c and 4.12d

4.9 Intellectual Property Rights

In the period 2008 - 2010, about 20% of innovative enterprises registered a trademark while 11% registered an industrial design, and 10% claimed a copyright (Figure 4.10 and Appendix C Tables 4.14c and 4.14d). Close to 1% of innovative enterprises secured a patent from the African Regional Intellectual Property Organisation (ARIPO), while 2.6% applied for a patent outside ARIPO (see Appendix C Tables 4.14a and 4.14b). About 9.7% of innovative enterprises granted intellectual property rights originating from their own innovation activities to third parties.



Source: Appendix C Tables 4.14a, 4.14b, 4.14c and 4.14d

Figure 4.10: Enterprises with Innovation Activity that Made use of Intellectual Property Rights (IPR), 2005 - 2007

4.10 Creativity and Skills

The innovation survey required enterprises to enumerate the methods used to stimulate new ideas or creativity among their staff. About 18% of innovative enterprises introduced or implemented new or significantly improved products or processes as 'a first in Uganda', while only 2.2% introduced new or significantly improved goods or services as 'a world first' (Table 4.28).

Table 4.28: Status of New or Significantly Improved Products or Processes for Innovative Enterprises, 2008 - 2010

Introduction status	Number of enterprises	Percentage of innovative entreprises
A first in Uganda	667	17.6
A world first	82	2.2
New or significant changes in external relations or public institutions	787	20.8
Total	**1536**	**40.6**

Source: Appendix C Table 4.24

Enterprises rated the degree to which a number of specified factors or methods stimulated new ideas or creativity among their staff during the period 2008 - 2010. Table 4.29 shows that 58.5% of all enterprises indicated that new ideas and creativity among staff were stimulated by 'training employees on how to develop new ideas or creativity'. The second most cited method was 'brainstorming sessions' (56.2%), followed by 'multidisciplinary or cross-functional work teams'.

Table 4.29: 'Highly Successful' Methods that Stimulated New Ideas or Creativity Among Staff of all Enterprises, 2008 - 2010

Methods	Percentage of enterprises (%)				
	Industry (Total %)	Services (Total %)	*Total (%)	**Total (%)	
				Innovative	Non-innovative
Brainstorming sessions	50.6	59.2	56.2	73.0	40.7
Multidisciplinary or cross-functional work teams	40.1	53.0	48.5	63.0	32.9
Job rotation of staff to different departments or other parts of the enterprise group	46.4	44.5	45.1	58.6	36.1
Financial incentives for employees to develop new ideas	32.8	39.2	37.0	48.0	30.7
Non-financial incentives for employees to develop new ideas	29.7	40.0	36.4	47.2	20.8
Training employees on how to develop new ideas or creativity	56.1	59.9	58.5	76.0	38.3

*Total includes all enterprises

** Total = percentage innovative or non-innovative enterprises in both industry and services

Source: Appendix C Tables 4.25 and 4.26

APPENDICES

Appendix A: National Innovation Survey 2012 - Questionnaire

UNCST Clearance

U N C S T — 2 0 1 2 — 0 5

NATIONAL INNOVATION SURVEY 2012

Sub-Sectors: Mining, Manufacturing and Services

Reference Period: 2008-2010

The agency responsible for coordinating and supervising the National Statistical System	The agency responsible for the development and implementation of policies and strategies for integrating Science and Technology into the national development process	The Ministry responsible for management of political and technical aspects related to Trade, Industry and Cooperatives to generate wealth and eradicate poverty from the country.

Please help us measure the level of Innovative Activity in the Country

April 2012

National Innovation Survey:2008-2010

A. Background

1. Introduction

The Uganda National Council for Science and Technology (UNCST) together with the Uganda Bureau of Statistics (UBOS) and Ministry of Trade, Industry and Cooperatives (MTIC), are conducting a comprehensive National Innovation Survey in Uganda following the pilot survey undertaken in 2009. The survey will collect data on the status and levels of Inventive and Innovative activities in Uganda for the period 2008-2010.

2. What is the Legal Mandate to collect this data?

The stakeholder institutions are empowered to collect this data by the **UNCST Statute CAP 209**, the **UBOS Act CAP 301** of the Laws of Uganda and the **Constitution of Uganda under the Sixth Schedule Article 189**. We wish to re-assure you that all information provided by your entity will be treated with strict **confidentiality** in line with the Uganda Bureau of Statistics Act and will be used only in aggregated statistical format for analysis and policy formulation purposes.

All the interviewers and staff involved in the National Innovation Survey are under oath of secrecy not to disclose any entity-specific information to a third party individual/entity. The data/information collected will only be published in aggregate form.

3. Why do we need to collect this information?

The National Innovation Survey collects scientific data to measure the relative importance of the key drivers of and barriers to innovation across a broad spectrum of Ugandan organisations to identify the particular combination of factors that lead to innovation success for different organisations. The data is used for public policy and planning and for international comparisons.

4. How do you benefit?

The National Innovation Survey is a rich source of information that facilitates effective planning and policy formulation with respect to Science, Technology and Innovation, which benefits both the public and private sectors.

B. Guidelines

1. Who needs to complete this questionnaire?

The Chief Executive Officer or a designated representative of the targeted entity shall fill the questionnaire.

2. Which parts of the questionnaire do I have to fill?

Please complete all sections of the questionnaire that relate to your entity.

3. Do you need assistance?

Our interviewers are available for guidance on how to complete this questionnaire. In addition, the following offices are open for any further inquiries or clarifications:

Agency	Telephone/Fax	E-mail/Website
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY Plot 6, Kimera Road, Ntinda, P. O. Box 6884 Kampala;	T. +256 414 705 531 M. +256 772 519 449 Fax: +256414234579	info@uncst.go.ug; r.lutalo@uncst.go.ug
UGANDA BUREAU OF STATISTICS P.O. Box 7186, Kampala	T. +256 414 237 550 M. +256 713 706 016	imelda.atai@ubos.org
MINISTRY OF TRADE, INDUSTRY AND COOPERATIVES P.O. Box 7103 Kampala	T. +256 414 343947 M. +256 782 679 530	j.mutambi@mtic.go.ug j.suddi@mtic.go.ug

4. What do I do after completing the questionnaire?

The duly filled questionnaire will be collected by the interviewer or can be returned to the office of the Executive Secretary, Uganda National Council of Science & Technology: Plot 6, Kimera Road, Ntinda, Science and Technology House, P. O. Box 6884 Kampala, Tel: +256 414 705 531, Fax: +256 414 234 579 before or within **fourteen (14) days** from the date of delivery. Respondents submitting the questionnaire electronically should send completed returns to email: info@uncst.go.ug

5. Will there be any feedback?

Yes! As a way of promoting dialogue we will share with you the results of this survey in aggregate form and seek your further involvement in this exercise. Aggregated results will also be posted on the following websites: *http://www.uncst.go.ug* or *http://www.ubos.org* or *http://www.mtic.go.ug*

PART 1: General information about the enterprise, business, company or firm

1.0.	Name of enterprise:	
	Address:	
	Main activity:	
	Year of establishment:	
1.1	Short description of your main business activity:	

1.2	Is your enterprise part of a larger group? A group consists of two or more legally defined enterprises under common ownership. Each enterprise in the group may serve different markets, as with national or regional subsidiaries, or serve different product markets. The head office is also part of an enterprise group.	Yes ☐	No ☐
		In which country is the head office of your group located?	

If your enterprise is part of an enterprise group, please answer all questions for your enterprise in UGANDA only. Do not include results for subsidiaries or parent enterprises outside of UGANDA.

1.3	In which geographic markets did your enterprise sell goods or services during the three years 2008 to 2010?	No	Yes	Please specify the Countries
	Local Market-Uganda			
	East African Markets			
	COMESA Markets			
	Other African Markets			
	Europe Market			
	The Americas			
	Asia Market			
	All other countries (Not Elsewhere Classified)			

1.4	What was your enterprise's total number of employees in the period 2008-2010? Both full-time and part-time. If not available, give the number of employees at the end of each year.		
	Year	Males	Females
	2008		
	2009		
	2010		

1.4.1	Approximately what **percentage** of your total employees had a university degree or diploma in 2010?	Males	Females
		%	%

1.5	What was your enterprise's approximate total turnover for 2008 to 2010? (Ushs.) - Indicate currency. Turnover is defined as the market sales of goods and services (Include all taxes except VAT).
	2008
	2009
	2010

PART 2: Product (goods or services) innovation

A product innovation is the introduction to market of a new or significantly improved good or service with respect to its capabilities, such as improved user-friendliness, components, software or sub-systems. The innovation (new or improved) must be new to your enterprise, but it does not need to be new to your industry sector or market. It does not matter if the innovation was originally developed by your enterprise or by other enterprises.

2.1	During the three years 2008 to 2010, did your enterprise introduce:	Yes	No
	→ New or significantly improved goods. *Exclude the simple resale of new goods purchased from other enterprises and minor changes that only alter the appearance of the product.*		
	→ New or significantly improved services.		
		If NO to both questions, please go to question 3.1.	

2.2	By whom were these product (goods and services) innovations developed?	
	→ Mainly your enterprise	☐
	→ Mainly your enterprise group	☐
	→ Your enterprise together with other enterprises or institutions	☐
	→ Mainly other enterprises or institutions	☐
2.2.1	Did these innovations originate mainly in UGANDA or abroad?	
	☐ UGANDA ☐ Abroad	

2.3	Were any of your goods and service innovations during the three years 2008 to 2010 new to your market or new to your firm?	Yes	No
	→ New to your market? Your enterprise introduced a new or significantly improved good or service onto your market before your competitors (it may have already been available in other markets).		
	→ Only new to your firm? Your enterprise introduced a new or significantly improved good or service that was already available from your competitors in your market.		

2.4	Using the definitions above, please estimate the **percentage** of your total turnover in 2010 from:	**2010 Percentage distribution**
	→ Goods and service innovations introduced during 2008 to 2010 that were new to your market	
	→ Goods and service innovations introduced during 2008 to 2010 that were only new to your firm	
	→ Goods and services that were unchanged or only marginally modified during 2008 to 2010 *Include the resale of new goods or services purchased from other enterprises.*	
	Total turnover in 2010	**100%**

PART 3: Process innovation

Process innovation is the use of new or significantly improved methods for the production or supply of goods or services. The innovation (new or improved) must be new to your enterprise, but it does not need to be new to your industry sector or market. It does not matter if the innovation was originally developed by your enterprise or by other enterprises. Exclude purely organisational innovations such as changes in firm structure or management practice – these are covered in question 10.

3.1	During the three years 2008 to 2010, did your enterprise introduce any:	Yes	No
	New or significantly improved methods of manufacturing or producing goods or services?		
	New or significantly improved logistics, delivery or distribution methods for your inputs, goods or service?		
	New or significantly improved supporting activities for your processes, such as maintenance and operating systems for purchasing, accounting or computing?		
		If NO to all questions, please go to section 4.	

3.2	By whom were these process innovations developed?		
	→ Mainly your enterprise	☐	Select the single most appropriate option only
	→ Mainly your enterprise group	☐	
	→ Your enterprise together with other enterprises or institutions	☐	
	→ Mainly other enterprises or institutions	☐	
3.2.1	Did these innovations originate mainly in UGANDA or abroad?		
	☐ UGANDA ☐ Abroad		

PART 4: Ongoing or abandoned innovation activities

Innovation activities include the acquisition of machinery, equipment, software and licenses, engineering and development work, training, marketing and research and experimental development (R&D) [Basic R&D not specifically related to product and/or process innovation should be included] when they are specifically undertaken to develop and/or implement a product or process innovation.

4.1	During the three years 2008 to 2010:		Yes	No
	Did your enterprise have any innovation activities to develop product or process innovations that were abandoned during 2008 to 2010 or still ongoing by the end of 2010?	Abandoned		
		Still Ongoing		
			If your enterprise also had no product or process innovations or innovation activity during 2008 to 2010 (no to ALL options in questions 2.1, 3.1, and 4.1), please go to question 8.2. Otherwise, please proceed to question 5.1.	

PART 5: The most important and performed Innovation activities and expenditures

5.1	During the three years 2008 to 2010, did your enterprise engage in the following innovation activities?	Yes	No
A	Intramural (in-house) Research and Experimental Development (R&D) Creative work undertaken on a systematic basis within your enterprise to increase the stock of knowledge and its use to devise new and improved products and processes (including software development).		
	If yes, did your firm perform R&D during 2008 to 2010:	Continuously ☐	
		Occasionally ☐	
B	Extramural or outsourced R&D Same activities as above, but purchased by your enterprise and performed by other companies (including other enterprises within your group) or by public or private research organisations.		
C	1. Acquisition of machinery and equipment Acquisition of advanced machinery and equipment to produce new or significantly improved products and processes.		
	2. Acquisition of software Hardware or software to produce new or significantly improved products and processes.		
D	Acquisition of other external knowledge Purchase or licensing of patents and non-patented inventions, know-how, and other types of knowledge from other enterprises or organisations.		
E	Training Internal or external training for your personnel specifically for the development and/or introduction of new or significantly improved products and processes.		
F	Market introduction of innovations Activities for the market introduction of your new or significantly improved goods and services, including market research and launch advertising.		
G	Design Activities to design, improve or change the shape or appearance of new or significantly improved goods or services		
H	Other Other activities to implement new or significantly improved products and processes such as feasibility studies, testing, routine software development, tooling up, industrial engineering, etc.		

5.2	Please estimate the amount of expenditure in 2010 for each of the following four innovation activities as mentioned in 5.1 (A to D). Include personnel and related costs.	**STRICTLY CONFIDENTIAL** **Amount (Ushs.)**
A.	Intramural (in-house) R&D in 2010. *Include labour costs, capital expenditures on buildings and equipment specifically for R&D.*	
B.	Acquisition of R&D. *Extramural or outsourced R&D.*	
C.	Acquisition of machinery, equipment and software. *Exclude expenditures on equipment for R&D.*	
D.	Acquisition of other external knowledge.	
	Total of these four innovation expenditure categories (A+B+C+D)	

5.3	During the three years 2008 to 2010, did your enterprise receive any public financial support for innovation activities from the following sources? *Include financial support via tax credits or deductions, grants, subsidised loans, and loan guarantees. Exclude research and other innovation activities conducted entirely for the public sector under contract.*	Yes	No
	→ Central government		
	→ Local Government/Authorities		
	→ National Funding Agencies		
	→ Private Sector		
	→ Foreign governments		
	→ Multilateral Agencies		
	→ Multinational Corporations		
	→ Others, Specify		

PART 6: Sources of information and co-operation for innovation activities

6.1	During the three years 2008 to 2010, how important to your enterprise's innovation activities were each of the following information sources? Please identify information sources that provided information for new innovation activities/projects or contributed to the completion of existing innovation activities/projects.					
	Information sources		**Degree of importance** Tick 'not used' if no information was obtained from a source.			
			High	**Medium**	**Low**	**Not used**
	Internal sources	Sources within your enterprise or enterprise group	☐	☐	☐	☐
	Market resources	Suppliers of equipment, materials, components or software	☐	☐	☐	☐
		Clients or customers	☐	☐	☐	☐
		Competitors or other enterprises in your sector	☐	☐	☐	☐
		Consultants, commercial labs or private R&D institutes	☐	☐	☐	☐
	Institutional sources	Universities or other higher education institutions	☐	☐	☐	☐
		Government or public research institutes	☐	☐	☐	☐
	Other sources	Conferences, trade fairs, exhibitions	☐	☐	☐	☐
		Scientific journals and trade/technical publications	☐	☐	☐	☐
		Professional and industry associations	☐	☐	☐	☐

6.2	During the three years 2008 to 2010, did your enterprise co-operate on any of your innovation activities with other enterprises or institutions? Innovation co-operation is active participation with other enterprises or non-commercial institutions on innovation activities. Both partners do not need to benefit commercially. Exclude pure contracting out of work with no active co-operation.	Yes ☐	No ☐	
			If NO, please go to question 7.1	

6.3	Please indicate the type of co-operation partner and location.						
	Type of co-operation partner	**Location** Tick all that apply.					
		Uganda	**Rest of Africa**	**Europe**	**The Americas**	**Asia**	**Other countries**
A.	Other enterprises within your enterprise group	☐	☐	☐	☐	☐	☐
B.	Suppliers of equipment, materials, components or software	☐	☐	☐	☐	☐	☐
C.	Clients or customers	☐	☐	☐	☐	☐	☐
D.	Competitors or other enterprises in your sector	☐	☐	☐	☐	☐	☐
E.	Consultants, commercial labs or private R&D institutes	☐	☐	☐	☐	☐	☐
F.	Universities or other higher education institutions	☐	☐	☐	☐	☐	☐
G.	Government or public research institutes (e.g. Research councils)	☐	☐	☐	☐	☐	☐
6.4	Which type of co-operation partner was the most valuable for your enterprise's innovation activities? Give corresponding letter from 6.3. For example, clients or customers = 'C'						

PART 7: Effects/Objectives of innovation during 2008–2010

7.1 How important or successful were each of the following objectives for your products (goods or services) and process innovations introduced during the three years 2008 to 2010?

Objectives	Level of success of outcomes Tick "Not relevant" if there were no innovation outcomes.			
	High	Medium	Low	Not relevant
Increase range of goods or services	☐	☐	☐	☐
Replace outdated products or processes	☐	☐	☐	☐
Enter new markets	☐	☐	☐	☐
Increase market share	☐	☐	☐	☐
Improve quality of goods or services	☐	☐	☐	☐
Improve flexibility for producing goods or services	☐	☐	☐	☐
Increase capacity for producing goods and services	☐	☐	☐	☐
Reduce production costs per unit output (labour, materials, energy)	☐	☐	☐	☐
Improve working conditions – health and safety	☐	☐	☐	☐

7.2 How important or successful were each of the following types of outcomes for your products (goods or services) and process innovations introduced during the three years 2008 to 2010?

Outcomes/Effects		Level of success of outcomes Tick "Not relevant" if there were no innovation outcomes.			
		High	Medium	Low	Not relevant
Product oriented effects	Increased range of goods or services	☐	☐	☐	☐
	Entered new markets	☐	☐	☐	☐
	Increased market share	☐	☐	☐	☐
	Improved quality of goods or services	☐	☐	☐	☐
Process oriented effects	Improved flexibility of production or service provision	☐	☐	☐	☐
	Increased capacity of production or service provision	☐	☐	☐	☐
	Reduced production costs per unit of labour, materials, energy	☐	☐	☐	☐
Other effects	Reduced environmental impacts	☐	☐	☐	☐
	Improved working conditions on health and safety	☐	☐	☐	☐
	Met governmental regulatory requirements	☐	☐	☐	☐

PART 8: Factors hampering innovation activities

8.1 During the three years 2008 to 2010, were any of your innovation activities or projects:

	Yes	No
→ Abandoned in the concept stage		
→ Abandoned after the activity or project was begun		
→ Seriously delayed		

8.2 During the three years 2008 to 2010, how important were the following factors in hampering your innovation activities or projects or influencing a decision not to innovate?

Hampering factors		Degree of importance Please also indicate particular factors that were not experienced.			
		High	Medium	Low	Factor not experienced
Cost factors	Lack of funds within your enterprise or group	☐	☐	☐	☐
	Lack of finance from sources outside your enterprise	☐	☐	☐	☐
	Innovation costs too high	☐	☐	☐	☐
	Excessive perceived economic risks	☐	☐	☐	☐
Knowledge factors	Lack of qualified personnel	☐	☐	☐	☐
	Lack of information on technology	☐	☐	☐	☐
	Lack of information on markets	☐	☐	☐	☐
	Difficulty in finding co-operation partners for innovation	☐	☐	☐	☐
Market factors	Market dominated by established enterprises	☐	☐	☐	☐
	Uncertain demand for innovative goods or services	☐	☐	☐	☐
	Innovation is easy to imitate	☐	☐	☐	☐
Reasons not to innovate	No need due to prior innovations	☐	☐	☐	☐
	No need because of no demand for innovations	☐	☐	☐	☐
Other factors	Organisational rigidities within the enterprise	☐	☐	☐	☐
	Insufficient flexibility of regulations or standards	☐	☐	☐	☐
	Limitations of science and technology public policies	☐	☐	☐	☐

PART 9: Intellectual Property Rights

9.1 During the three years 2008 to 2010, did your enterprise:

	Yes	No
→ Secure a patent from ARIPO[1]?	☐	☐
→ Apply for a patent outside of ARIPO?	☐	☐
→ Register an industrial design?	☐	☐
→ Register a trademark?	☐	☐
→ Claim copyright?	☐	☐
→ Grant a licence on any intellectual property rights resulting from innovation?	☐	☐

[1]African Regional Industrial Property Office

PART 10: Organisational and marketing innovation

An organisational innovation refers to the *implementation of a new organisational method in the firm's business practices, workplace organisation or external relations or* significant changes in firm structure or management methods that are intended to improve your firm's use of knowledge, the quality of your goods and services, or the efficiency of work flows.

A marketing innovation is the *"Implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing"* or sales methods to increase the appeal of your goods and services or to enter new markets.

10.1 During the three years 2008 to 2010, did your enterprise introduce:

Organisational innovations	Yes	No
→ **Business practices:** New business practices for organising procedures (i.e. supply chain management, business re-engineering, knowledge management, lean production, quality management, etc.) or significantly improved knowledge management systems to better use or exchange information, knowledge and skills within your enterprise Exclude routine upgrades.	☐	☐
→ **Work responsibilities and decision making:** New or significantly improved methods of organising work responsibilities and decision making (i.e. first use of a new system of employee responsibilities, team work, decentralisation, integrating/de-integrating different departments or activities, education/training systems).	☐	☐
→ **External relations:** New or significantly improved methods of organising external relations with other firms or public institutions (i.e. first use of alliances, partnerships, outsourcing or sub-contracting, etc.)	☐	☐

10.2 During the three years 2008 to 2010, did your enterprise introduce:

Marketing innovations	Yes	No
→ Significant changes to the design or packaging of a good or service	☐	☐
→ New media or techniques for product promotion (i.e. the first time use of a new advertising media, a new brand image, introduction of loyalty cards, etc.)	☐	☐
→ New methods for product placement or sales channels (i.e. first time use of franchising or distribution licenses, direct selling, exclusive retailing, new concepts for product presentation, etc.)	☐	☐
→ New methods of pricing goods or services (i.e. first time use of variable pricing by demand,discount systems, etc.)	☐	☐

10.3	If your enterprise introduced an organisational innovation during the three years 2008 to 2010, how important were each of the following results or effects?				
	Results	**Degree of importance**			
		High	**Medium**	**Low**	**No results**
	→ Increased or maintained market share	☐	☐	☐	☐
	→ Reduced time to respond to customer or supplier needs	☐	☐	☐	☐
	→ Improved quality of your goods or services	☐	☐	☐	☐
	→ Reduced costs per unit output	☐	☐	☐	☐
	→ Improved employee satisfaction and/or reduced rates of employee turnover	☐	☐	☐	☐

PART 11: Creativity and Skills

11.1	During the three years 2008-2010, were any of your new or significantly improved products or processes:			
		Yes	No	Don't know
	→ A first in UGANDA?	☐	☐	☐
	→ A world first?	☐	☐	☐
	→ New or significant changes in your external relations with other firms or public institutions, such as through alliances, partnerships, outsourcing or sub-contracting	☐	☐	☐
11.2	If your answer to Question 11.1 was yes then please give short descriptions of these innovations (or attach separate pages or promotional brochures)			
11.3	Please list other significant examples of innovations in your enterprise in the last three years, 2010-2012 (or attach separate page or promotional brochures etc)			

11.4	During the three years 2008 to 2010, did your enterprise use any of the following methods to stimulate new ideas or creativity among your staff? If yes, was the method successful in producing new ideas or increasing creativity?				
		Method used and:			
		Successful	Not Successful	Don't know if successful	Method not used
	Brainstorming sessions	☐	☐	☐	☐
	Multidisciplinary or cross-functional work teams	☐	☐	☐	☐
	Job rotation of staff to different departments or other parts of your enterprise group	☐	☐	☐	☐
	Financial incentives for employees to develop new ideas	☐	☐	☐	☐
	Non-financial incentives for employees to develop new ideas, such as free time, public recognition, more interesting work, etc	☐	☐	☐	☐
	Training employees on how to develop new ideas or creativity	☐	☐	☐	☐

Comments from the Respondent

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Signature..... **Date:** .....

THANK YOU FOR YOUR COOPERATION

Appendix B: Overview: Innovation in Mining Manufacturing and Services

Table 3.1 List of Industries in Mining, Manufacturing and Services Sub-Sectors Covered in the National Innovation Survey, 2008-2010

Division	Industry
05-09	Mining and Quarrying
10-12	Food Processing
13-33	Manufacturing excluding Food Processing
35-39	Utilities[1]
41-43	Construction
49-53	Transportation and Storage
55-56	Accommodation and Food Services
58-63	Information and Communication
64-66	Financial and Insurance Services[2]
68-82	Real Estates and Business Services[3]
90-96	Recreation and Personal Services

[1] Utilities includes electricity, gas, steam and air conditioning; and water supply; sewerage, waste management and remediation

[2] Real Estates and Business Services includes real estate activities; professional, scientific and technical services; and administrative and support service activities

[3] Recreation and Personal Services includes arts, entertainment and recreation; and other service activities

Table 3.2 Distribution of Innovative Enterprises across Industrial Sectors

Industry	Number	Percentage
Mining and Quarrying	37	1.0
Food Processing	392	10.4
Manufacturing excluding Food Processing	631	16.7
Utilities	63	1.7
Construction	287	7.6
Transportation and Storage	199	5.2
Accommodation and Food Services	820	21.7
Information and Communication	155	4.1
Financial and Insurance Services	570	15.1
Real Estates and Business Services	435	11.5
Recreation and Personal Services	195	5.1

Table 3.3 Innovation Profile in the Mining, Manufacturing and Services Sub-Sectors, 2008-2010

Division	Industry	Number of Firms			Percentage Distribution		
		Innovative	Non-innovative	Total	Innovative	Non-innovative	Total
05-09	Mining and Quarrying	37	18	55	67	33	100
10-12	Food Processing	392	108	500	78	22	100
13-33	Manufacturing excluding Food Processing	631	133	764	83	17	100
35-39	Utilities	63	-	63	100	-	100
41-43	Construction	287	125	412	70	30	100
49-53	Transportation and Storage	199	132	331	60	40	100
55-56	Accommodation and Food Services	820	205	1,025	80	20	100
58-63	Information and Communication	155	31	186	83	17	100
64-66	Financial and Insurance Services	570	117	687	83	17	100
68-82	Real Estate and Business Services	435	169	604	72	28	100
90-96	Recreation and Personal Services	195	92	286	68	32	100

Table 3.4 Incidence of Innovation in Mining, Manufacturing and Services Sectors, 2008-2010

Division	Industry	Incidence of Innovation
05-09	Mining and Quarrying	67
10-12	Food Processing	78
13-33	Manufacturing excluding Food Processing	83
35-39	Utilities	100
41-43	Construction	70
49-53	Transportation and Storage	60
55-56	Accommodation and Food Services	80
58-63	Information and Communication	83
64-66	Financial and Insurance Services	83
68-82	Real Estate and Business Services	72
90-96	Recreation and Personal Services	68

Table 3.5 Employment Size of Innovative and Non-Innovative Firms, 2008-2010

Employment Size	Number of Firms			Percentage Distribution		
	Innovative	Non-innovative	Total	Innovative	Non-innovative	Total
19 or less	2371	792	3163	62.7	70.1	64.4
20-49	862	237	1100	22.8	21.0	22.4
50-249	446	72	518	11.8	6.4	10.5
250 or more	103	28	131	2.7	2.5	2.7
Total	*3782	1129	4912	100.0	100.0	100.0

*Numbers do not always total exactly because of rounding off effects.

Table 3.6 Profile of Innovative Firms in the Mining, Manufacturing and Services Sub-Sectors, 2008-2010

Year Established	Number	%	Turnover	Number	%
Prior to 1960	20	0.5	Below Ush. 10 million	427	11.3
1960-1969	33	0.9	Ush. 10 million to less than Ush. 50 million;	1,487	39.3
1970-1979	64	1.7	50 million to less than 200 million	575	15.2
1980-1989	215	5.7	Ush. 200 million and above	1293	34.2
1990-1999	991	26.2			
2000-2009	2138	56.5			
2010-2012	99	2.6			-
Missing value	223	5.9			-
Total	3783	100.0	**Total**	3782	100.0

Employment Size	Number	%
1 to 19	2371	62.7
20 to 49	862	22.8
50 to 249	446	11.8
250 and above	103	2.7
Missing value	-	-
Total	3782	100.0

Location of Head Office	Number	%
Not Applicable	2725	72.0
Uganda	687	18.2
Kenya	112	3.0
US	56	1.5
South Africa	32	0.9
Bangladesh	26	0.7
Others	142	3.7

Table 3.7: Types of Innovation by Industry, Employment Size, Turnover, Year of Establishment and Ownership Structure, 2008-2010

Industry	Product only		Process only		Product and Process		Ongoing and/or Abandoned	
	No.	%	No.	%	No.	%	No.	%
Mining and Quarrying	-	-	9	1.6	28	1.1	-	-
Food Processing	17	3.7	90	16	243	9.6	41.64	19
Manufacturing excluding Food Processing	85	18.3	24	4.3	522	20.6	-	-
Utilities[1]	-	-	-	-	63	2.5	-	-
Construction	25	5.4	37	6.7	187	7.4	37.44	17.1
Transportation and Storage	33	7.1	66	11.8	66	2.6	33.1	15.1
Accommodation and Food Services	103	22.0	103	18.2	581	22.9	34.17	15.6
Information and Communication	16	3.3	23	4.1	101	4	15.5	7.1
Financial and Insurance Services[2]	78	16.7	78	13.8	389	15.3	25.92	11.9
Real Estate and Business Services[3]	52	11.2	97	17.3	266	10.5	19.47	8.9
Recreation and Personal Services	57	12.3	34	6.1	92	3.6	11.44	5.2
Total	**465**	**100.0**	**562**	**100**	**2,536**	**100**	**219**	**100**
Employment Size								
1 to 19	268	57.6	356	63.2	1,599	63.0	149	68.3
20 to 49	167	36	77	13.7	568	22.4	49	22.6
50 to 249	30	6.4	113	20.0	284	11.2	20	9.1
250 and above	-	-	17	3.0	86	3.4	-	-
Total	**465**	**100**	563	100.0	2,537	100.0	219	100.0
Turnover (million)								
Below Ush.10 million	70	15.0	31	5.5	290	11.4	37	16.7
Ush. 10 million to less than Ush. 50 million;	166	35.6	260	46.3	987	38.9	75	34.3
50 million to less than 200 million	70	15.1	38	6.8	412	16.3	55	25.0
Ush. 200 million and above	160	34.3	233	41.4	848	33.4	53	24.1
Total	465	100.0	563	100.0	2,537	100.0	219	100.0

Industry	Product only		Process only		Product and Process		Ongoing and/or Abandoned	
	No.	%	No.	%	No.	%	No.	%
Year of Establishment								
Prior to 1960	8	1.7		-	12	0.5		-
1960-1969		-		-	33	1.3		-
1970-1979		-	13	2.3	51	2.0		-
1980-1989	7	1.5	19	3.4	189	7.5		-
1990-1999	119	25.5	243	43.2	599	23.6	31	14.0
2000-2009	294	63.2	242	43.0	1,458	57.5	144	65.9
2010-2012		-	8	1.4	59	2.3	32	14.8
Missing value	38	8.2	38	6.8	135	5.3	11	5.2
Total	465	100.0	563	100.0	2537	100.0	219	100.0

Table 3.8 Innovative Enterprises by Nationality, 2008-2010

Location of Head Office (Country)	Number	%
Not applicable	2725	72.0
Uganda	687	18.2
Kenya	112	3.0
US	56	1.5
South Africa	32	0.9
Bangladesh	26	0.7
Benin	13	0.3
Botswana	13	0.3
Liberia	13	0.3
Nigeria	13	0.3
UK	13	0.3
China	12	0.3
Serbia	12	0.3
France	12	0.3
Iran	11	0.3
Netherlands	10	0.3
Italy	8	0.2
Australia	6	0.2
Ghana	6	0.2

Appendix C: Results Tables: Innovation in Mining, Manufacturing and Services

Table 4.1 Number and Percentage of Enterprises, 2008-2010

Type of innovation	Number of Enterprises		
	Total	Industry	Services
All Enterprises	**4912**	**1730**	**3182**
Enterprises with innovation activity	**3783**	**1348**	**2436**
Product only innovators	465	127	338
Process only innovators	562	161	401
Product and process innovators	2536	979	1,557
Ongoing only innovators	196	76	120
Abandoned only innovators	4	4	-
Enterprises with on-going and abandoned innovations	19	-	19
Enterprises without innovation activity	**1130**	**383**	**746**
	Percentage of Enterprises		
Type of innovation	**Total**	**Industry**	**Services**
All Enterprises	**100.0**	**100.0**	**100.0**
Enterprises with innovation activity	77.0	77.8	76.5
Product only innovators	9.5	7.4	10.6
Process only innovators	11.5	9.3	12.6
Product and process innovators	51.6	56.6	48.9
Ongoing only innovators	4.0	4.4	3.9
Abandoned only innovators	0.1	0.2	-
Enterprises with on-going and abandoned innovations	0.4	-	0.6
Enterprises without innovation activity	**23.0**	**22.2**	**23.5**

Table 4.2 Number and Percentage of Employees, 2010 (year specific question)

Status	Number of Employees		
	Total	Industry	Services
All Enterprises	275,558	163,674	111,884
Enterprises with innovation activity	235,143	135,649	99,494
Enterprises without innovation activity	40,415	28,024	12,390
	Percentage of Employees		
All enterprises	100.0	100.0	100.0
Enterprises with innovation activity	85.3	82.9	88.9
Enterprises without innovation activity	14.7	17.1	11.1

Table 4.3 Turnover, 2010 (year specific question)

Status	Turnover (Ushs.million)		
	Total	Industry	Services
All enterprises	13,345,000	4,142,000	9,203,000
Enterprises with innovation activity	12,300,000	3,430,000	8,870,000
Enterprises without innovation activity	1,045,000	712,000	333,000
	Percentage of Total Turnover		
All enterprises	100	100	100
Enterprises with innovation activity	92.2	82.8	96.4
Enterprises without innovation activity	7.8	17.2	3.6

Table 4.4a: Enterprises with Innovation Activities: Expenditure on Innovation, 2010 (year specific question)

Type of Expenditure	Ushs. million		
	Total	Industry	Services
Intramural (in-house) R&D in 2010	149,400	15,400	134,000
Extramural or outsourced R&D	285,510	3,510	282,000
Acquisition of machinery, equipment and software	85,300	40,100	45,200
Acquisition of other external knowledge	25,560	2,060	23,500
Total Expenditure	545,770	61,070	484,700

Type of Expenditure	Percent		
Intramural (in-house) R&D in 2010	27.4	25.2	27.6
Extramural or outsourced R&D	52.3	5.7	58.2
Acquisition of machinery, equipment and software	15.6	65.7	9.3
Acquisition of other external knowledge	4.7	3.4	4.8

Table 4.4b: Number and Percentage of Innovative Enterprises having engaged in Specific Innovation Expenditure, 2010 (year specific question)

Type of Expenditure	Number of Innovative Enterprises		
	Total	Industry	Services
Intramural (in-house) R&D in 2010	2272	787	1486
Extramural or outsourced R&D	1306	409	897
Acquisition of machinery, equipment and software	3783	1347	2436
Acquisition of other external knowledge	1511	552	959
Training	2787	1005	1782
Market introduction of innovations	2117	721	1396
Design	2150	877	1273
Other activities	1569	537	1032

Type of Expenditure	Percentage of Innovative Enterprises		
Intramural (in-house) R&D in 2010	60.1	58.4	61.0
Extramural or outsourced R&D	34.5	30.4	36.8
Acquisition of machinery, equipment and software	100	100	100
Acquisition of other external knowledge	39.9	41.0	39.4
Training	73.7	74.7	73.1
Market introduction of innovations	56.0	53.6	57.3
Design	56.8	65.2	52.2
Other activities	41.5	39.9	42.3

Table 4.5a: Product (goods and services) Innovators: Breakdown of Turnover by Type of Product Innovation, 2010 (year specific question)

Type of Product Innovation	Turnover Breakdown (Ushs. million)		
	Total	Industry	Services
All product innovators	6,685,000	2,766,000	3,919,000
Innovations new to the market	693,000	184,000	509,000
Innovations new to the firm	1,692,000	262,000	1,430,000
Unchanged or marginally modified	4,300,000	2,320,000	1,980,000
Product only innovators	644,143	252,256	391,887
Innovations new to the market	11,163	3,966	7,197
Innovations new to the firm	90,550	10,390	80,160
Unchanged or marginally modified	542,430	237,900	304,530
Product and Process innovators	6,047,000	2,514,600	3,532,400
Innovations new to the market	682,100	179,700	502,400
Innovations new to the firm	1,606,900	251,900	1,355,000
Unchanged or marginally modified	3,758,000	2,083,000	1,675,000

Table 4.5b: Product (goods and services) Innovators: Percentage Breakdown of Turnover by Product Type, 2010 (year specific question)

Type of Product Innovation	Turnover Breakdown (% of Total Turnover)		
	Total	Industry	Services
All product innovators	100.0	100.0	100.0
Innovations new to the market	10.4	6.7	13.0
Innovations new to the firm	25.3	9.5	36.5
Unchanged or marginally modified	64.3	83.9	50.5
Product only innovators	100.0	100.0	100.0
Innovations new to the market	1.7	1.6	1.8
Innovations new to the firm	14.1	4.1	20.5
Unchanged or marginally modified	84.2	94.3	77.7
Product and Process innovators	100.0	100.0	100.0
Innovations new to the market	11.3	7.1	14.2
Innovations new to the firm	26.6	10.0	38.4
Unchanged or marginally modified	62.1	82.8	47.4

Table 4.6: Innovative Enterprises: Responsibility for the Development of Product Innovations, 2008-2010

Responsibility for the Development of Product Innovation	Number of Innovative Enterprises		
	Total	Industry	Services
All Innovative enterprises	3002	1106	1896
Mainly own enterprise	1634	725	909
Mainly own enterprise group	404	68	336
Own enterprise in collaboration with other enterprises or institutions	360	126	233
Other enterprises or institutions	171	50	121
Enterprises which did not respond to the question	434	138	296
Responsibility for the Development of Product Innovation	**Percentage of Innovative Enterprises**		
	Total	**Industry**	**Services**
All Innovative enterprises	100.0	100.0	100.0
Mainly own enterprise	54.4	65.5	48.0
Mainly own enterprise group	13.5	6.1	17.7
Own enterprise in collaboration with other enterprises or institutions	12.0	11.4	12.3
Other enterprises or institutions	5.7	4.5	6.4
Enterprises which did not respond to the question	14.4	12.4	15.6

Table 4.7: Innovative Enterprises: Origin of Product Innovations, 2008-2010

Origin of Product Innovation	Number of Innovative Enterprises		
	Total	Industry	Services
All Innovative enterprises	**3002**	1106	1896
Uganda	2243	751	1493
Abroad	484	218	266
Enterprises which did not respond to the question	275	138	137
Origin of product innovation	**Percentage of Innovative Enterprises**		
	Total	**Industry**	**Services**
All Innovative enterprises	100.0	100.0	100.0
Uganda	74.7	67.9	78.7
Abroad	16.1	19.7	14.0
Enterprises which did not respond to the question	9.2	12.5	7.2

Table 4.8a: 'Highly Important' Effects of Innovation on Objectives for Enterprises, 2008-2010

Objectives	Number of Innovative Enterprises		
	Total	Industry	Services
Increase range of goods or services	2003	591	1412
Replace outdated products or processes	1164	402	763
Enter new markets	1442	476	966
Increase market share	1556	419	1137
Improved quality of goods or services	2261	870	1391
Improve flexibility for producing goods or services	1705	581	1124
Increase capacity for producing goods and services	1497	575	922
Reduce production costs per unit output (labour, materials, energy)	1104	428	676
Improve working conditions - health and safety	1193	389	804

Table 4.8b: 'Highly Important' Effects of Innovation on Objectives for Enterprises (%), 2008-2010

Objectives	Percentage of Innovative Enterprises		
	Total	Industry	Services
Increase range of goods or services	53.0	43.9	58.0
Replace outdated products or processes	30.8	29.8	31.3
Enter new markets	38.1	35.3	39.6
Increase market share	41.1	31.0	46.7
Improved quality of goods or services	59.8	64.6	57.1
Improve flexibility for producing goods or services	45.1	43.1	46.1
Increase capacity for producing goods and services	39.6	42.6	37.9
Reduce production costs per unit output (labour, materials, energy)	29.2	31.7	27.8
Improve working conditions - health and safety	31.5	28.9	33.0

Table 4.9a: 'Highly Important' Effects of Innovation on Outcomes for Enterprises, 2008-2010

Outcomes	Number of Innovative Enterprises		
	Total	Industry	Services
Product outcomes			
Increased range of goods and services	1632	531	1101
Entered new markets	1147	343	805
Increased market share	1217	369	847
Improved quality of goods or services	1878	711	1167
Process outcomes			
Improved flexibility of production or service provision	1239	442	797
Increased capacity of production or service provision	1144	387	757
Reduced production costs per unit of labour, materials, energy	840	320	520
Other Outcomes			
Reduced environmental impacts	746	268	478
Improved working conditions on health and safety	1172	343	829
Met governmental regulatory requirements	1410	444	966

Table 4.9b: 'Highly Important' Effects of Innovation on Outcomes for Enterprises (%), 2008-2010

Outcomes	Percentage of Innovative Enterprises		
	Total	Industry	Services
Product Outcomes			
Increased range of goods and services	43.1	39.4	45.2
Entered new markets	30.3	25.4	33.0
Increased market share	32.2	27.4	34.8
Improved quality of goods or services	49.7	52.8	47.9
Process Outcomes			
Improved flexibility of production or service provision	32.8	32.8	32.7
Increased capacity of production or service provision	30.2	28.7	31.1
Reduced production costs per unit of labour, materials, energy	22.2	23.7	21.4
Other Outcomes			
Reduced environmental impacts	19.7	19.9	19.6
Improved working conditions on health and safety	31.0	25.4	34.0
Met governmental regulatory requirements	37.3	32.9	39.7

Table 4.10a: Sources of Innovation Rated as 'Highly Important' by Innovative Enterprises, 2008-2010

Sources of Innovation	Number of Innovative Enterprises		
	Total	Industry	Services
Internal Sources			
Sources within your enterprise or enterprise group	2032	665	1367
External-Market Resources			
Suppliers of equipment, materials, components or software	986	369	617
Clients or customers	1855	573	1282
Competitors or other enterprises in your sector	869	264	605
Consultants, commercial labs or private R&D institutes	461	142	319
External-Institutional Sources			
Universities or higher education institutions	122	29	93
Government or public research institutes	190	33	157
External-Other Sources			
Conferences, trade fairs, exhibitions	622	163	459
Scientific journals and trade/technical publications	314	70	244
Professional and industry associations	428	108	321

Table 4.10b: Sources Of Innovation Rated as 'Highly Important' by Innovative Enterprises (%), 2008-2010

Sources of Innovation	Percentage of Innovative Enterprises		
	Total	Industry	Services
Internal Sources			
Sources within your enterprise or enterprise group	53.7	49.3	56.1
External-Market Resources			
Suppliers of equipment, materials, components or software	26.1	27.4	25.3
Clients or customers	49.0	42.5	52.6
Competitors or other enterprises in your sector	23.0	19.6	24.8
Consultants, commercial labs or private R&D institutes	12.2	10.5	13.1
External-Institutional Sources			
Universities or higher education institutions	3.2	2.2	3.8
Government or public research institutes	5.0	2.4	6.5
External-Other Sources			
Conferences, trade fairs, exhibitions	16.4	12.1	18.8
Scientific journals and trade/technical publications	8.3	5.2	10.0
Professional and industry associations	11.3	8.0	13.2

Table 4.11: Enterprises with Innovation Activity Citing Problems with their Innovation Activity, 2008 - 2010

Problems Cited	Number of Innovative Enterprises		
	Total	Industry	Services
Abandoned in the concept stage	689	286	404
Abandoned after the activity or project was begun	559	273	286
Seriously delayed	1,377	452	926
Problems Cited	**Percentage of Innovative Enterprises**		
Abandoned in the concept stage	18.2	21.2	16.6
Abandoned after the activity or project was begun	14.8	20.2	11.8
Seriously delayed	36.4	33.5	38.0

Table 4.12a: 'Highly Important' Factors that hampered Innovation Activities on Innovative Enterprises (Number), 2008-2010

Factors that hampered Innovation	Number of Innovative Enterprises		
	Total	Industry	Services
Cost Factors			
Lack of funds within your enterprise or group	1903	727	1176
Lack of finance from sources outside your enterprise	1520	588	932
Innovation costs too high	1934	771	1163
Excessive perceived economic risks	1238	452	786
Knowledge Factors			
Lack of qualified personnel	504	277	226
Lack of information on technology	745	288	457
Lack of information on markets	576	197	379
Difficulty in finding co-operation partners for innovation	994	451	543
Market Factors			
Market dominated by established enterprises	1,069	419	651
Uncertain demand for innovative goods or services	867	328	539
Innovation is easy to imitate	625	248	377
Reasons not to Innovate			
No need due to prior innovations	219	80	139
No need because of no demand for innovations	286	116	170
Other Factors			
Organisational rigidities within the enterprise	463	136	327
Insufficient flexibility of regulations or standards	569	234	335
Limitations of science and technology public policies	917	383	535

Table 4.12b: 'Highly Important' Factors that Hampered Innovation activities on Innovative Enterprises (%), 2008-2010

Factors that Hampered Innovation	Percentage of Innovative Enterprises		
	Total	Industry	Services
Cost Factors			
Lack of funds within your enterprise or group	50.3	54.0	48.3
Lack of finance from sources outside your enterprise	40.2	43.6	38.2
Innovation costs too high	51.1	57.2	47.7
Excessive perceived economic risks	32.7	33.5	32.3
Knowledge Factors			
Lack of qualified personnel	13.3	20.6	9.3
Lack of information on technology	19.7	21.3	18.8
Lack of information on markets	15.2	14.6	15.6
Difficulty in finding co-operation partners for innovation	26.3	33.5	22.3
Market Factors			
Market dominated by established enterprises	28.3	31.1	26.7
Uncertain demand for innovative goods or services	22.9	24.3	22.1
Innovation is easy to imitate	16.5	18.4	15.5
Reasons not to Innovate			
No need due to prior innovations	5.8	5.9	5.7
No need because of no demand for innovations	7.6	8.6	7.0
Other Factors			
Organisational rigidities within the enterprise	12.2	10.1	13.4
Insufficient flexibility of regulations or standards	15.1	17.4	13.8
Limitations of science and technology public policies	24.3	28.4	22.0

Table 4.12c: 'Highly Important' Factors that Hampered Innovation Activities on Non-Innovative Enterprises (Number), 2008-2010

Factors That Hampered Innovation	Number of Non-Innovative Enterprises		
	Total	Industry	Services
Cost Factors			
Lack of funds within your enterprise or group	471	186	285
Lack of finance from sources outside your enterprise	288	117	170
Innovation costs too high	337	147	190
Excessive perceived economic risks	329	156	173
Knowledge Factors			
Lack of qualified personnel	135	77	59
Lack of information on technology	168	69	99
Lack of information on markets	120	47	73
Difficulty in finding co-operation partners for innovation	218	49	169
Market Factors			
Market dominated by established enterprises	458	125	333
Uncertain demand for innovative goods or services	252	46	207
Innovation is easy to imitate	233	92	142
Reasons not to Innovate			
No need due to prior innovations	154	14	140
No need because of no demand for innovations	100	26	74
Other Factors			
Organisational rigidities within the enterprise	131	47	83
Insufficient flexibility of regulations or standards	149	35	114
Limitations of science and technology public policies	227	80	148

Table 4.12d: 'Highly Important' Factors that Hampered Innovation Activities on Non- Innovative Enterprises (%), 2008-2010

Factors that Hampered Innovation	Percentage of Non-Innovative Enterprises		
	Total	Industry	Services
Cost Factors			
Lack of funds within your enterprise or group	41.6	48.4	38.2
Lack of finance from sources outside your enterprise	25.4	30.6	22.8
Innovation costs too high	29.8	38.4	25.4
Excessive perceived economic risks	29.1	40.8	23.1
Knowledge Factors			
Lack of qualified personnel	12.0	20.0	7.9
Lack of information on technology	14.9	18.1	13.2
Lack of information on markets	10.6	12.2	9.8
Difficulty in finding co-operation partners for innovation	19.3	12.8	22.6
Market Factors			
Market dominated by established enterprises	40.5	32.6	44.7
Uncertain demand for innovative goods or services	22.3	12.0	27.7
Innovation is easy to imitate	20.6	23.9	19.0
Reasons not to Innovate			
No need due to prior innovations	13.6	3.6	18.8
No need because of no demand for innovations	8.9	6.9	9.9
Other Factors			
Organisational rigidities within the enterprise	11.6	12.3	11.2
Insufficient flexibility of regulations or standards	13.2	9.1	15.3
Limitations of science and technology public policies	20.1	20.8	19.8

Table 4.13a: Number of Innovative and Non-Innovative Enterprises that Introduced Organisational or Marketing Innovations, 2008 – 2010

Enterprises with innovation activity	Total	Industry	Services
Organisational Innovations			
New business practices or improved knowledge management systems	2793	932	1861
Work responsibilities and decision making	3,085	1037	2048
External relations with other firms or public institutions	1885	568	1317
Marketing Innovations			
Design or packaging of a good or service	2440	883	1557
New media or technique for product promotion	1798	575	1223
New methods for product placement or sales channels	1613	653	960
New methods of pricing goods or services	2459	871	1588
Enterprises without innovation activity	**Total**	**Industry**	**Services**
Organisational Innovations			
New business practices or improved knowledge management systems	365	118	247
Work responsibilities and decision making	494	157	337
External relations with other firms or public institutions	324	106	219
Marketing Innovations			
Design or packaging of a good or service	281	112	169
New media or technique for product promotion	173	45	128
New methods for product placement or sales channels	152	65	88
New methods of pricing goods or services	275	101	173

Table 4.13b: Percentage of Innovative and Non-Innovative Enterprises that Introduced Organisational or Marketing Innovations, 2008 – 2010

Organisational or Marketing Innovations	Proportion of Enterprises with Innovation Activity		
	Total	Industry	Services
Organisational Innovations			
New business practices or improved knowledge management systems	73.8	69.2	76.4
Work responsibilities and decision making	81.5	77.0	84.1
External relations with other firms or public institutions	49.8	42.1	54.1
Marketing Innovations			
Design or packaging of a good or service	64.5	65.5	63.9
New media or technique for product promotion	47.5	42.7	50.2
New methods for product placement or sales channels	42.6	48.4	39.4
New methods of pricing goods or services	65.0	64.6	65.2

Organisational or Marketing Innovations	Proportion of Enterprises Without Innovation Activity		
	Total	Industry	Services
Organisational Innovations			
New business practices or improved knowledge management systems	32.3	30.6	33.2
Work responsibilities and decision making	43.7	40.8	45.3
External relations with other firms or public institutions	28.7	27.6	29.3
Marketing Innovations			
Design or packaging of a good or service	24.9	29.3	22.6
New media or technique for product promotion	15.3	11.8	17.1
New methods for product placement or sales channels	13.5	16.8	11.7
New methods of pricing goods or services	24.3	26.4	23.3

Table 4.14a: Number of Enterprises that Secured a Patent in ARIPO or Applied for at Least One Patent Outside ARIPO, 2008-2010

Enterprises that Secured and/or applied for a Patent	Number of Enterprises		
	Total	Industry	Services
Enterprises that secured a patent in ARIPO			
All enterprises	35	35	-
Enterprises with innovation activity	35	35	-
Enterprises without innovation activity	-	-	-
Enterprises that applied for a patent outside ARIPO			
All enterprises	108	58	50
Enterprises with innovation activity	97	47	50
Enterprises without innovation activity	10	10	-

Table 4.14b: Percentage of Enterprises that Secured a Patent in ARIPO or Applied for at Least one Patent Outside ARIPO, 2008-2010

Enterprises that Secured and/or applied for a Patent	Percentage of Enterprises		
	Total	Industry	Services
Enterprises that secured a patent in ARIPO			
All enterprises	0.7	2.0	-
Enterprises with innovation activity	0.9	2.6	-
Enterprises without innovation activity	-	-	-
Enterprises that applied for a patent outside ARIPO			
All enterprises	2.2	3.4	1.6
Enterprises with innovation activity	2.6	3.5	2.1
Enterprises without innovation activity	0.9	2.6	-

Table 4.14c: Number of Enterprises that Made use of Intellectual Property Rights, 2008-2010

Type of Intellectual Property	Number		
	Total	Industry	Services
Enterprises With Innovation Activity			
Registered an industrial design	404	108	296
Registered a trademark	772	278	494
Claimed a copyright	377	148	229
Granted a license on any intellectual property rights resulting from innovation	368	117	251
Enterprises Without Innovation Activity			
Registered an industrial design	33	33	-
Registered a trademark	116	51	65
Claimed a copyright	33	7	26
Granted a license on any intellectual property rights resulting from innovation	3	3	-

Appendix 4.14d: Percentage of Enterprises that made use of Intellectual Property Rights, 2008-2010

Type of Intellectual Property	Percentage		
	Total	Industry	Services
Enterprises with innovation activity			
Registered an industrial design	10.7	8.0	12.2
Registered a trademark	20.4	20.6	20.3
Claimed a copyright	10.0	11.0	9.4
Granted a license on any intellectual property rights resulting from innovation	9.7	8.7	10.3
Enterprises without innovation activity			
Registered an industrial design	2.9	8.7	-
Registered a trademark	10.3	13.3	8.7
Claimed a copyright	2.9	1.8	3.4
Granted a license on any intellectual property rights resulting from innovation	0.3	0.9	-

Table 4.15a: Geographic Distribution of Goods and Services Sold by Innovative and Non-Innovative Enterprises (Number), 2008 – 2010

Geographic Distribution	Number of Enterprises		
	Total	Industry	Services
All Enterprises			
Local Market (Uganda)	1183	403	780
East African Markets	2357	884	1473
COMESA Markets	2174	800	1374
Other African Markets	2338	859	1478
Europe Market	2190	788	1402
The Americas	2246	804	1442
Asia Market	2216	792	1424
Other Markets (nec)	2031	745	1287
Enterprises With Innovation Activity			
Local Market (Uganda)	912	300	613
East African Markets	1832	737	1095
COMESA Markets	1671	669	1002
Other African Markets	1875	744	1131
Europe Market	1700	657	1043
The Americas	1743	673	1071
Asia Market	1733	667	1066
Other Markets (nec)	1613	636	977
Enterprises Without Innovation Activity			
Local Market (Uganda)	271	103	168
East African Markets	525	147	378
COMESA Markets	503	131	372
Other African Markets	463	116	347
Europe Market	490	131	359
The Americas	503	131	372
Asia Market	483	125	359
Other Markets (nec)	418	109	310

Table 4.15b: Geographic Distribution of Goods and Services Sold by Innovative and Non-Innovative Enterprises (%), 2008 – 2010

Geographic Distribution	Proportion of Enterprises (%)		
	Total	Industry	Services
All Enterprises			
Local Market (Uganda)	24.1	23.3	24.5
East African Markets	48.0	51.1	46.3
COMESA Markets	44.3	46.3	43.2
Other African Markets	47.6	49.7	46.4
Europe Market	44.6	45.6	44.1
The Americas	45.7	46.5	45.3
Asia Market	45.1	45.8	44.8
Other Markets (nec)	41.3	43.0	40.4
Enterprises With Innovation Activity			
Local Market (Uganda)	24.1	22.2	25.2
East African Markets	48.4	54.7	45.0
COMESA Markets	44.2	49.6	41.1
Other African Markets	49.6	55.2	46.4
Europe Market	44.9	48.7	42.8
The Americas	46.1	49.9	44.0
Asia Market	45.8	49.5	43.8
Other Markets (nec)	42.6	47.2	40.1
Enterprises Without Innovation Activity			
Local Market (Uganda)	24.0	27.0	22.5
East African Markets	46.5	38.4	50.7
COMESA Markets	44.5	34.3	49.8
Other African Markets	40.9	30.2	46.5
Europe Market	43.4	34.3	48.1
The Americas	44.5	34.3	49.8
Asia Market	42.8	32.5	48.1

Table 4.16: Innovative Enterprises that Introduced Organisational Innovation and Rated Various Outcomes as 'Highly Important', 2008-2010

Innovative Enterprises	Number		
	Total	Industry	Services
Increased or maintained market share	1473	439	1,034
Reduced time to respond to customer or supplier needs	0	0	0
Improved quality of your goods or services	2001	713	1,288
Reduced costs per unit output	819	257	562
Improved employee satisfaction and/or reduced rates of employee turnover	1038	389	650
Innovative Enterprises	**Percentage**		
	Total	**Industry**	**Services**
Increased or maintained market share	38.9	32.5	42.4
Reduced time to respond to customer or supplier needs	0.0	0.0	0.0
Improved quality of your goods or services	52.9	52.9	52.9
Reduced costs per unit output	21.6	19.0	23.1
Improved employee satisfaction and/or reduced rates of employee turnover	27.4	28.8	26.7

Table 4.17: Innovative Enterprises that Received Financial Support for Innovation Activities from Government Sources, 2008-2010

Source of Financial Support	Number of Enterprises		
	Total	Industry	Services
Central government	244	35	209
Local government/authorities	155	51	104
National funding agencies	142	63	79
Foreign governments	235	70	165
Source of Financial Support	**Proportion of Innovative Enterprises (%)**		
	Total	**Industry**	**Services**
Central government	6.5	2.6	8.6
Local government/authorities	4.1	3.8	4.3
National funding agencies	3.8	4.7	3.2
Foreign governments	6.2	5.2	6.8

Table 4.18: Number and Percentage of Staff with a Degree or Diploma, 2010 (year specific question)

Enterprises	Total Number of Staff		
	Total	Industry	Services
Enterprises with innovation activity	235143	135649	99494
Enterprises without innovation	40415	28024	12390
Number of staff with Degree or Diploma			
Enterprises with innovation activity	95932	49412	46519
Enterprises without innovative activity	14188	7491	6697
Proportion of staff with Degree or Diploma (%)			
Enterprises with innovation activity	40.8	36.4	46.8
Enterprise without innovation	35.1	26.7	54.1

Table 4.19: Enterprises With Organisational and/or Marketing Innovations, 2008 - 2010

Enterprises With Organisational and/or Marketing Innovations	Number		
	Total	Industry	Services
Enterprises with organisational innovation	3865	1308	2557
Enterprises with marketing innovation	3615	1277	2339
Enterprises with organisational and/or marketing innovation	4201	1444	2757
Innovative enterprises with organisational innovation	3316	1132	2184
Innovative enterprises with marketing innovation	3132	1122	2009
Innovative enterprises with organisational and/or marketing innovation	3508	1224	2283
Product Only Innovative enterprises with organisational and marketing innovation	366	87	279
Process Only Innovative enterprises with organisational and marketing innovation	523	147	375
Product and Process Innovative enterprises with organisational and process innovation	2481	937	1543
Non-Innovative enterprises with organisational innovation	549	176	373
Non-Innovative enterprises with marketing innovation	484	154	329

Enterprises With Organisational and/or Marketing Innovations	Number		
	Total	Industry	Services
Non-Innovative enterprises with organisational and marketing innovation	693	220	474
	Percentage		
Enterprises With Organisational and/or Marketing Innovations	**Total**	**Industry**	**Services**
Enterprises with organisational innovation	78.7	75.6	80.4
Enterprises with marketing innovation	73.6	73.8	73.5
Enterprises with organisational and marketing innovation	85.5	83.5	86.6
Innovative enterprises with organisational innovation	87.7	84.0	89.7
Innovative enterprises with marketing innovation	82.8	83.3	82.5
Innovative enterprises with organisational and marketing innovation	92.7	90.9	93.7
Product Only Innovative enterprises with organisational and marketing innovation	9.7	6.5	11.5
Process Only Innovative enterprises with organisational and marketing innovation	13.8	10.9	15.4
Product and Process Innovative enterprises with organisational and process innovation	65.6	69.6	63.3
Non-Innovative enterprises with organisational innovation	48.6	45.8	50.1
Non-Innovative enterprises with marketing innovation	42.8	40.2	44.2
Non-Innovative enterprises with organisational and marketing innovation	61.4	57.2	63.6

Table 4.20: Collaborative Partnerships for Innovation Activities by Type of Partner, 2008-2010

Collaborative Partnerships	Number of Innovative Enterprises		
	Total	Industry	Services
Other enterprises within your enterprise group	219	66	154
Suppliers of equipment, materials, components or software	175	67	109
Clients or customers	947	298	649
Competitors or other enterprises in your sector	147	16	131
Consultants, commercial labs or private R&D institutes	136	23	113
Universities or higher education institutions	33	7	26
Government or public research institutes	68	23	45
	Percentage of Innovative Enterprises		
Collaborative Partnerships	**Total**	**Industry**	**Services**
Other enterprises within your enterprise group	5.8	4.9	6.3
Suppliers of equipment, materials, components or software	4.6	4.9	4.5
Clients or customers	25.0	22.1	26.6
Competitors or other enterprises in your sector	3.9	1.2	5.4
Consultants, commercial labs or private R&D institutes	3.6	1.7	4.6
Universities or higher education institutions	0.9	0.5	1.1
Government or public research institutes	1.8	1.7	1.8

Table 4.21: Innovative Enterprises Performing Specific Process Innovations, 2008-2010

Process Innovations	Number of Process Innovators		
	Total	Industry	Services
Methods of manufacturing or production	2402	927	1475
Delivery or distribution methods	2248	732	1516
Supporting activities	2254	791	1463
	Percentage Process Innovators		
Methods of manufacturing or production	48.9	53.6	46.4
Delivery or distribution methods	45.8	42.3	47.6
Supporting activities	45.9	45.7	46.0

Table 4.22: Responsibility for Process Innovations, 2008-2010

Responsibility for Process Innovations,	Number of Process Innovators		
	Total	Industry	Services
Mainly own enterprise	289	71	217
Mainly own group enterprise	139	26	113
Own enterprise in collaboration with other enterprises or institutions	71	39	32
Other enterprises or institutions	16	3	13
Enterprises which did not respond to the question	2584	1000	1584
Responsibility for Process Innovations,	**Percentage of Process Innovators**		
	Total	**Industry**	**Services**
	100.0	100.0	100.0
Mainly own enterprise	9.3	6.3	11.1
Mainly own group enterprise	4.5	2.3	5.8
Own enterprise in collaboration with other enterprises or institutions	2.3	3.4	1.6
Other enterprises or institutions	0.5	0.3	0.7
Enterprises which did not respond to the question	83.4	87.7	80.9

Table 4.23: Origin of Process Innovations, 2008-2010

Origin of Process Innovations	Number of Process Innovators		
	Total	Industry	Services
All Process Innovators	3099	1140	1959
Uganda	2607	933	1674
Abroad	455	190	265
Enterprises which did not respond to the question	37	17	19

Origin of Process Innovations	Percentage of Process Innovators		
	Total	Industry	Services
All Process Innovators	100.0	100.0	100.0
Uganda	84.1	81.8	85.5
Abroad	14.7	16.7	13.5
Enterprises which did not respond to the question	1.2	1.5	1.0

Table 4.24: Enterprises that were 'First Introducers/Implementers' of New or Significantly Improved Products and Processes, 2008-2010

Status of Innovation Activity	Number of Enterprises		
	Total	Industry	Services
A first in Uganda	667	326	341
A world first	82	44	39
New or significant changes in external relations with other firms or public institutions	787	279	508
Granted a license on any intellectual property rights resulting from innovation	-	-	-
Status of Innovation Activity	**Percentage of Enterprises**		
	Total	**Industry**	**Services**
A first in Uganda	17.6	24.2	14.0
A world first	2.2	3.2	1.6
New or significant changes in external relations with other firms or public institutions	20.8	20.7	20.8
Granted a license on any intellectual property rights resulting from innovation	-	-	-

Table 4.25: 'Highly Successful' Methods that Stimulated New Ideas or Creativity mong Staff of Innovative Enterprises, 2008 - 2010

Methods to Stimulate Creativity and Skills	Number of Innovative Enterprises		
	Total	Industry	Services
Brainstorming sessions	2760	875	1885
Multidisciplinary or cross-functional work teams	2382	694	1688
Job rotation of staff to different departments or other parts of the enterprise group	2217	802	1415
Financial incentives for employees to develop new ideas	1816	568	1248
Non-financial incentives for employees to develop new ideas	1787	514	1273
Training employees on how to develop new ideas or creativity	2876	971	1905
Methods to Stimulate Creativity and Skills	**Percentage of Innovative Enterprises**		
	Total	**Industry**	**Services**
Brainstorming sessions	73.0	64.9	77.4
Multidisciplinary or cross-functional work teams	63.0	51.5	69.3
Job rotation of staff to different departments or other parts of the enterprise group	58.6	59.5	58.1
Financial incentives for employees to develop new ideas	48.0	42.1	51.2
Non-financial incentives for employees to develop new ideas	47.2	38.1	52.3
Training employees on how to develop new ideas or creativity	76.0	72.0	78.2

Table 4.26: 'Highly Successful' Methods that Stimulated New Ideas or Creativity among Staff of Non-Innovative Enterprises, 2008 - 2010

Methods to Stimulate Creativity and Skills	Number of Non-Innovative Enterprises		
	Total	Industry	Services
Brainstorming sessions	460	170	290
Multidisciplinary or cross-functional work teams	371	148	223
Job rotation of staff to different departments or other parts of the enterprise group	408	160	249
Financial incentives for employees to develop new ideas	347	135	212
Non-financial incentives for employees to develop new ideas	235	86	149
Training employees on how to develop new ideas or creativity	433	164	269
Methods to Stimulate Creativity and Skills	**Percentage of Non-Innovative Enterprises**		
	Total	**Industry**	**Services**
Brainstorming sessions	40.7	44.4	38.8
Multidisciplinary or cross-functional work teams	32.9	38.7	29.9
Job rotation of staff to different departments or other parts of the enterprise group	36.1	41.6	33.3
Financial incentives for employees to develop new ideas	30.7	35.3	28.4
Non-financial incentives for employees to develop new ideas	20.8	22.4	20.0
Training employees on how to develop new ideas or creativity	38.3	42.9	36.0

Appendix D: Result Tables - Size Class

Table 5.1a Number and Percentage of Enterprises, 2008-2010

Type of innovation	Number of Enterprises											
	Total				Industry				Services			
	Large	**Medium**	**Small**	**Very Small**	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
All enterprises	**131**	**518**	**1100**	**3164**	92	254	401	983	39	264	698	2181
Enterprises with innovation activity	103	446	862	2372	64	205	301	776	39	241	561	1596
Product only innovators	-	30	167	269	-	10	12	105	-	19	155	163
Process only innovators	17	113	77	356	10	26	53	72	6	87	24	284
Product and process innovators	86	284	568	1598	54	162	211	552	32	122	357	1046
Enterprises with ongoing innovations	-	16	38	142	-	3	25	47	-	13	13	94
Enterprises with abandoned innovations	0	3	0	0	0	3	0	0	0	0	0	0
Enterprises with ongoing and abandoned	0	0	11	8	0	0	0	0	0	0	11	8
Enterprises without innovation activity	28	72	237	792	28	49	100	207	0	23	137	585
	Percentage of Enterprises											
All enterprises	**100.0**	**100.0**	**100.0**	**100.0**	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Enterprises with innovation activity	78.59	86.14	78.42	74.96	69.55	80.76	75.04	78.95	100.00	91.32	80.36	73.16
Product only innovators	-	5.77	15.22	8.49	7.35	-	7.38	22.23	-	7.38	22.23	7.49
Process only innovators	12.89	21.77	7.03	11.24	11.29	10.23	13.17	7.30	16.68	32.89	3.50	13.01
Product and process innovators	65.70	54.76	51.68	50.51	58.27	63.70	52.63	56.15	83.32	46.14	51.14	47.97
Enterprises with ongoing innovations	-	3.17	3.45	4.48	-	1.37	6.22	4.80	-	4.92	1.86	4.33

Type of innovation	Number of Enterprises											
	Total				Industry				Services			
	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
Enterprises with abandoned innovations	-	0.67	-	-	-	1.37	-	-	-	-	-	-
Enterprises with ongoing and abandoned	-	-	1.04	0.24	-	-	-	-	-	-	1.64	0.36
Enterprises without innovation activity	**21.41**	**13.86**	**21.58**	**25.04**	**30.45**	**19.24**	**24.96**	**21.05**	**-**	**8.68**	**19.64**	**26.84**

Table 5.1b Innovation Activities by Size Class, 2008-2010

Type of Innovation	Number of Enterprises											
	Total				Industry				Services			
	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
Goods innovation	-	10	120	88	-	10	12	55	-	-	108	32
Services innovation	-	19	122	202	-	-	-	65	-	19	122	137
Product innovation	86	313	736	1866	54	172	223	657	32	141	512	1210
Process innovation	103	396	646	1954	64	188	264	624	39	208	381	1330
	Percentage of Enterprises											
Goods innovation	-	2.33	13.92	3.71	-	5.07	4.03	7.14	-	-	19.23	2.03
Services innovation	-	4.36	14.16	8.52	-	-	-	8.35	-	8.08	21.77	8.61
Product innovation	83.60	70.26	85.31	78.67	83.77	83.95	74.19	84.62	83.32	58.59	91.30	75.81
Process innovation	100.00	88.85	74.87	82.37	100.00	91.58	87.70	80.37	100.00	86.53	67.98	83.35

Table 5.2: Number and Percentage of Employees by Size Class, 2010 (year-specific question)

Type of Enterprise	Number of Employees											
	Total				Industry				Services			
	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
All enterprises	**140,065**	**65,433**	**35,967**	**34,093**	**101,456**	**37,785**	**13,615**	**10,818**	**38,609**	**27,648**	**22,352**	**23,276**
Enterprises with innovative activity	124,953	55,730	28,459	26,002	86,344	30,564	10,146	8,595	38,609	25,166	18,313	17,407
Enterprises without innovative activity	15,112	9,704	7,508	8,091	15,112	7,221	3,469	2,222		2,482	4,039	5,869
Proportion of all Employees (%)												
All enterprises	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Enterprises with innovative activity	89.2	85.2	79.1	76.3	85.1	80.9	74.5	79.5	100.0	91.0	81.9	74.8
Enterprises without innovative activity	10.8	14.8	20.9	23.7	14.9	19.1	25.5	20.5	-	9.0	18.1	25.2

Table 5.3: Turnover 2010 (year specific question)

Type of Enterprise	Turnover (Ushs. billion)											
	Total				Industry				Services			
	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
All Enterprises	**908**	**5,280**	**1,560**	**5,600**	**554**	**2,110**	**741**	**733**	**354**	**3,170**	**819**	**4,870**
Enterprises with innovative activity	768	4,900	1,260	5,370	414	1,740	630	652	354	3,170	631,	4,720
Enterprises without innovative activity	141	379	299	227	141	379	111	81.5	-	0.2	187	145
Percentage of Total Turnover												
All Enterprises	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Enterprises with innovative activity	84.6	92.8	80.8	95.9	74.7	82.5	85.0	88.9	100.0	100.0	77.0	96.9
Enterprises without innovative activity	15.5	7.2	19.2	4.1	25.5	18.0	15.0	11.1	-	0.0	22.8	3.0

Table 5.4a: Product (Goods and Services) Innovators: Breakdown of Turnover by Type of Product Innovation , 2010 (year specific question)

Type of Product Innovation	Turnover Breakdown (Ushs. million)											
	Total				Industry				Services			
	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
All product innovators	504,200	3 ,788,000	884,170	1,515,200	150,200	1,718,000	254,370	643,800	354,000	2,070,000	629,800	871,400
Innovations new to the market	27,800	566,000	45,070	54,000	27,800	133,000	6,170	16,600	-	433,000	38,900	37,400
Innovations new to the firm	344,300	1,062,000	139,100	152,200	38,300	105,000	96,200	23,200	306,000	957,000	42,900	129,000
Unchanged or marginally modified	132,100	2,160,000	700,000	1,309,000	84,100	1,480,000	152,000	604,000	48,000	680,000	548,000	705,000
Product only innovators	-	254,382	278,868	110,842.1	-	218,930	3,168	3 0,263.7	-	35,452	275,700	80,578.4
Innovations new to the market		1,610	5,554	3,998.7	-	-	634	3,331.6	-	1,610	4,920	667.1
Innovations new to the firm	-	2,092	7,240	81,287.4	-	1,930	1,900	6,566.1	-	162	5,340	74,721.3
Unchanged or marginally modified	-	250,680	266,074	25,556	-	217,000	634	20,366	-	33,680	265,440	5,190
Product and Process innovators	504,200	3,531,170	605,329	1,405,190,	150,200	1,497,370	251,129	613,960	354,000	2,033,800	354,200	791,230
Innovations new to the market	27,800	564,170	39,553	50,020	27,800	132,670	5,543	13,290	-	431,500	34,010	36,730
Innovations new to the firm	344,300	1,059,000	131,846	71,270	38,300	102,700	94,356	16,670	306,000	956,300	37,490	54,600
Unchanged or marginally modified	132,100	1,908,000	433,930	1,283,900	84,100	1,262,000	151,230	584,000	48,000	646,000	282,700	699,900

Table 5.4b: Product (Goods And Services) Innovators: Percentage Breakdown of Turnover by Type of Product Innovation, 2010 (year specific question)

Type of Product Innovation	Turnover Breakdown (% of Total Turnover)											
	Total				Industry				Services			
	Large	**Medium**	**Small**	**Very Small**	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
All product innovators	**100.0**	**100.0**	**100.0**	**100.0**	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Innovations new to the market	5.5	14.9	5.1	3.6	18.5	7.7	2.4	2.6	-	20.9	6.2	4.3
Innovations new to the firm	68.3	28.0	15.7	10.0	25.5	6.1	37.8	3.6	86.4	46.2	6.8	14.8
Unchanged or marginally modified	26.2	57.0	79.2	86.4	56.0	86.1	59.8	93.8	13.6	32.9	87.0	80.9
Product only innovators	-	**100.0**	**100.0**	**100.0**		100.0	100.0	100.0		100.0	100.0	100.0
Innovations new to the market	-	0.6	2.0	3.6	-	-	20.0	11.0	-	4.5	1.8	0.8
Innovations new to the firm	-	0.8	2.6	73.3	-	0.9	60.0	21.7	-	0.5	1.9	92.7
Unchanged or marginally modified	-	98.5	95.4	23.1	-	99.1	20.0	67.3	-	95.0	96.3	6.4
Product and Process innovators	**100.0**	**100.0**	**100.0**	**100.0**	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Innovations new to the market	5.5	16.0	6.5	3.6	18.5	8.9	2.2	2.2	-	21.2	9.6	4.6
Innovations new to the firm	68.3	30.0	21.8	5.1	25.5	6.9	37.6	2.7	86.4	47.0	10.6	6.9
Unchanged or marginally modified	26.2	54.0	71.7	91.4	56.0	84.3	60.2	95.1	13.6	31.8	79.8	88.5

Table 5.5: Innovative Enterprises: Responsibility for the Development of Product Innovations, 2008-2010

Responsibility for Development of Product Innovation	Number of Innovative Enterprises											
	Total				Industry				Services			
	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
All Innovative enterprises	86	313	736	1,867	54	172	224	657	32	141	512	1,210
Mainly own enterprise	36	170	439	989	23	94	143	466	13	76	297	523
Mainly own enterprise group	13	25	113	253		12	23	33	13	13	91	220
Own enterprise in collaboration with other enterprises or institutions	28	33	42	257	28	7	23	69		26	19	188
Other enterprises or institutions	6	25	32	108		25	25	-	6		6	108
Enterprises which did not respond to the question	3	61	109	260	3	35	10	89	-	26	99	171
Proportion of Innovative Enterprises (%)												
All Innovative enterprises	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mainly own enterprise	41.2	54.2	59.7	53.0	41.9	54.3	63.8	71.0	40.0	54.1	57.9	43.2
Mainly own enterprise group	15.0	8.1	15.4	13.5	-	7.2	10.1	5.0	40.0	9.2	17.7	18.2
Own enterprise in collaboration with other enterprises or institutions	32.2	10.5	5.8	13.8	51.6	4.0	10.2	10.4	-	18.4	3.8	15.5
Other enterprises or institutions	7.5	7.9	4.3	5.8	-	14.3	11.2	-	20.0	-	1.3	8.9
Enterprises which did not respond to the question	4.0	19.3	14.9	13.9	6.5	20.1	4.7	13.6	-	18.4	19.3	14.1

Table 5.6: Innovative Enterprises: Origin of Product Innovations, 2008-2010

Origin of Product Innovation	Number of Innovative Enterprises											
	Total				Industry				Services			
	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
All Innovative enterprises	86	313	736	1,867	54	172	224	657	32	141	512	1,210
Uganda	51	248	507	1,437	38	119	134	460	13	130	374	976
Abroad	29	55	123	277	16	43	76	83	13	11	47	194
Enterprises which did not respond to the question	6	10	105	153	-	10	14	113	6		91	39
	Proportion of Innovative Enterprises (%)											
All Innovative enterprises	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Uganda	59.3	79.2	68.9	77.0	71.0	68.8	59.7	70.1	40.0	91.9	73.0	80.7
Abroad	33.1	17.5	16.8	14.9	29.0	25.1	34.0	12.7	40.0	8.1	9.2	16.0
Enterprises which did not respond to the question	7.5	3.3	14.3	8.2	-	6.0	6.2	17.2	20.0	-	17.8	3.3

Table 5.7: Origin of Process Innovations, 2008-2010

Origin of Product Innovation	Number of Innovative Enterprises											
	Total				Industry				Services			
	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
All process innovators	103	396	646	1954	64	188	264	624	39	208	381	1330
Uganda	81	309	546	1672	42	146	212	533	39	162	334	1139
Abroad	23	84	93	256	23	38	46	84	-	46	47	172
Enterprises which did not respond to the question	-	3	7	26	-	3	7	7	-	0	0	19
	Proportion of Innovative Enterprises (%)											
All Innovative enterprises	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Uganda	78.1	77.9	84.5	85.6	64.9	77.9	80.1	85.4	100.0	77.9	87.6	85.6
Abroad	21.9	21.3	14.4	13.1	35.1	20.3	17.3	13.4	-	22.1	12.4	12.9
Enterprises which did not respond to the question	-	0.9	1.1	1.3	-	1.8	2.6	1.1	-	0.0	0.0	1.4

Table 5.8: Enterprises that were part of a Larger Group, 2008 – 2010

Status	Number of Enterprises											
	Total				Innovative				Non-innovative			
	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
Part of a larger group	42	214	297	917	39	169	201	779	3	45	96	137
Not part of a larger group	89	291	791	2146	64	265	650	1570	25	26	142	576
Percentage of Enterprises												
Part of a larger group	0.9	4.4	6.0	18.7	1.0	4.5	5.3	20.6	0.3	4.0	8.5	12.1
Not part of a larger group	1.8	5.9	16.1	43.7	1.7	7.0	17.1	41.5	2.2	2.3	12.6	51.1

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