UNCST

The Republic of Uganda

National Innovation Survey 2011-2014

2016 Report

UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY
Ministry of Science, Technology and Innovation

National Innovation Survey 2011-2014

2016 Report

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Table of Contents

Foreword . . . iv

Acknowledgements . . . v

Survey Team . . . vi

Acronyms and Abbreviations . . . vii

List of Tables . . . viii

List of Figures . . . xi

Executive Summary . . . xiii

Chapter 1: Introduction . . . 1

Chapter 2: Survey Methods . . . 3

Chapter 3: Survey Results . . . 7

APPENDICES . . . 53

Appendix A: Basic Definitions . . . 55

Appendix B: Key to ISIC Rev.4 Classification . . . 57

Appendix C: NIS 2011–2014 Questionnaire . . . 58

Appendix D: Result Tables: NIS 2011–2014 . . . 64

Appendix E: Result Tables – Size Class . . . 105

Foreword

Uganda National Council for Science and Technology (UNCST) continuously engages in the generation and analysis of Science, Technology and Innovation (STI) statistics for evidence based policy and planning for the STI sector. It acts as a nodal agency for conducting and coordinating innovation surveys in Uganda.

The national innovation survey is carried out periodically to measure changes in the key indicators of STI sector performance. The NIS 2011-2014 was conducted by UNCST in collaboration with Uganda Bureau of Statistics (UBOS) in accordance with the UBOS Act, 1998 and UNCST Act, 1990. The Survey was financed with resources from the Government of Uganda and implemented in line with the agreed set of international standards as laid out in the OECD Oslo Manual.

This survey report highlights the innovation potential of business enterprises in Uganda in terms of innovation activities, innovation sources, and factors affecting innovation activities. The report is based on the analysis of 6475 business establishments across various industrial and services sectors in the country.

A commendable effort has been made by UNCST together with its collaborative partners within the frameworks of the African Science, Technology and Innovation Initiative (ASTII) and the Plan for National Statistical Development (PNSD) to put together fundamental issues related to innovations in the context of developing economies in order to enhance the policy relevance of this report.

I hope the report provides sound statistical basis for evidence based policy decision making and strengthens the innovation infrastructure and growth of business enterprises in the country.

Dr. Peter Ndemere
Executive Secretary

Acknowledgements

Uganda National Council for Science and Technology (UNCST) is grateful to the Government of Uganda for financing the implementation of this Survey. The Council acknowledges the Uganda Bureau of Statistics (UBOS) for providing technical support in developing of the sampling frame for the Survey. The various enterprises that participated in the survey are hereby acknowledged with thanks for their valuable responses. We are grateful for giving your time and attention to the Survey and providing the relevant information.

Special thanks go to STI Policy Development and Coordination Division for executing the Survey. Particularly acknowledged are Richard B. Lutalo and Patrick Mafabi of the STI Statistics Unit for their tireless technical support and contributions. We are also grateful to a team of enumerators for their efforts in the collection of data from various enterprises around the country.

The Council also appreciates efforts rendered by all management and staff of UNCST in implementing the National Innovation Survey 2011–2014.

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Acronyms and Abbreviations

ASL	Above Sea Level
CIS	Community Innovation Survey(s)
EC	European Commission
EU	European Union
GDP	Gross Domestic Product
ISIC	International Standard Industrial Classification of All Economic Activities
NDP	National Development Plan
NGO	Non-Governmental Organisation
NEPAD	New Partnerships for African Development
NIS	National Innovation Survey
NSI	National System of Innovation
PNSD	Plan for National Statistical Development
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
S&T	Science and Technology
STI	Science, Technology and Innovation
STISA	Science, Technology and Innovation Strategy for Africa
UBOS	Uganda Bureau of Statistics
UNCST	Uganda National Council for Science and Technology

List of Tables

Table S-1: Innovative Rate: Percentage Innovation for Innovative and Non-innovative Enterprises, 2011-2014 xiv

Table S-2: Technological and non-technological innovation activity rates by sector and number of persons engaged, 2011-2014 xv

Table 2.1: Enterprises included in the NIS-2015 5

Table 3.1: Technological innovation activity rates by size class, 2011 – 2014 7

Table 3.2: Technological innovation activity rates by sector and size class, 2011 - 2014 8

Table 3.3 Technological innovation activity rates by nationality of ownership and size class, 2011 - 2014 9

Table 3.4: Technological innovation activity rates by sector and nationality of ownership, 2011 - 2014 10

Table 3.5: Technological innovation activity rates by ISIC sector, 2011 – 2014 11

Table 3.6: Detailed technological innovation activity rates by nationality of ownership, sector and number of persons engaged, 2011 - 2014 13

Table 3.7: Detailed product and process innovation activity rates by nationality of ownership, sector and number of persons engaged, 2011 - 2014 15

Table 3.8: Responsibility for the Development of Product Innovations in Innovative Enterprises, 2011 - 2014 16

Table 3.9: Responsibility for the Development of Product Innovations by Size Class, 2011 - 2014 17

Table 3.10: Origin of Product Innovations, 2011 - 2014 17

Table 3.11: Origin of Product Innovation by Size Class, 2011 - 2014 . . . 18

Table 3.12: Responsibility for the Development of Process Innovations, 2011 - 2014 . . . 18

Table 3.13: Origin of Process Innovation, 2011 - 2014 . . . 19

Table 3.14: Origin of Process Innovation by Size Class, 2011 - 2014 . . . 19

Table 3.15a: Product Innovators: Proportion of Turnover Attributed to Types of Product Innovations, 2014 (year specific question) . . . 20

Table 3.15b: Product Innovators: Proportion of Turnover in 2014 Attributed to the Types of Products, by Size of Enterprises (%) . . . 20

Table 3.16: Percentage of total turnover attributed to new to firm and new to market product innovation activities by nationality of ownership, sector and number of persons engaged, 2011 - 2014 . . . 22

Table 3.17: Percentage of enterprises engaged in new to firm and new to market product innovation activities by nationality of ownership, sector and number of persons engaged, 2011 – 2014 . . . 22

Table 3.18: Technological innovation expenditure by nationality of ownership, sector and number of persons engaged, 2014 . . . 26

Table 3.19: Percentage of enterprises engaged in technological innovation expenditure by nationality of ownership, sector and number of persons engaged, 2014 . . . 27

Table 3.20: Percentage of Innovative Enterprises that Received Financial Support for Innovation Activities from Government Sources 2011 - 2014 . . . 28

Table 3.21: Type of co-operation partner for technological innovative enterprises by nationality of ownership, sector and number of persons engaged, 2011 - 2014 . . . 33

Table 3.22: Location of co-operation partner for technological innovative enterprises by nationality of ownership, sector and number of persons engaged, 2011 - 2014 . . . 34

Table 3.23: 'Highly Important' Effects of Innovation on Objectives for Innovative Enterprises, 2011 - 2014 . . . 35

Table 3.24: Enterprises with Innovation Activity that Cited Problems with their Innovation Activity, 2011 - 2014 37

Table 3.25: Highly important hampering factors to innovation activities for innovative and non-innovative enterprises by sector and number of persons engaged 2011 - 2014 40

Table 3.26: Highly important reasons not to innovate by sector and number of persons engaged, 2011 - 2014 41

Table 3.27: Organisational innovation activity rates by sector and number of persons engaged, 2011 - 2014 44

Table 3.28: Highly important objectives of technological innovative active enterprises with organisational innovation by sector and number of persons engaged 45

Table 3.29: Marketing innovation activity rates by nationality of ownership, sector and number of persons engaged, 2011 - 2014 48

Table 3.30: 'Highly successful methods that stimulated new ideas or creativity among staff of all enterprises, 2011-2014 51

Table 3.31: Type of creativity and skills employed by technological or non-technological innovation enterprises that are rated as successful, by nationality of ownership, sector and number of persons engaged, 2011 – 2014 52

List of Figures

Figure S-1: Product and process innovation activity rates by sector and nationality of ownership, 2011 - 2016 xvi

Figure S-2: Percentage of total turnover attributed to product innovation activities by sector and nationality of ownership, 2011 - 2014 xvii

Figure S-3: Technological innovation expenditure by sector, 2010 xviii

Figure 3.1: Detailed innovation activity rates by number of persons engaged, 2011 - 2014 12

Figure 3.2: Detailed product and process innovation activity rates by sector, 2011 - 2014 14

Figure 3.3: Types of Innovation Activities among Innovative Enterprises, 2011 - 2014 23

Figure 3.4: Percentage share of innovation expenditure by type of expenditure for all enterprises, 2014 24

Figure 3.5: Percentage of enterprises with innovation expenditure by sector, 2014 25

Figure 3.6: Percentage of enterprises with innovation expenditure by nationality of ownership, 2014 25

Figure 3.7: 'Highly Important' Sources of Information for Innovative Enterprises, 2011 - 2014 29

Figure 3.8: Type of co-operation partner for innovative enterprise by sector, 2011 - 2010 30

Figure 3.9: Type of co-operation partner for innovative enterprise by nationality of ownership, 2011 - 2014 30

Figure 3.10: Location of co-operation partner for innovative enterprises, 2011 - 2014 31

Figure 3.11: Location of co-operation partner for innovative enterprises by nationality of ownership, 2011 - 2014 32

Figure 3.12: 'Highly Important' Effects of Innovation on Outcomes for Innovative Enterprises, 2011 - 2014 . . . 36

Figure 3.13: Highly important hampering factors to innovation activities for innovative enterprises by sector, 2011 - 2014 . . . 38

Figure 3.14: Highly important reasons not to innovate for non-innovative enterprises by number of persons engaged, 2011 - 2014 . . . 38

Figure 3.15: Organisational innovation activity rates by sector, 2011 - 2014 . . . 42

Figure 3.16: Highly important objectives of introducing organizational innovations by sector, 2011 - 2014 . . . 43

Figure 3.17: Detailed marketing innovation activity rates by number of persons engaged, 2011 - 2014 . . . 46

Figure 3.18: Detailed marketing innovation activity rates by nationality of ownership, 2011 – 2014 . . . 47

Figure 3.19: 'Highly successful methods that stimulated new ideas or creativity among staff of technological innovative enterprises, 2011-2014 . . . 49

Figure 3.20: Type of creativity and skills employed by technological or non-technological innovative enterprises that are rated as successful, by number of persons engaged, 2011- 2014 . . . 50

Executive Summary

The National Innovation Survey 2011–2014 was conducted by Uganda National Council for Science and Technology (UNCST) in collaboration with Uganda Bureau of Statistics (UBOS). Data was collected in accordance with the prevailing national statistical legislation[1] and the survey was carried out under the agreed set of international rules as laid out in the OECD Oslo Manual[2]. It benchmarked the Community Innovation Surveys (CIS) implemented by Member States of the European Union (EU)[3].

The Survey collected information about product and process innovations, organisational and marketing innovations and other key variables during the four year period 2011 to 2014 inclusive. The majority of the data presented here refers to technological innovation; new or significantly improved goods or services; the implementation of new or significantly improved processes; or ongoing/abandoned innovation for products and processes. The survey sampled 589 business establishments employing ten (10) or more persons from a total population of 6475 business enterprises in the Industry and Services sectors during the reference period. The survey registered a response rate of 90.5% which is well above the Eurostat optimal return rate of at least 70%.

Seventy-seven percent of the survey respondents indicated that they carried out innovative activities during the reference period, 2011–2014.

Technological innovation activities were reported in 4987 (77%) enterprises of which 72.1% had successful technological innovations. The results show that 48.2% of the enterprises engaged in 'product and process' innovations. Organisational and marketing innovations were found in 72% and 69% of the enterprises respectively. *See Table S-1.*

1 Uganda Bureau of Statistics Act No. 2 of June 11, 1998 (CAP 310) and UNCST Act of 1990 (CAP 209)

2 http://www.oecd.org/sti/inno/oslomanualguidelinesforcollectingandinterpretinginnovationdata3rdedition.htm

3 The Community innovation survey, abbreviated as CIS, is conducted in every European Union (EU) Member State to collect data on innovation activities in enterprises, i.e. on product innovation (goods or services) and process innovation (organisational and marketing aspects).

Table S-1: Innovative Rate: Percentage Innovation for Innovative and Non-innovative Enterprises, 2011-2014

Type of Innovation	Total (%)	Industry[a] (%)	Services[b] (%)
Enterprises with innovation activity	***77.0**	**85.7**	**73.8**
Product only innovators	**11.2**	**7.2**	**12.8**
Process only innovators	12.7	13.7	12.4
Product and process innovators	48.2	59.2	44.1
Enterprises with 'ongoing only' activities	2.4	2.4	2.4
Enterprises with 'abandoned only' activities	1.9	2.7	1.6
Enterprises with ongoing and abandoned activities	0.5	0.5	0.5
Enterprises without innovation activity	**23.0**	**14.3**	**26.2**

Source: UNCST - National Innovation Survey 2011 - 2014: Appendix D Tables 1.1 & 1.28

(a) Industry comprises mining & quarrying, manufacturing; electricity, gas, steam and air conditioning supply; and remediation activities; and construction.

(b) Services comprise wholesale and retail trade, repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities; information and communication; financial and insurance activities; real estate activities; and professional, scientific and technical activities.

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

Over 90% of all enterprises were technological or non-technological innovation active during 2011-2014.

Overall, 92.2% of enterprises employing 10 or more persons in the industry and services sectors were technologically or non-technologically innovation active over the period 2011-2014. These enterprises generated 97.1% of total turnover and the same percentage of total persons engaged worked in such enterprises. *See Table S-2.*

Table S-2: Technological and non-technological innovation activity rates by sector and number of persons engaged, 2011-2014

Size class	Enterprises with technological innovation activities (%)	Turnover that is generated by enterprises with technological innovation activities in 2014 (%)	Persons engaged who work in enterprises with technological innovation activities in 2014 (%)
Total Industry	**96.2**	**99.3**	**99.3**
Total Services	**90.7**	**96.5**	**95.8**
All Enterprises			
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	96.8	91.2	96.5
Small (20-49)	94.4	98.1	94.6
Very Small (1-19)	89.7	99.4	90.3
Total All Enterprises	**92.2**	**97.1**	**97.4**

Source: Appendix D Table 1.2

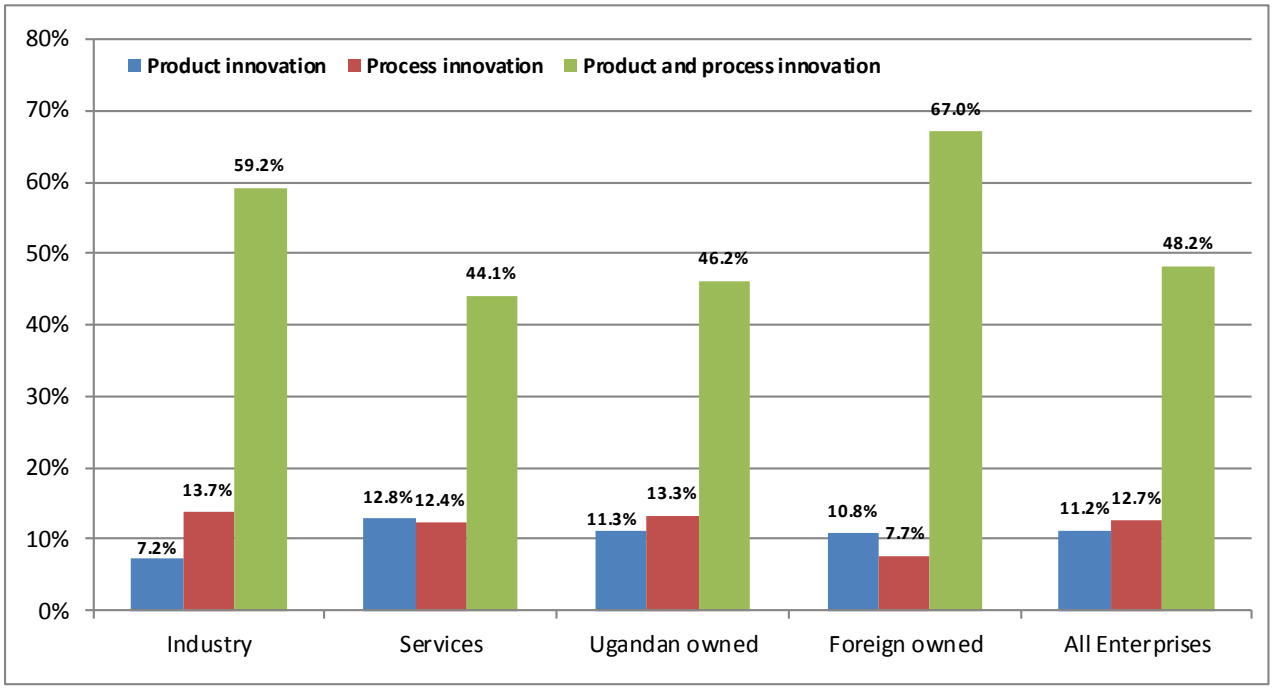
Over three-quarters of all enterprises were technological innovation active during 2011-2014

Overall, it was found that 77% of all enterprises employing ten or more persons in industry and services sectors were innovation active in the reference period. These enterprises generated 85.7% of all turnover, and employed 73.8% of persons engaged.

Over 11% of enterprises were engaged in product innovations, while almost 13% were engaged in process innovations.

Over one in ten (11.2%) of enterprises in industry and services sectors had product innovations while 12.7% were engaged in process innovations. Close to one in two enterprises (48.2%) of these enterprises were engaged in both process and product innovations. Over half (59.2%) of industrial enterprises were engaged in product and process innovations compared to over 44.1% of enterprises in services sectors. A bigger proportion of foreign owned enterprises (67%) engaged in product and process innovations compared to Ugandan owned enterprises. *See Figure S-1.*

Figure S-1: Product and process innovation activity rates by sector and nationality of ownership, 2011 - 2014



Source: UNCST - National Innovation Survey 2011 - 2014.

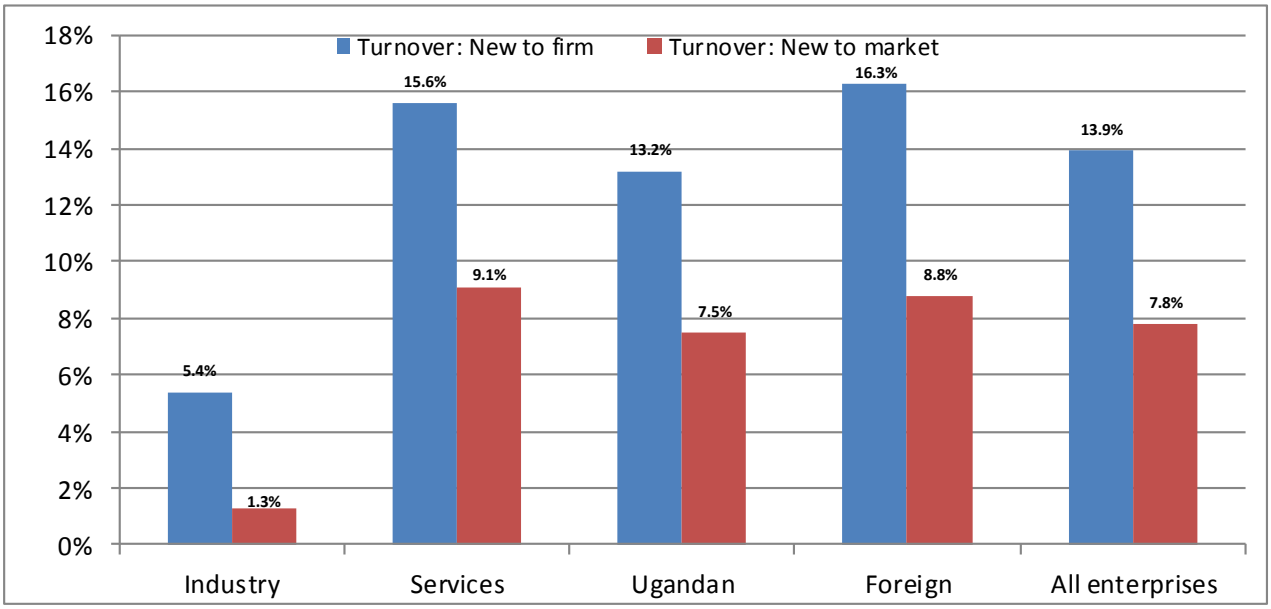
Source: Appendix D Tables 1.8

Over 21% of turnover in industry and selected services sectors in 2014 resulted from new to firm or new to market product innovations.

During the reference period, 13.9% of the turnover for enterprises in 2014 was estimated to be the result of new to firm product innovations, while close to 8% of turnover was as a result of new to firm product innovations in the same year.

A quarter (25.1%) of the turnover of foreign owned enterprises was generated as a result of new to market and new to firm product innovations compared to over a fifth (20.7%) of the turnover of Ugandan owned enterprises. *See Figure S-2.*

Figure S-2: Percentage of total turnover attributed to product innovation activities by sector and nationality of ownership, 2011 - 2014



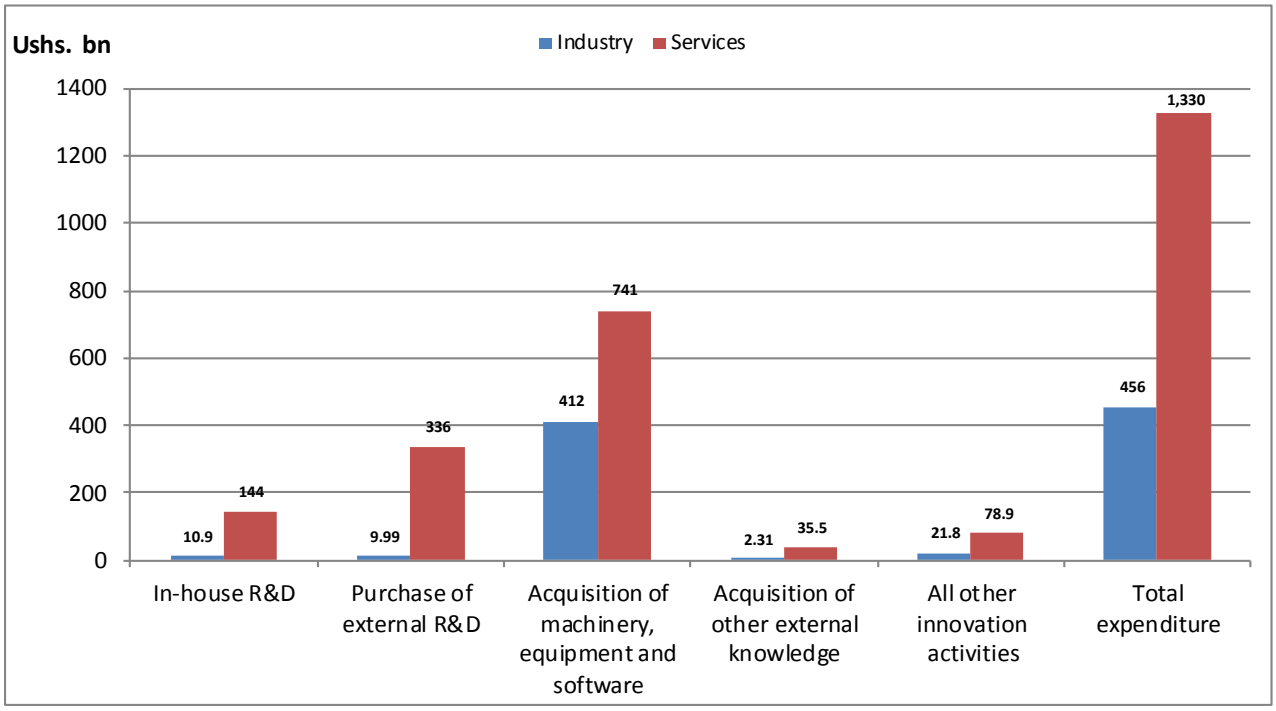
Source: UNCST - National Innovation Survey 2011 - 2014.

Appendix D Tables 1.15

Total spending on Technological innovation activity was Ushs. 1,790 billion in 2014

Total expenditure on technological innovation related activities across the Ugandan economy was estimated at Ushs. 1,790bn in 2014. Services sector enterprises spent Ushs.1,330bn, while industrial enterprises spent Ushs. 456bn. Over 64% of expenditure or nearly Ushs. 1,150 billion was spent on in-house Research and Development (R&D). *See Figure S-3.*

Figure S-3: Technological innovation expenditure by sector, 2014



Source: UNCST - National Innovation Survey 2011–2014; Appendix C Tables 1.18

Over a quarter (27%) of all technological innovation active enterprises were engaged in innovation co-operation.

Over one in four (27.1%) of all technological innovation active enterprises were engaged in innovation co-operation. Over a quarter (29.3%) of technological innovation active enterprises in the services sector engaged in innovation co-operation compared to 22.1% of the enterprises in the industrial sector.

Uganda: Key Socio-Economic Indicators, 2014

Geographical Indicators	
Latitude	4012'N & 1029'S
Longitude	29034'E & 3500'E
Altitude (minimum ASL) (maximum ASL)	620 metres 5,110 metres
Total surface area	241,550.7 km^2
Area under land	200,523.2 km^2
Area under water and swamps	41,027 km^2
Temperature	14-31°C
Rainfall	**1000-1606 mm/year**
Economic Indicators, 2014	
GDP at current market prices	72,127 billion Shs.
Per capita GDP at current market prices	2,078,287 Shs.
GDP growth rate at constant (2009) market prices	5.0 percent
Per capita GDP growth rate at constant (2009) market prices	1.9 percent
Contribution of agriculture to GDP at current market prices	24.7 percent
Reserves	202.4 million US$
Inflation rate	4.3 percent
Budget deficit excluding grants as a percentage of GDP (2014/15)	**-8.8 percent**
Demographic and socio-economic indicators	
Total population (2014 *provisional results)	34.1 million
Percentage urban (2014 *provisional results)	18.4 percent
Population of Kampala city (2014 *provisional results)*	1.52 million
Sex ratio of total population (2014 *provisional results)	94.5 males per 100 females
Sex ratio of total population (2002 census)	95 males per 100 females
Population density (2014 census)	174 persons /km2
Infant Mortality rate (2002 census)	76 per 1000 live births
Life Expectancy at birth (2002 census) Male Female	50.4 years 48.8 years 52.0 years
Pupil Teacher ratio (Primary 2014)	50
Pupil Classroom ratio (Primary 2014)	59
Student Teacher ratio (Secondary 2014)	22
Student Classroom ratio (Secondary 2014)	50

Note: *Demographic estimates were based on the Census 2014 provisional results. Only population of gazetted city, municipalities and towns was considered as urban population.

Reserve estimates based on Balance of Payments manual 6

Source: Uganda Bureau of Statistics 2012 Statistical Abstract

Chapter 1
Introduction

1.1 Background

Uganda National Council for Science and Technology (UNCST) conducts an official series of National Innovation Surveys as part of the country's efforts to establish datasets of science and technology (S&T) indicators for monitoring, reporting and fine-tuning the National System of Innovations (NSI). The surveys support implementation and review of the National Science, Technology and Innovation Plan (2012/13-2017/18), National Development Plan (NDP II), Vision 2040, STISA-2024 and Agenda 2030. The National Innovation Survey 2011-2014 also 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 a basis for regional, continental and global comparison of innovation outcomes.

This report presents findings of Uganda's National Innovation Survey covering the period 2011-2014 inclusive. It presents key indicators describing the activities and patterns of innovation in the business sector in Uganda, including resources and investment provided for innovation in enterprises; the types of innovation activities carried out; the level of novelty of innovations (new to an enterprise, new to the market and new to the country); sources of information for innovation; and factors influencing innovation. The report also covers a number of other variables and factors that provide insight into innovation processes in Uganda and is meant to inform the development of innovation policy. The survey collects 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 method adopted for the Survey was based on recommendations of the Organisation of Economic Co-operation and Development's (OECD) Oslo Manual (OECD 2005)[4] as well as the framework of the Community Innovation Surveys (CIS)[5] executed by national statistical offices throughout the European Union. This Survey retains some of the features in the National Innovation Survey 2012 (2008-2010) while at the same time adopting different approaches in several areas. The reference period for this Survey is 2011-2014 and data was collected between June and December 2015.

4 OECD (Organisation for Economic Co-operation and Development)/European Commission (2005). Oslo Manual, 3rd edition. Paris: OECD Publishing.

5 The Community Innovation Survey (CIS) is conducted by all the countries in the European Union and is based on internationally-harmonised definitions (OECD Oslo Manual). The aim of the survey is to describe the innovation process, to measure its economic weight, to evaluate its effects and to appraise its mechanisms cooperation, resources, obstacles, etc.).

1.2 The Oslo Manual

The Oslo Manual published by the Organisation for Economic Co-operation and Development (OECD) and the European Commission (EC) 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. The ***Oslo Manual*** is the foremost international source of guidelines for the collection and use of data on innovation activities in industry[6]. The Manual also investigates the field of non-technological innovation and the linkages between different innovation types.

1.3 Community Innovation Surveys

The Community Innovation Surveys (CIS) are a series of official surveys executed by national statistical offices in the European Union to provide information on innovativeness of different sectors and regions. The CIS collects information on the innovation tendency at firm level.

1.4 Outline of the Report

The Report is divided into three chapters. Chapter 1 introduces the report. Chapter 2 discusses the survey method. Chapter 3 presents the findings of the National Innovation Survey 2011-2014.

6 http://www.oecd.org/sti/inno/oslomanualguidelinesforcollectingandinterpretinginnovationdata3rdedition.htm

Chapter 2
Survey Methods

2.1 Introduction

The National Innovation Survey 2011-2014 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 Survey Design

The survey design was informed by Eurostat guidelines and entailed the use of the National Business Register (UBOS Census of Business Establishments Register, 2010/2011).

The survey design involved:

- A stratified sampling design with simple random sampling within the strata. The strata were defined according to economic activity. Neymann method was used for sample allocation. *See Table 2.1.*
- An in-field survey with at least two telephone contacts and three physical call backs 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[7].

2.3 Sampling Method

The target population was business enterprises in industry and services sectors whose sample frame was obtained from the Register of Business Establishments. In line with the Oslo Manual it was restricted to businesses 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 = 6475 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.

$$n = \frac{Z^2 \alpha/2\ PQ}{E^2}$$

7 Sample selection and non-response weights

The sample size n to estimate proportion (P) of Innovative Businesses from a population N is obtained by the formula below.

Where:

E= Permissible error; = Level of Significance; =Standard Normal Statistics; P=Proportion of Innovative Businesses from previous surveys; Q= Proportion of non-innovative Businesses; It should be noted that in most cases E≤5%.

According to National Innovation Survey 2008-2010, the proportion (P) of enterprises with Innovation activity were 77 percent meaning 23 percent of the Enterprises had no innovation activity. Therefore from the Previous Innovation Survey P=77% (0.77), Q=23% (0.23).

In order to be 95 percent confident that the estimate of enterprises with innovation activity is close to the population estimate, a permissible error E= within±3.4% was allowed. Using this formula, the sample size (n) was 589 businesses which were proportionately distributed across the strata.

2.4 Adjusting the sample size (n) for non-response

One of the challenges of business surveys is to achieve a response rate of one hundred percent. This affects the predetermined level of precision. In order to address this challenge there was need to adjust the determined sample size to cater for non-response as follows:

$$n' = \frac{n}{r}$$

Where:

n= original sample size (589) and r= response rate for the 2008-2010 survey (83.5 percent)

Thus $n' = 705$.

2.5 Sample Allocation and Selection

The 6475 enterprises were categorized into 11 clusters of economic activity from which a sample of 705 enterprises was selected using the probability proportion to size sampling technique. The sample size was distributed based on number of businesses in the sub-sector. The selection of enterprises that responded to the survey was done using simple random sampling with the aid of computer generated random numbers.

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 2011-2014

Activity	N	n
Mining and quarrying	53	6
Manufacturing	1285	142
Electricity, gas, steam and air conditioning supply	25	3
Construction	411	45
Wholesale and retail trade; repair of motor vehicles motorcycles	2390	260
Transport and storage	308	34
Accommodation and food services	1004	106
Information and communication	42	5
Financial and insurance services	624	68
Real estate activities	182	20
Professional, scientific and technical activities	151	16
Total	**6475**	**705**

Source: Uganda Bureau of Statistics

2.6 Questionnaire Design

The questionnaire used for the survey was based on the harmonised survey instrument - the Community Innovation Survey, (CIS 2012) of Eurostat[8]. The questionnaire was customized to the national context (see Appendix C). The questionnaire was structured to pick general information about enterprises, product and process innovations, organisational and marketing innovations, partnerships and competitiveness over the period 2011-2014 based on individual enterprise records.

2.7 Field Work Organisation and Data Processing

A team of 31 enumerators was engaged in survey data collection between June and December 2015. The enumerators were inducted in technical aspects of the implementing the National Innovation Survey. During this period, enterprises that did not respond promptly received at least two telephone reminders and at least three physical call backs to participate in the survey. Field supervision visits were conducted for quality control purposes. The survey registered a response rate of 90.5% which is well above the Eurostat optimal return rate of at least 70%.

8 http://ec.europa.eu/eurostat/web/microdata/community-innovation-survey

2.8 Data Processing

All returned questionnaires were checked for completeness and accuracy prior to coding and entry. A double-entry system was used to enter data in CSPro version 6 where the results were compared for consistency and accuracy of the entries. Cleaned and accurate data were analysed using Stata version 12 computer software. The results are presented using cross tabulations and graphics.

Chapter 3
Survey Results

The National Innovation Survey 2011-2014 collected information about product and process innovation, organisational and marketing innovation and other key variables during the four year period. The main focus of this report is technological innovation; new or significantly improved goods or services; the implementation of new or significantly improved processes; or ongoing/ abandoned innovation for products and processes.

3.1 Overall Technological Innovation Rates

Enterprises categorised as technologically innovation active are those enterprises that had carried out a product innovation or a process innovation between 2011 and 2014, or that had abandoned or had on-going innovation activities. The tables and graphs presented in this chapter are in respect of technologically innovation active enterprises only.

3.1.1 Technological Innovation Rates by Size Class

During the period 2011 to 2014 inclusive, 77% of enterprises in Uganda that employed ten or more persons indicated that they were technologically active innovators. The enterprises that were engaged in innovation activities generated 85.7% of the turnover and employed 73.8% of all persons engaged. All large enterprises (employing 250 and above persons) were technologically innovation active while 74.2% of the 'very small' enterprises were technologically innovation active. *See Tables 3.1.*

Table 3.1: Technological innovation activity rates by size class, 2011 – 2014

Size Class	Enterprises with technological innovation activities (%)	Turnover that is generated by enterprises with technological innovation activities in 2014 (%)	Persons engaged who work in enterprises with technological innovation activities in 2014 (%)
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	88.6	89.4	88.6
Small (20-49)	74.2	34.7	74.1
Very Small (1-19)	74.2	98.4	76.6
All Enterprises	**77.0**	**85.7**	**73.8**

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Tables 1.1 & 1.3

3.1.2 Technological Innovation Rates by Sector and Size Class

Industrial enterprises categorised as innovation active during the period 2011 to 2014 accounted for 85.7%. These accounted for 60.9% of the turnover generated in industry. During the same period, 73.8% of services enterprises were innovation active and accounted for 92.6% of turnover generated by enterprises in the services sectors. All the turnover of large industrial enterprises was generated by technologically active innovators. *See Tables 3.2.*

Table 3.2: Technological innovation activity rates by sector and size class, 2011 - 2014

Size Class	Enterprises with technological innovation activities (%)	Turnover that is generated by enterprises with technological innovation activities in 2014 (%)	Persons engaged who work in enterprises with technological innovation activities in 2014 (%)
Industry			
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	92.7	100.0	93.3
Small (20-49)	83.9	4.1	83.2
Very Small (1-19)	82.6	97.6	82.1
Total	**85.7**	**60.9**	**96.1**
Services			
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	85.8	85.5	85.1
Small (20-49)	70.8	71.0	70.7
Very Small (1-19)	71.5	98.3	74.8
Total	**73.8**	**92.6**	**87.1**
All Enterprises	**77.0**	**85.7**	**73.8**

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.4

3.1.3 Technological Innovation Rates by Nationality of Ownership and Size Class

Majority of all foreign enterprises (87.9%) were innovation active compared to 75.8% of Ugandan owned enterprises. The foreign enterprises with innovation activities generated 90.2% of total turnover compared to 84.6% for Ugandan owned enterprises. In terms of persons engaged, foreign and Ugandan owned technologically innovative enterprises accounted for 91.6% and 91.1% respectively. *See Tables 3.3.*

Table 3.3 Technological innovation activity rates by nationality of ownership and size class, 2011 - 2014

Size Class	Enterprises with technological innovation activities (%)	Turnover that is generated by enterprises with technological innovation activities in 2014 (%)	Persons engaged who work in enterprises with technological innovation activities in 2014 (%)
Ugandan			
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	90.6	86.9	90.7
Small (20-49)	73.4	10.8	73.7
Very Small (1-19)	72.4	97.9	74.4
Total	**75.8**	**84.6**	**91.1**
Foreign			
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	69.3	99.6	74.3
Small (20-49)	80.5	70.8	77.4
Very Small (1-19)	95.7	99.2	94.5
Total	**87.9**	**90.2**	**91.6**
All Enterprises	**77.0**	**85.7**	**73.8**

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Tables 1.5

3.1.4 Technological Innovation Rates by Sector and Nationality of Ownership

All foreign owned industrial enterprises were innovation active compared to 85.1% of Ugandan owned industrial enterprises. During the reference period, 86.4% of foreign owned enterprises in the services sectors were innovation active compared to 72% of such Ugandan owned enterprises. *See Table 3.4.*

Table 3.4: Technological innovation activity rates by sector and nationality of ownership, 2011 – 2014

Nationality of Ownership	Enterprises with technological innovation activities (%)	Turnover that is generated by enterprises with technological innovation activities in 2014 (%)	Persons engaged who work in enterprises with technological innovation activities in 2014 (%)
Industry			
Ugandan	85.1	60.7	96.0
Foreign	100.0	100.0	100.0
Services			
Ugandan	72.0	93.7	85.5
Foreign	86.4	90.1	91.4
All Enterprises	**77.0**	**85.7**	**73.8**

Source: UNCST – National Innovation Survey 2011–2014; Appendix D Tables 1.6

3.1.5 Technological Innovation Rates by Economic Activity

ISIC sectors 45–47 accounted for 24.5% of the innovation active enterprises, 16.1% of turnover and 11.8% of persons engaged. Innovation active enterprises within ISIC sectors 10–33 were 17.5%, generated 12% of the total turnover and employed 36.9% of all the total persons engaged.

The largest turnover (23.4%) generated by enterprises with technological innovative activities over the period occurred in ISIC sectors 64–66. *See Table 3.5.*

Table 3.5: Technological innovation activity rates by ISIC sector, 2011 – 2014

ISIC Code	ISIC Sector	Enterprises with technological innovation activities (%)	Turnover that is generated by enterprises with technological innovation activities in 2014 (%)	Persons engaged who work in enterprises with technological innovation activities in 2014 (%)
Industry				
05-09	Mining and quarrying	0.3	0.0	0.1
10-33	Manufacturing	17.5	12.0	36.9
35	Electricity, gas, steam and air conditioning supply	0.4	0.0	0.1
41-43	Construction	5.3	1.3	6.6
05-43	**Industry**	**85.7**	**60.9**	**96.1**
Services				
45-47	Wholesale and retail trade; repair of motor vehicles and motorcycles	24.5	16.1	11.8
49-53	Transportation and storage	3.8	4.8	11.1
55-56	Accommodation and food service activities	12.1	9.4	5.4
58-63	Information and communication	1.1	1.3	0.6
64-66	Financial and insurance activities	8.9	23.4	16.1
68	Real estate activities	1.7	16.7	1.6
69-75	Professional, scientific and technical activities	1.5	0.5	0.8
69-75	**Services**	**73.8**	**92.6**	**87.1**
	All Enterprises	**77.0**	**85.7**	**73.8**

Source: UNCST – National Innovation Survey 2011 – 2014; Appendix D Table 1.7

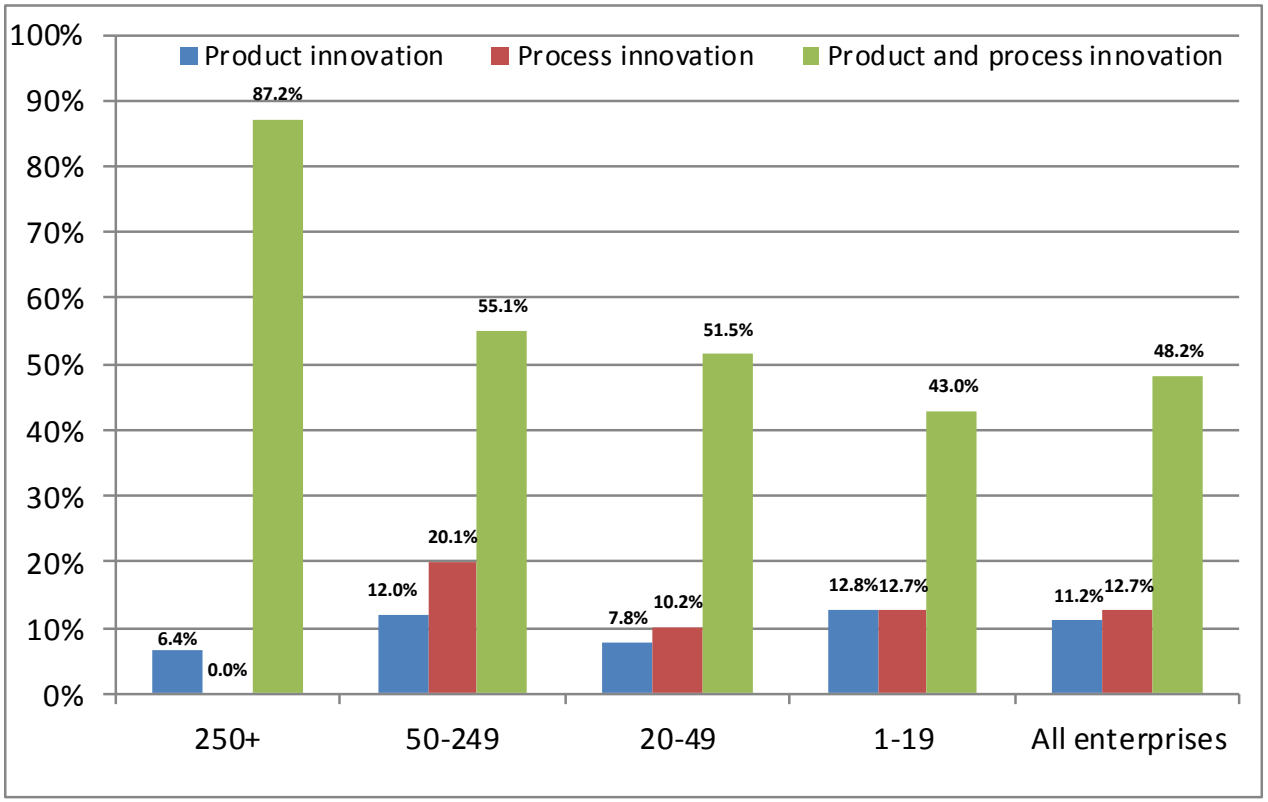
3.2 Technological Innovation Categories

Enterprises active in technological innovation were engaged in either product innovations, process innovations or both. In addition, some enterprises had ongoing or abandoned innovation activities.

During the period 2011 to 2014 inclusive, 11.2% of all enterprises employing ten or more persons were engaged in product innovations, 12.7% of enterprises were engaged in process innovations and 4.8% had ongoing or abandoned innovation activities. About half (48.2%) of all enterprises were engaged in both product and process innovations.

Small enterprises and medium-sized enterprises accounted for 7.8% and 12% of all product innovators respectively. Similarly, small enterprises and medium-sized enterprises accounted for 10.2% and 20.1% of all enterprises engaged in process innovations. *See Figure 3.1 and Table 3.6.*

Figure 3.1: Detailed innovation activity rates by number of persons engaged, 2011 - 2014



Source: UNCST - National Innovation Survey 2011–2014; Appendix D Tables 1.8

Over half (59.2%) of industrial enterprises were actively engaged in both product and process innovations compared to 44.1% of services enterprises. Sixty-seven percent (67%) of foreign owned enterprises and 46.2% of Ugandan owned enterprises were engaged in both product and process innovations. *See Table 3.6.*

Table 3.6: Detailed technological innovation activity rates by nationality of ownership, sector and number of persons engaged, 2011 - 2014

	Nationality of ownership		Sector of activity		Number of persons engaged				
	Ugandan	Foreign	Industry	Services	1-19	20-49	50-249	250+	All Enterprises
Product innovation	11.3	10.8	7.2	12.8	12.8	7.8	12.0	6.4	11.2
Process innovation	13.3	7.7	13.7	12.4	12.7	10.2	20.1	-	12.7
Product and process innovation	46.2	67.0	59.2	44.1	43.0	51.5	55.1	87.2	48.2
Ongoing innovation	2.4	2.3	2.4	2.4	2.4	3.4	-	6.4	2.4
Abandoned innovation	2.1	-	2.7	1.6	2.7	0.6	1.3	-	1.9
Abandoned and ongoing innovation	0.6	-	0.5	0.5	0.6	0.7	-	-	0.5
Total[1]	**75.8**	**87.9**	**85.7**	**73.7**	**74.2**	**74.2**	**88.6**	**100.0**	**77.0**

Source: UNCST - National Innovation Survey 2011–2014; Appendix C Tables 3.1

[1]Respondents could engage in more than one type of innovation, hence the sum of the categories does not equal the total.

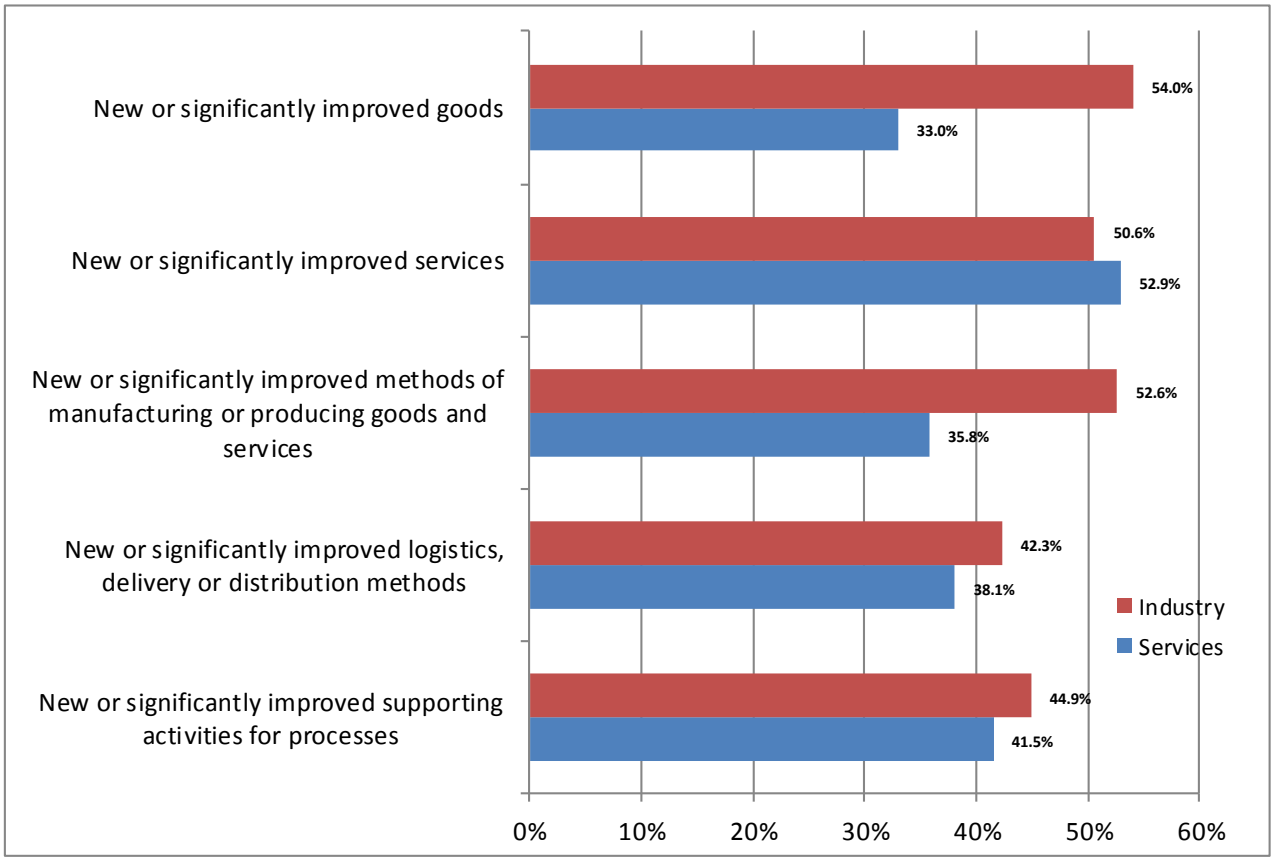
3.3 Technological Innovation: New or Significantly Improved Methods, Goods or Services

Enterprises that were product innovators were engaged in developing new or significantly improved goods or services. Process innovations included developing new or significantly improved methods of manufacturing or producing goods or services; new or significantly improved logistics, delivery or distribution methods; new or significantly improved supporting activities for processes.

About half (52.3%) of enterprises indicated that they were engaged in developing new or significantly improved services as a part of their product innovations while 38.8% were engaged in developing new or significantly improved goods. In regard to process innovations, 40.4% of all enterprises were engaged in developing new or significantly improved (i) methods of manufacturing or producing goods and services and (ii) supporting activities for processes. *See Table 3.7.*

Just over one-half (54%) of all enterprises in the industrial sector developed new or significantly improved goods compared to a third (33%) of enterprises in the services sector. Nearly one in two (52.6%) industrial enterprises developed new or significantly improved methods of manufacturing or producing goods or services compared to over one in three (35.8%) services sector enterprises. *See Figure 3.2 and Table 3.7.*

Figure 3.2: Detailed product and process innovation activity rates by sector, 2011 - 2014



Source: UNCST - National Innovation Survey 2011–2014; Appendix D Tables 1.9

Foreign owned enterprises engaged in developing new or significantly improved services as part of their product innovations over the period 2011-2014 inclusive accounted for 70.6% compared to 50.3% of Ugandan owned enterprises. *See Table 3.7.*

Table 3.7: Detailed product and process innovation activity rates by nationality of ownership, sector and number of persons engaged, 2011 - 2014

%

	Nationality of ownership		Sector of activity		Number of persons engaged				
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	All Enterprises
Product innovations									
New or significantly improved goods	38.1	44.5	54.0	33.0	53.0	42.1	36.3	38.3	38.8
New or significantly improved services	50.3	70.6	50.6	52.9	83.7	57.0	50.4	50.3	52.3
Total product innovation[1]	**11.3**	**10.8**	**7.2**	**12.8**	**12.8**	**7.8**	**12.0**	**6.4**	**11.2**
Process innovations									
New or significantly improved methods of manufacturing or producing goods and services	38.5	57.2	52.6	35.8	71.9	48.6	38.6	37.4	40.4
New or significantly improved logistics, delivery or distribution methods	37.8	52.4	42.3	38.1	82.3	40.6	40.9	35.9	39.2
New or significantly improved supporting activities for processes	39.7	67.0	44.9	41.5	74.6	59.5	44.3	35.6	42.4
Total process innovation[2]	**13.3**	**7.7**	**13.7**	**12.4**	**12.7**	**10.2**	**20.1**	**-**	**12.7**
Total innovation	**75.8**	**87.9**	**85.7**	**73.7**	**74.2**	**74.2**	**88.6**	**100.0**	**77.0**

Source: UNCST - National Innovation Survey 2011–2014; Appendix D Tables 1.9

[1]Respondents could engage in more than one type of innovation, hence the sum of the categories does not equal the total.

[2]Respondents could engage in more than one type of innovation, hence the sum of the categories does not equal the total.

3.4 Technological Innovations: Responsibility and Origin

3.4.1 Product Innovations

Product innovations were mainly developed by the enterprises themselves (59.8%), while 'own enterprise groups' were the source of 26.3% of these product innovations. *See Table 3.8.*

Table 3.8: Responsibility for the Development of Product Innovations in Innovative Enterprises, 2011 - 2014

Product innovations developed by:	Number of enterprises	Percentage of enterprises
Mainly own enterprise	2,980	59.8
Mainly own enterprise group	1,312	26.3
Mainly own enterprise by adapting or modifying goods or services originally developed by other enterprises or institutions	1,381	27.7
Own enterprise in collaboration with other enterprises or institutions	904	18.1
Other enterprises or institutions	764	15.3
Total	**4,987**	**100.0**

Source: UNCST - National Innovation Survey 2011–2014; Appendix D Table 1.10

Over two-thirds (68.4%) of the large innovative enterprises reported that their product innovations were developed mainly by themselves. Also 14.1% and 21.7% of the large innovative and small innovative enterprises respectively collaborated with other enterprises or institutions in developing product innovations. *See Table 3.9.*

Table 3.9: Responsibility for the Development of Product Innovations by Size Class, 2011 – 2014

Product innovations developed by:	Large	Medium	Small	Very small	Total
Mainly own enterprise (%)	68.4	61.4	59.8	58.7	59.8
Mainly own enterprise group (%)	45.7	27.0	29.4	23.3	26.3
Mainly own enterprise through adaptation or modification (%)	37.9	28.9	27.0	26.9	27.7
Own enterprise in collaboration with other enterprises or institutions (%)	14.1	17.7	21.7	17.0	18.1
Other enterprises or institutions (%)	25.3	15.9	14.3	14.9	15.3
Enterprises which did not respond to the question (%)	–	–	–	–	–
Total	**193**	**820**	**1,223**	**2,750**	***4,987**

Source: UNCST – National Innovation Survey 2011–2014; Appendix E Table 1.2

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

The majority of product innovations (75.3%) were developed within Uganda. Just about three-quarters of enterprises – industry (71.4%) and services (77%) – reported that their innovations were developed predominantly in Uganda. *See Table 3.10*.

Table 3.10: Origin of Product Innovations, 2011 – 2014

Origin of product innovation (%)	Total	Industry	Services
All enterprises	3,851	1,177	2,674
Uganda	75.3	71.4	77.0
Abroad	24.0	28.6	22.0
Enterprises which did not respond to the question	**0.7**	**-**	**1.0**

Source: UNCST – National Innovation Survey 2011–2014: Appendix D Table 1.11

In terms of size class, the majority of product innovations developed in Uganda were found in the 'very small' (79%) and small (75%) enterprises. *See Table 3.11*.

Table 3.11: Origin of Product Innovation by Size Class, 2011 - 2014

Origin of product innovation (number)	Large	Medium	Small	Very small	Total
Uganda	117	407	737	1,637	2,898
Abroad	64	215	214	433	926
Enterprises which did not respond to the question	-	-	27	-	27
Origin of product innovation (%)					
Uganda	64.8	65.4	75.3	79.1	75.3
Abroad	35.2	34.6	21.9	20.9	24.0
Enterprises which did not respond to the question	**-**	**-**	**2.8**	**-**	**0.7**

Source: UNCST - National Innovation Survey 2011–2014; Appendix E Table 1.3

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

3.4.2 Process Innovations

In industry and service sectors, majority of the enterprises developed process innovations in-house (industry - 55.8% and services - 40.4%), while 2.1% enterprises in industry and 4.5% enterprises in the services sector developed process innovations in collaboration with other enterprises or institutions. *See Table 3.12.*

Table 3.12: Responsibility for the Development of Process Innovations, 2011 - 2014

Process innovations mainly developed by:	Total	Industry	Services
Mainly own enterprise	45.1	55.8	40.4
Mainly own group enterprise	11.1	10.8	11.3
Mainly own enterprise through adaptation or modification	13.1	12.6	13.3
Own enterprise in collaboration with other enterprises or institutions	3.7	2.1	4.5
Mainly other enterprises or institutions	4.7	3.8	5.2
Enterprises which did not respond to the question	**1.3**	**-**	**1.9**

Source: UNCST - National Innovation Survey 2011–2014: Appendix D Table 1.12

Three-quarters (75.7%) reported that their innovations originated from Uganda while 23.2% developed innovations from abroad. *See Table 3.13*.

Table 3.13: Origin of Process Innovation, 2011 - 2014

Origin of process innovation (%)	Total	Industry	Services
All process innovative enterprises (number of enterprises)	3,948	1,292	2,655
Uganda (%)	75.7	70.2	78.3
Abroad (%)	23.2	28.3	20.8
Enterprises which did not respond to the question (%)	**1.1**	**1.5**	**0.9**

Source: UNCST - National Innovation Survey 2011-2014: Appendix D Table 1.13

In terms of size class, the majority of product innovations originating from Uganda were majorly in the 'small' (73.7%) and small (80.2%) enterprises. *See Table 3.14*.

Table 3.14: Origin of Process Innovation by Size Class, 2011 - 2014

Origin of process innovation (number)	Large	Medium	Small	Very small	Total
Uganda	108	473	750	1,657	*2,987
Abroad	61	211	267	378	917
Enterprises which did not respond to the question	-	12	-	31	44
Origin of process innovation (%)					
Uganda	63.9	67.9	73.7	80.2	75.7
Abroad	36.2	30.3	26.3	18.3	23.2
Enterprises which did not respond to the question	**-**	**1.8**	**-**	**1.5**	**1.1**

Source: UNCST - National Innovation Survey 2011-2014.

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

3.5 Technological Innovation: Turnover

Enterprises were asked to estimate how much of their total turnover was attributed to product innovations, separated into new to market innovations (a measure of novelty and creativity) and new to the firm innovations (those which were adopted by the firm but invented and created elsewhere).

Product innovations new to the firm generated 13.9% of the turnover of product innovators. A total of about 7.8% of turnover was generated by the sale of products that were new to the market but not new to the enterprise concerned while 78.3% of the turnover was generated from products unchanged or marginally modified. *See Table 3.15a*.

Table 3.15a: Product Innovators: Proportion of Turnover Attributed to Types of Product Innovations, 2014 (year specific question)

Type of product innovations	Turnover generated (Ushs. billion)	Percentage turnover generated
Product innovations new to the market	3,670	7.8
Product innovations new to the firm	6,540	13.9
Products unchanged or marginally modified	36,800	78.3
Total	**47,000**	**100.0**

Source: UNCST – National Innovation Survey 2011–2014; Appendix D Tables 1.14a and 1.14b

Large enterprises generated 16.5% of turnover based on product innovations that were new to the market whereas medium-sized enterprises generated 28.5%) of turnover based on product innovations new to the firm. *See Table 3.15b*.

Table 3.15b: Product Innovators: Proportion of Turnover in 2014 Attributed to the Types of Products, by Size of Enterprises (%)

Origin of product innovation (number)	Large (%)	Medium (%)	Small (%)	Very small (%)	Total (%)
Product innovations new to the market	16.5	7.5	10.9	5.2	7.8
Product innovations new to the firm	9.9	28.5	18.0	5.9	13.9
Products unchanged or marginally modified	73.6	64.2	70.9	88.9	7.8
Total (% of turnover by product innovators by enterprise size class)	**13.3**	**29.1**	**7.3**	**50.0**	***100.0**

Source: UNCST – National Innovation Survey 2011–2014; Appendix E Tables 1.4a and 1.4b

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

Over 21% of the turnover of all active and non-active innovators in 2014 in industry and services sectors was as a result of product innovations over the period 2011 to 2014. In contrast to all other enterprises, large enterprises attributed the largest proportion of their turnover in 2014 to new to market product innovations at almost 17%. Industrial enterprises attributed in excess of 5% of their turnover to new to firm product innovations compared to almost 15.6% of turnover of the services sector. Enterprises in the industrial sector generated 1.3% of their turnover from new to market product innovations compared to 9.1% of enterprises in the services sectors. Ugandan owned and foreign owned enterprises generated 13.3% and 16.3% of their turnover respectively from new to firm product innovations in 2014. During the same period, Ugandan owned and foreign owned enterprises generated 7.5% and 8.8% r of their turnover respectively from new to market innovations. *See and Table 3.16*.

In the period 2011-2014, 68.5% of all enterprises had new to firm product innovations while 46.8% of enterprises were engaged in new to market product innovations in the same period. Over two-thirds of enterprises in both industry sector (66%) and services sector (69.6%) were engaged in new to firm product innovations. Similarly, close to half of all enterprises in the two sectors (industry - 47.6% & services - 46.5%) were engaged in new to market product innovations. Foreign owned enterprises engaged in new to firm product innovations accounted for 70.1% compared to 68.1% for Ugandan owned enterprises. Conversely, nearly the same proportion (70.5%) of foreign owned enterprises were engaged in new to market product innovations compared to 43.3% of Ugandan owned enterprises. *See Table 3.17*.

Table 3.16: Percentage of total turnover attributed to new to firm and new to market product innovation activities by nationality of ownership, sector and number of persons engaged, 2011 - 2014

	Nationality of ownership		Sector of activity		Number of persons engaged				
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	All Enterprises
Turnover									
New to firm product innovations	13.2	16.3	5.4	15.6	9.9	28.5	18.0	5.9	13.9
New to market product innovations	7.5	8.8	1.3	9.1	16.5	7.5	11.0	5.2	7.8
Unchanged	79.1	74.6	93.4	75.1	73.6	64.2	71.1	88.9	78.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: UNCST - National Innovation Survey 2011–2014; Appendix D Table 5.3

Table 3.17: Percentage of enterprises engaged in new to firm and new to market product innovation activities by nationality of ownership, sector and number of persons engaged, 2011 – 2014

	Nationality of ownership		Sector of activity		Number of persons engaged				
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	All Enterprises
New to firm product innovations	68.1	71.1	66.0	69.6	58.6	83.6	70.6	58.6	68.5
New to market product innovations	43.3	70.5	47.6	46.5	53.3	51.2	49.7	53.3	46.8

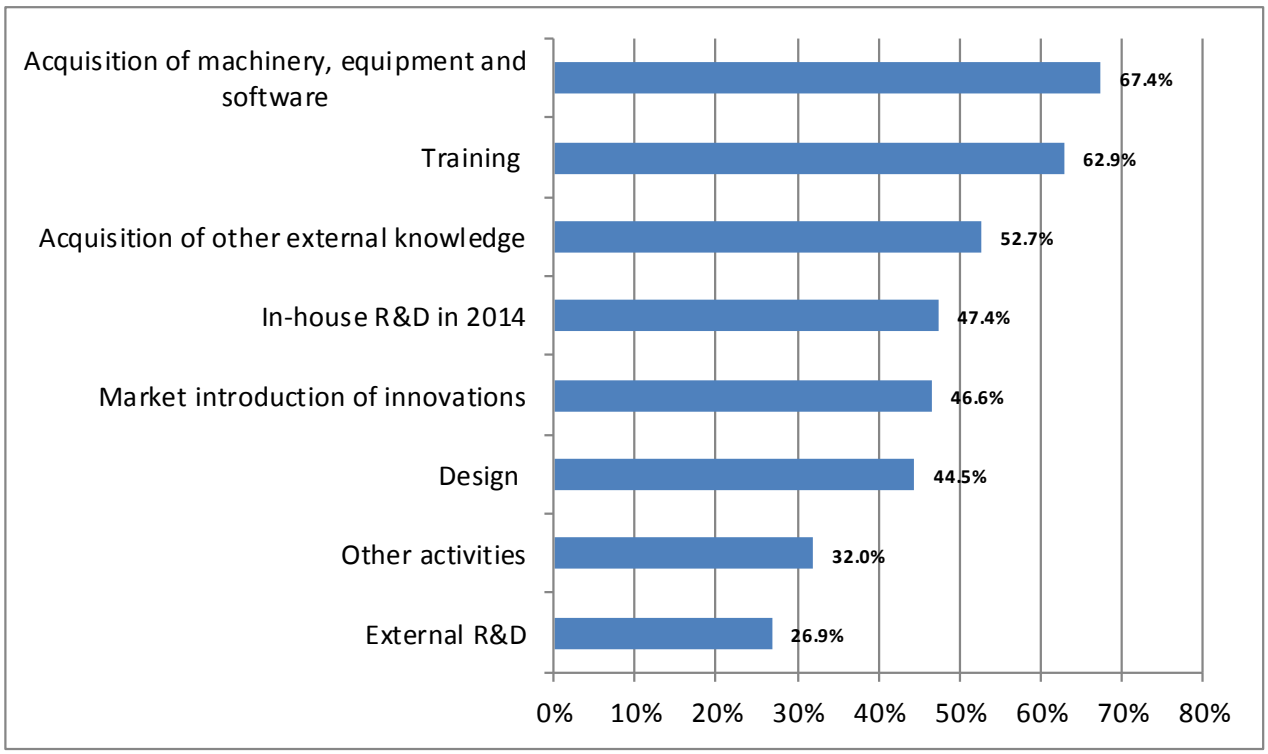
Source: UNCST - National Innovation Survey 2011–2014; Appendix D Table 5.4

3.6 Technological Innovation: Expenditure

Enterprises were asked if they were active in any of the following categories over the four year period 2011-2014 and to estimate innovation spending on each of those categories in 2014 only: in-house Research and Development (R&D); purchase of external R&D; acquisition of machinery, equipment and software; acquisition of other external knowledge, and all other innovation activities including design, training and marketing.

Over two-thirds (67.4%) of innovative enterprises were engaged in the acquisition of machinery, equipment and software; and training for innovation activities as part of their innovation processes. In addition, a substantial proportion (52.7%) of all innovative enterprises spent money on activities related to acquisition of external knowledge. *See Figure 3.3.*

Figure 3.3: Types of Innovation Activities among Innovative Enterprises, 2011 - 2014

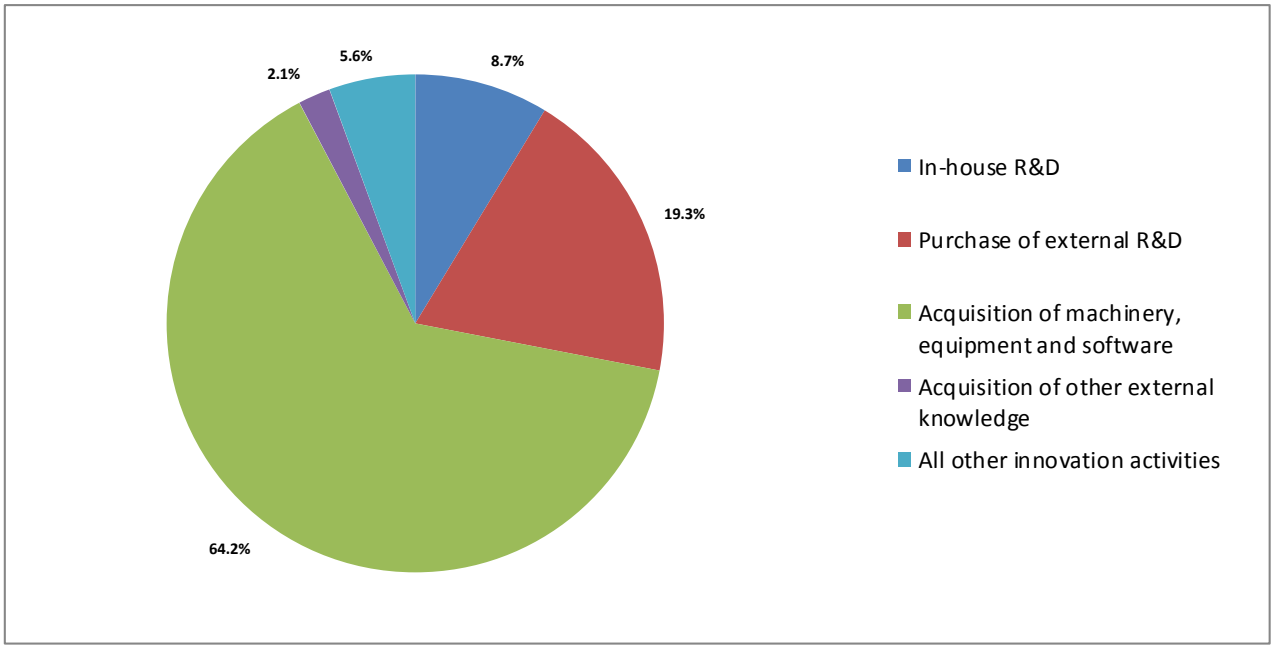


Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.17.

3.6.1 Technological innovation expenditure

Total spending on innovation activities was Ushs. 1,790 billion in 2014. Expenditure on acquisition of machinery, equipment and software amounted to Ushs. 1,150 billion (64.2%), purchase of external R&D (19.3%), while in-house R&D (8.7%). *See Figure 3.4.*

Figure 3.4: Percentage share of innovation expenditure by type of expenditure for all enterprises, 2014



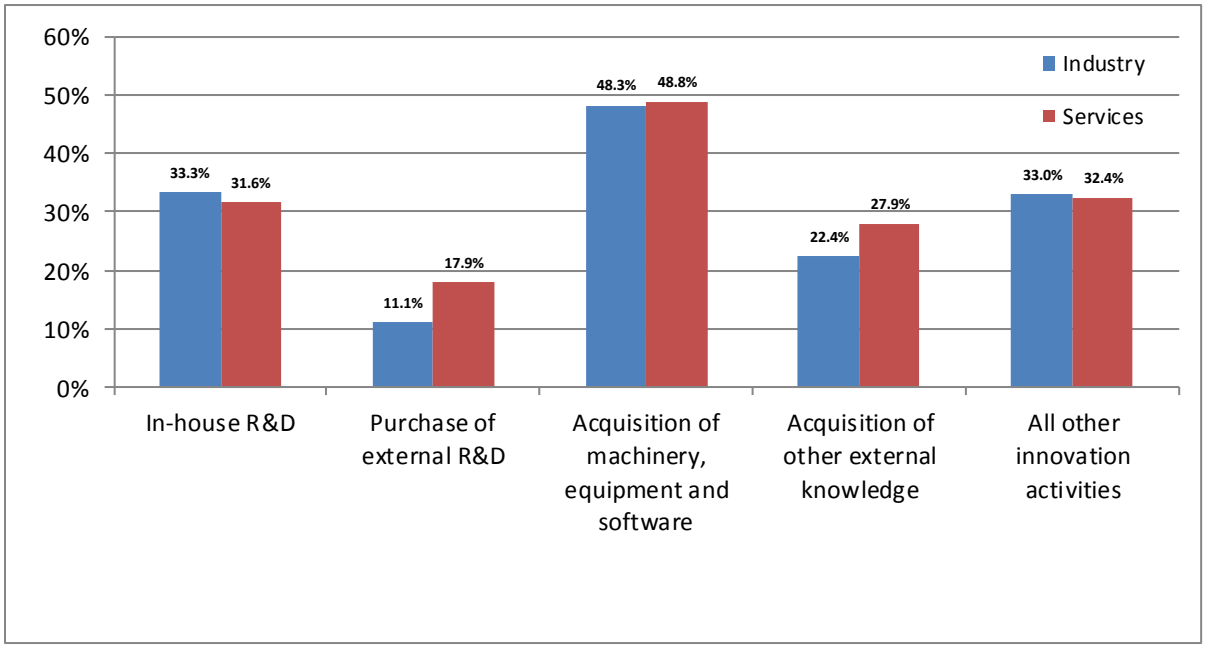
Source: UNCST – National Innovation Survey 2011–2014; Appendix D Table 1.18

The total spending by industrial enterprises on innovation activities was Ushs. 456 billion in 2014 while the total expenditure in services sectors was Ushs. 1,330 billion. Industrial enterprises spent Ushs. 412 billion on acquisition of machinery and equipment, Ushs. 10.9 billion on in-house R&D, and Ushs. 9.99 billion on purchase of external R&D. Ugandan owned enterprises spent Ushs. 1,430 billion on innovation related activities in 2014 while foreign owned enterprises spent Ushs. 360 billion of all innovation-related expenditure. Ugandan owned enterprises spent Ushs. 76 billion on in-house R&D in 2014 compared to foreign owned enterprises which spent 78.7 billion. *See Table 3.18.*

3.6.2 Enterprises Engaged in Innovation Expenditure

Close to two-thirds (62%) of enterprises incurred innovation expenditures in 2014 comprising large enterprises (36.7%), medium sized enterprises (56.4%), small enterprises (62.9%) and the very small enterprises (65.1%). Industrial enterprises accounted for 62.2% of innovation related expenditure, similar to enterprises in services sectors at 61.9%. Nearly two-thirds of enterprises in both industrial sector (33.3%) and service sector (31.6%) engaged in in-house R&D in 2014. *See Figure 3.5 and See Table 3.19.*

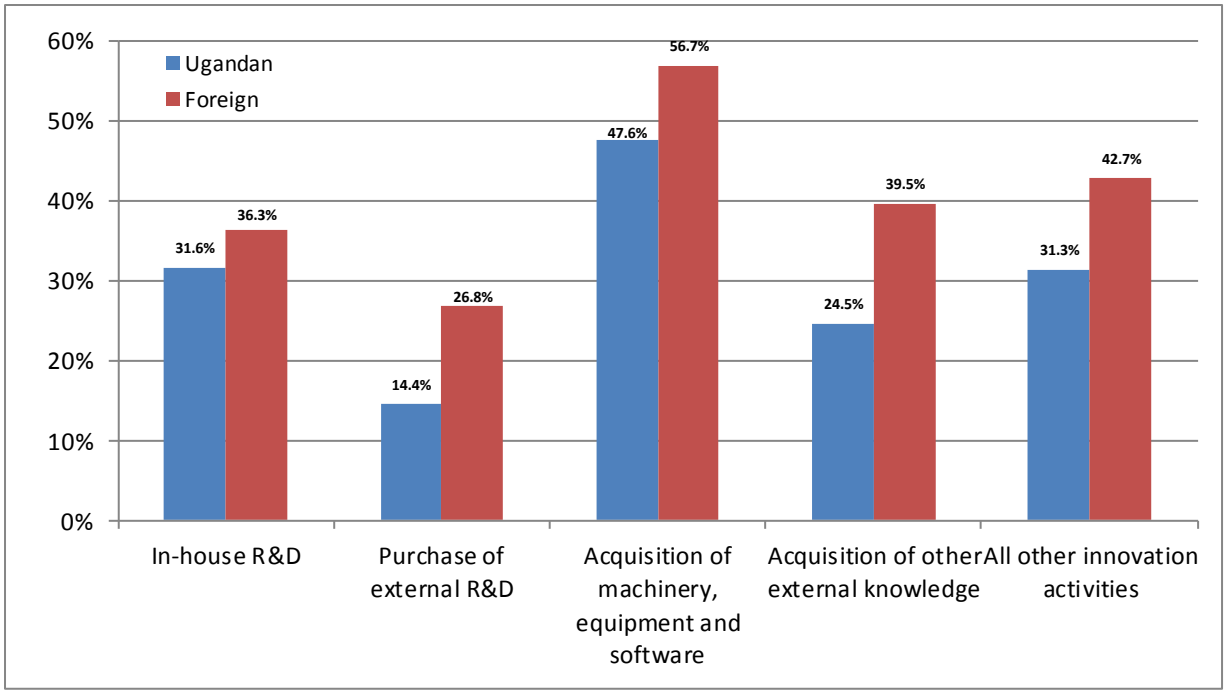
Figure 3.5: Percentage of enterprises with innovation expenditure by sector, 2014



Source: UNCST – National Innovation Survey 2011–2014; Appendix D Table 1.19

Almost 59% of foreign owned enterprises had innovation related expenditure in the reference period compared to 62.4% of Ugandan owned enterprises. Over half foreign owned enterprises (56.7%) purchased machinery, equipment and software related to innovation activities compared to 47.6% of Ugandan owned enterprises. *See Figure 3.6 and Table 3.19.*

Figure 3.6: Percentage of enterprises with innovation expenditure by nationality of ownership, 2014



Source: UNCST – National Innovation Survey 2011–2014;Appendix D Table 1.19

Table 3.18: Technological innovation expenditure by nationality of ownership, sector and number of persons engaged, 2014

Ushs. bn

	Nationality of ownership		Sector of activity		Number of persons engaged				
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	All Enterprises
In-house R&D	76	78.7	10.9	144	4.3	8.14	48.6	93.6	155
Purchase of external R&D	325	21.2	9.99	336	3.98	9.9	309	23.3	346
Acquisition of machinery, equipment and software	984	169	412	741	134	880	54	85.9	1,150
Acquisition of other external knowledge	19.9	17.9	2.31	35.5	0.419	12.5	7.2	17.7	37.8
All other innovation activities	26.1	74.7	21.8	78.9	1.28	15.5	4.74	79.2	101
Total innovation expenditure	**1,430**	**360**	**456**	**1,330**	**144**	**917**	**422**	**305**	**1,790**

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.18

Table 3.19: Percentage of enterprises engaged in technological innovation expenditure by nationality of ownership, sector and number of persons engaged, 2014

%

	Nationality of ownership		Sector of activity		Number of persons engaged				
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	All Enterprises
Engaged in:									
In-house R&D	31.6	36.3	33.3	31.6	29.0	28.7	31.7	33.6	32.1
Purchase of external R&D	14.4	26.8	11.1	17.9	14.1	16.6	15.6	15.8	15.8
Acquisition of machinery, equipment and software	47.6	56.7	48.3	48.8	31.7	51.4	55.5	46.0	48.7
Acquisition of other external knowledge	24.5	39.5	22.4	27.9	16.3	17.3	28.2	28.7	26.2
All other innovation activities	31.3	42.7	33.0	32.4	24.0	42.2	31.1	31.1	32.6
Total[1]	**62.4**	**58.8**	**62.2**	**61.9**	**36.7**	**56.4**	**62.9**	**65.1**	**62.0**

Source: UNCST - National Innovation Survey 2011–2014; Appendix D Table 1.18

[1]Respondents could engage in more than one innovation expenditure category, hence the sum of the categories does not equal the total

3.6.3 Financial Support for Innovation Activities

One in 20 innovative enterprises in the services sector (5.3%) received funding for innovation activities from the central government. National funding agencies provided financial support to 3.2% of innovative enterprises in the industry sector. Altogether 9.7% of innovative enterprises in industry and 16.1% of innovative enterprises in services received public funding for their innovation activities between 2011 and 2014. Overall 14.2% of innovative enterprises received funding for their innovation activities from government sources. *See Table 3.20*.

Table 3.20:Percentage of Innovative Enterprises that Received Financial Support for Innovation Activities from Government Sources 2011 - 2014

Source of financial support	Percentage of innovative enterprises (%)		
	Total (%)	Industry (%)	Services (%)
Central government	4.7	3.5	5.3
Local government/authorities	4.1	1.4	5.3
National funding agencies	4.0	3.2	4.3
Foreign governments	1.3	1.6	1.1
Total	***14.2**	**9.7**	**16.1**

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.20

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

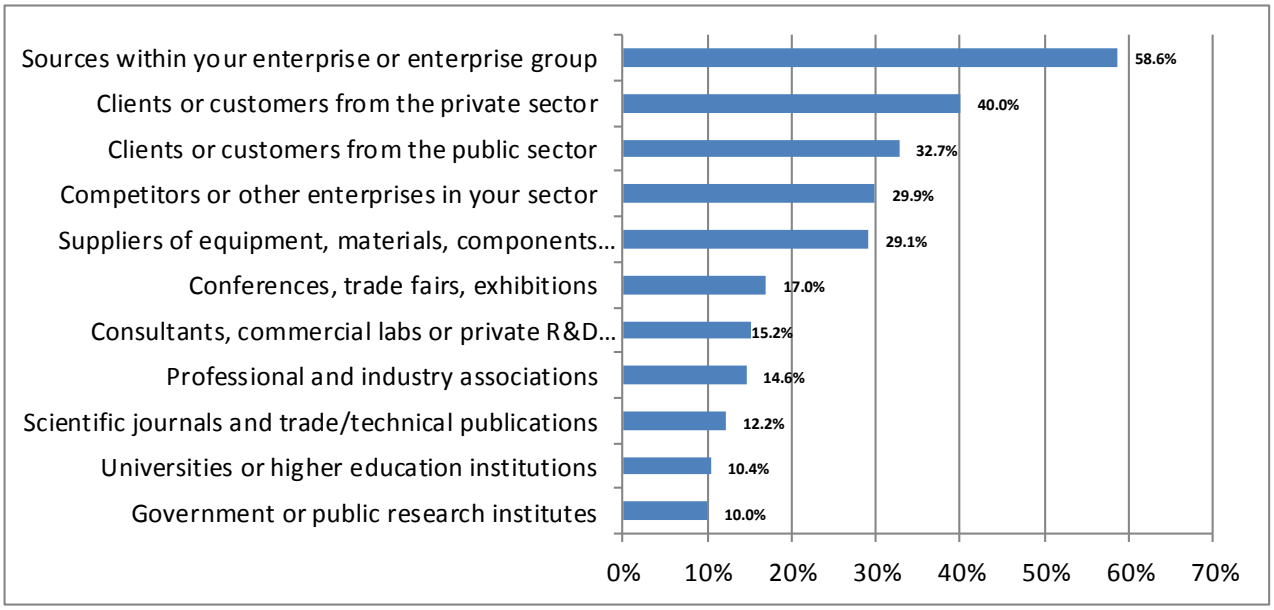
3.7 Technological Innovation: Cooperation

In developing new to market or new to firm product and process innovations, firms can develop these within their own firm or within their enterprise group. Alternatively, firms may engage in innovation co-operation with other sources to help develop these innovations.

3.7.1 Technological Innovation Information Sources

The 'sources of information within the enterprise' and 'clients and customers' from both the private and public sectors were portrayed as highly important for innovation activities. The same scenario continues within both industry and service sectors. *See Figure 3.7 and Table 3.21*.

Figure 3.7: 'Highly Important' Sources of Information for Innovative Enterprises, 2011 - 2014



Source: UNCST - National Innovation Survey 2011 - 2014.

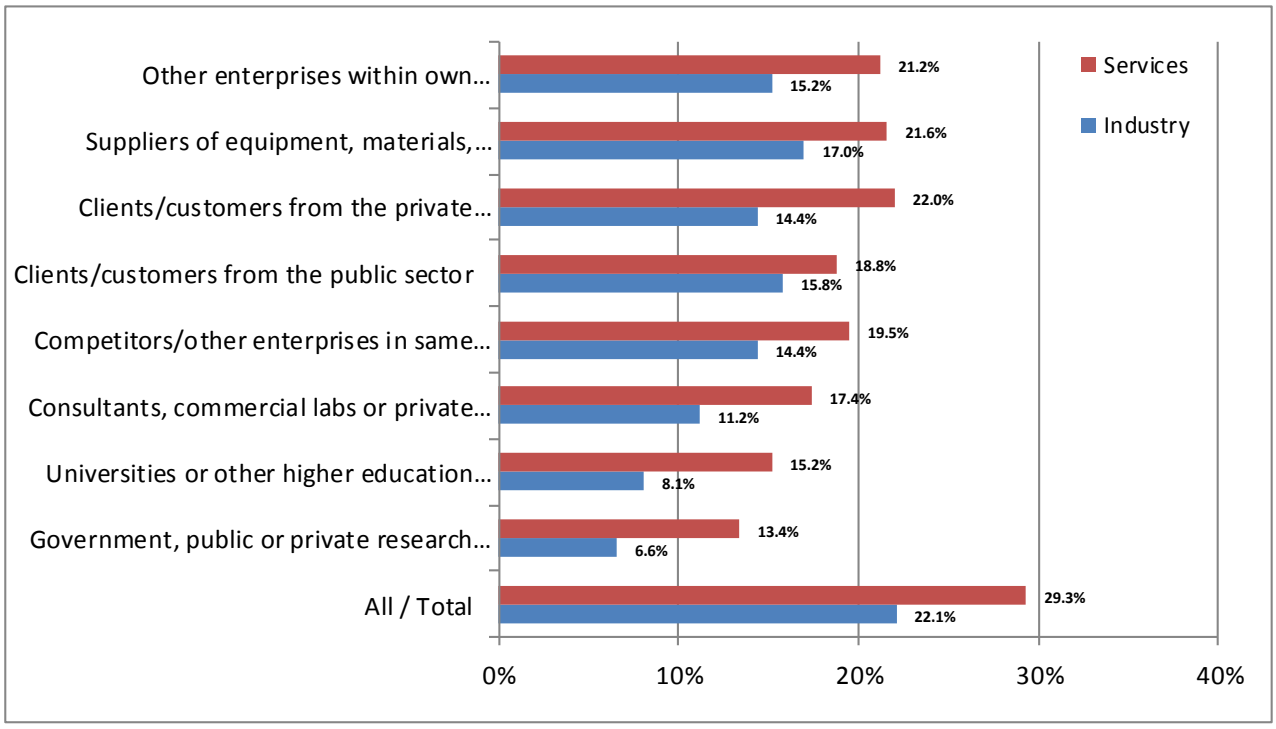
Appendix D Table 1.21a & 1.21b

3.7.2 Technological Innovation Co-operation Partners

Over one in four innovation active enterprises (27.1%) indicated that they engaged in some co-operation activity when developing their innovations. Large innovation active enterprises were more involved in innovation partnerships (68.3%) compared to all other enterprise groups. *See Table 3.21.*

Over a third (29.3%) of services sector enterprises that were innovation active were engaged in innovation co-operation. Innovation co-operation partnerships in industry were more common (17%) with suppliers of equipment, materials, components or software. *See Figure 3.8 and Table 3.21.*

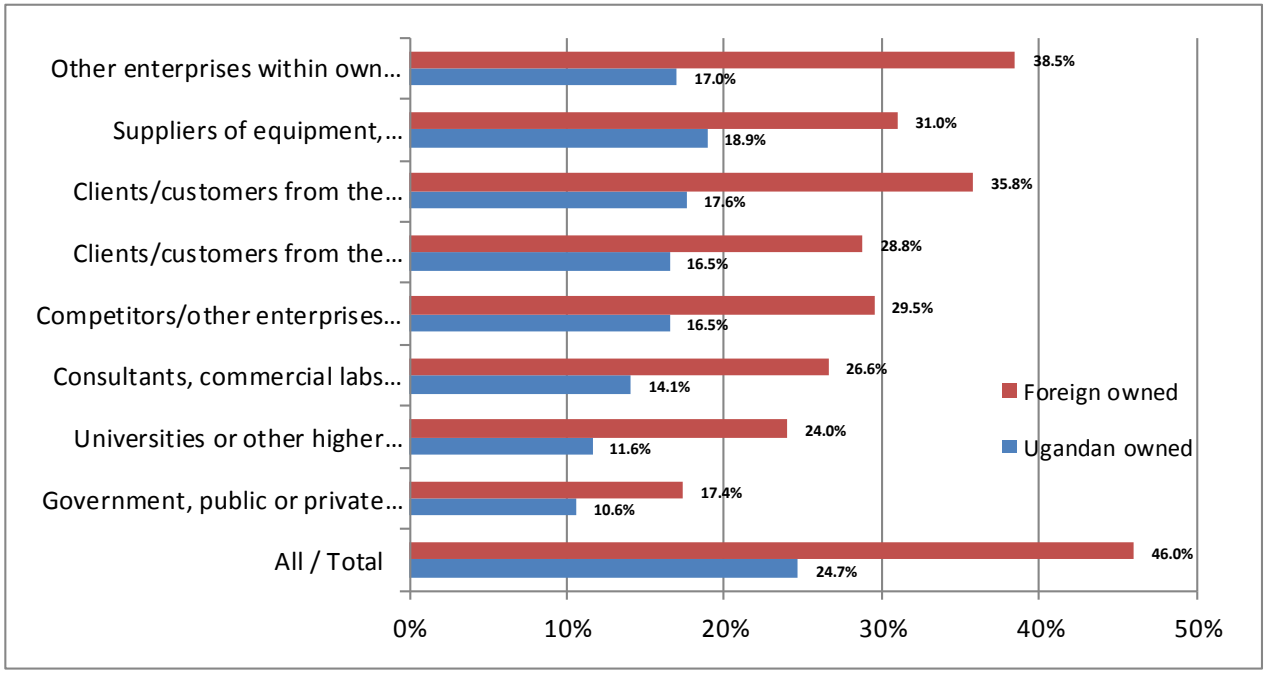
Figure 3.8: Type of co-operation partner for innovative enterprise by sector, 2011 - 2014



Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.22

About one in four (24.7%) of all Ugandan owned enterprises engaged in innovation co-operation in the period 2011-2014 inclusive, while 46% of all foreign owned enterprises engaged in such innovation co-operation. *See Figure 3.9 and Table 3.21.*

Figure 3.9: Type of co-operation partner for innovative enterprise by nationality of ownership, 2011 - 2014

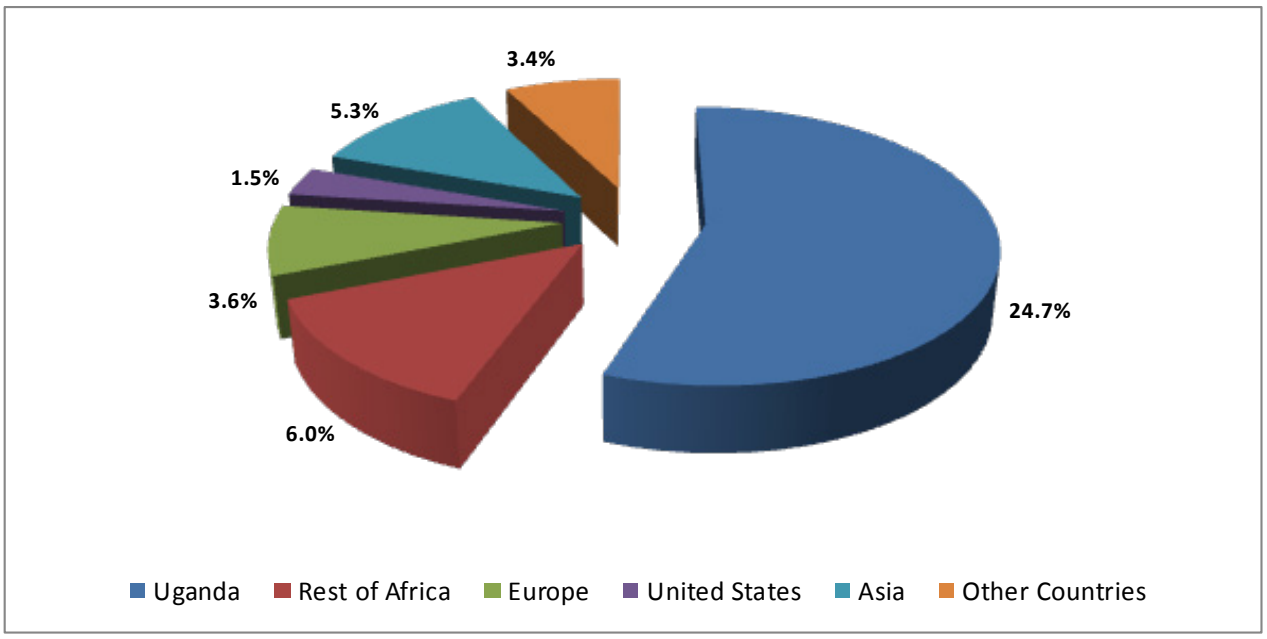


Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.22

3.7.3 Technological Innovation Co-operation Locations

Over a quarter (24.7%) of all enterprises were engaged in innovation co-operation with partners that were located in Uganda, compared to 6% of enterprises that were engaged with partners in the Rest of Africa. *See Figure 9.4 and Table 3.22.*

Figure 3.10: Location of co-operation partner for innovative enterprises, 2011 - 2014

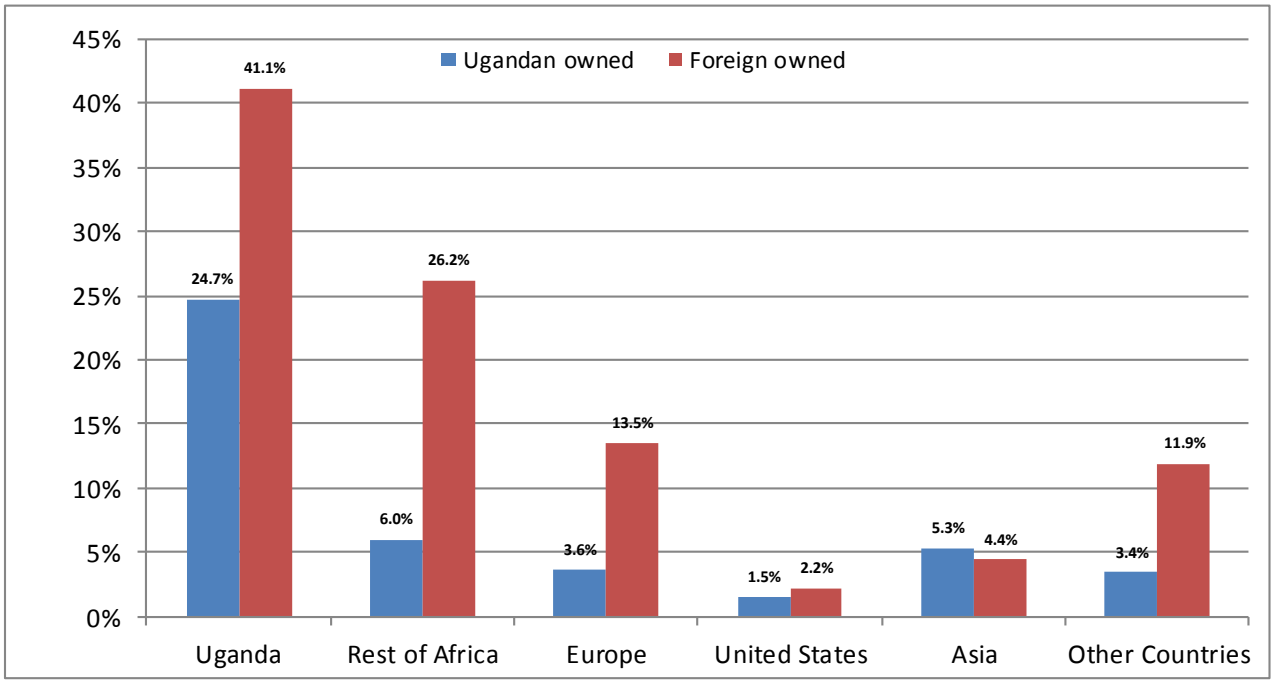


Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.23

Over one in five (22.1%) industrial enterprises and 28.5% services sector enterprises engaged in innovation co-operation with innovation partners that were located in Uganda. Industrial enterprises that engaged in innovation co-operation with partners in the Rest of Africa were 4.9% compared to 9.7% of services sector enterprises. *See Table 3.22.*

Around one in four (24.7%) Ugandan owned enterprises were engaged in innovation co-operation with enterprises located in Uganda while 41.1% had innovation co-operation within the same category for all foreign owned enterprises. Over two-thirds (68.3%) of large enterprises engaged in innovation co-operation with innovation partners located in Uganda. *See Figure 3.11 and Table 3.22.*

Figure 3.11: Location of co-operation partner for innovative enterprises by nationality of ownership, 2011 - 2014



Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.23

Table 3.21: Type of co-operation partner for technological innovative enterprises by nationality of ownership, sector and number of persons engaged, 2011 - 2014

%

	Nationality of ownership		Sector of activity		Number of persons engaged				
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	All technological innovative active enterprises
Other enterprises within own enterprise group	17.0	38.5	15.2	21.2	47.0	19.7	17.9	18.0	19.4
Suppliers of equipment, materials, components or software	18.9	31.0	17.0	21.6	39.4	20.9	18.7	19.4	20.3
Clients/customers from the private sector	17.6	35.8	14.4	22.0	45.7	18.3	18.1	19.0	19.7
Clients/customers from the public sector	16.5	28.8	15.8	18.8	44.3	18.2	14.9	17.2	17.9
Competitors/other enterprises in same sector	16.5	29.5	14.4	19.5	49.3	14.4	16.1	17.6	17.9
Consultants, commercial labs or private R&D institutes	14.1	26.6	11.2	17.4	26.7	18.2	15.3	14.0	15.5
Universities or other higher education institutes	11.6	24.0	8.1	15.2	25.3	13.3	13.1	12.0	13.0
Government, public or private research institutes	10.6	17.4	6.6	13.4	21.8	13.3	9.1	11.0	11.4
Total/All[1]	**24.7**	**46.0**	**22.1**	**29.3**	**68.3**	**22.4**	**27.7**	**25.3**	**27.1**

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.22

[1]Respondents could engage in more than one innovation expenditure category, hence the sum of the categories does not equal the total

Table 3.22:Location of co-operation partner for technological innovative enterprises by nationality of ownership, sector and number of persons engaged, 2011 - 2014

%

	Nationality of ownership		Sector of activity		Number of persons engaged				
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	All technological innovative active enterprises
Uganda	24.7	41.1	22.1	28.5	68.3	20.9	27.7	24.8	26.5
Rest of Africa	6.0	26.2	4.9	9.7	14.1	9.4	6.4	8.3	8.3
Europe	3.6	13.5	3.3	5.4	7.7	7.9	4.2	3.9	4.8
United States	1.5	2.2	0.6	2.0	-	2.7	1.2	1.5	1.6
Asia	5.3	4.4	6.6	4.5	16.2	9.4	4.0	3.7	5.2
Other Countries	**3.4**	**11.9**	**1.3**	**5.7**	**6.4**	**3.8**	**3.2**	4.9	**4.4**

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.23

3.8 Technological Innovation Outcomes

Business enterprises were asked to rank the importance of specific types of objectives and outcomes on products (goods or services) and process innovations introduced during the period 2011–2014. Innovative enterprises ranked the importance of various market and operational objectives and outcomes resulting from both product and process innovations. Results are shown for objectives and outcomes that enterprises indicated as being of high importance.

3.8.1 Market and Operation Objectives

The biggest proportion of innovative enterprises (52.7%) cited improving the quality of goods and services as having a 'highly important' effect on innovation, and this was more important for services enterprises (53%) than for industrial enterprises (52%). Increased range of goods and services was also an important outcome for almost 45.9% of the enterprises (44.2% of industry and 46.6% of service enterprises). *See Table 3.23.*

Table 3.23: 'Highly Important' Effects of Innovation on Objectives for Innovative Enterprises, 2011 – 2014

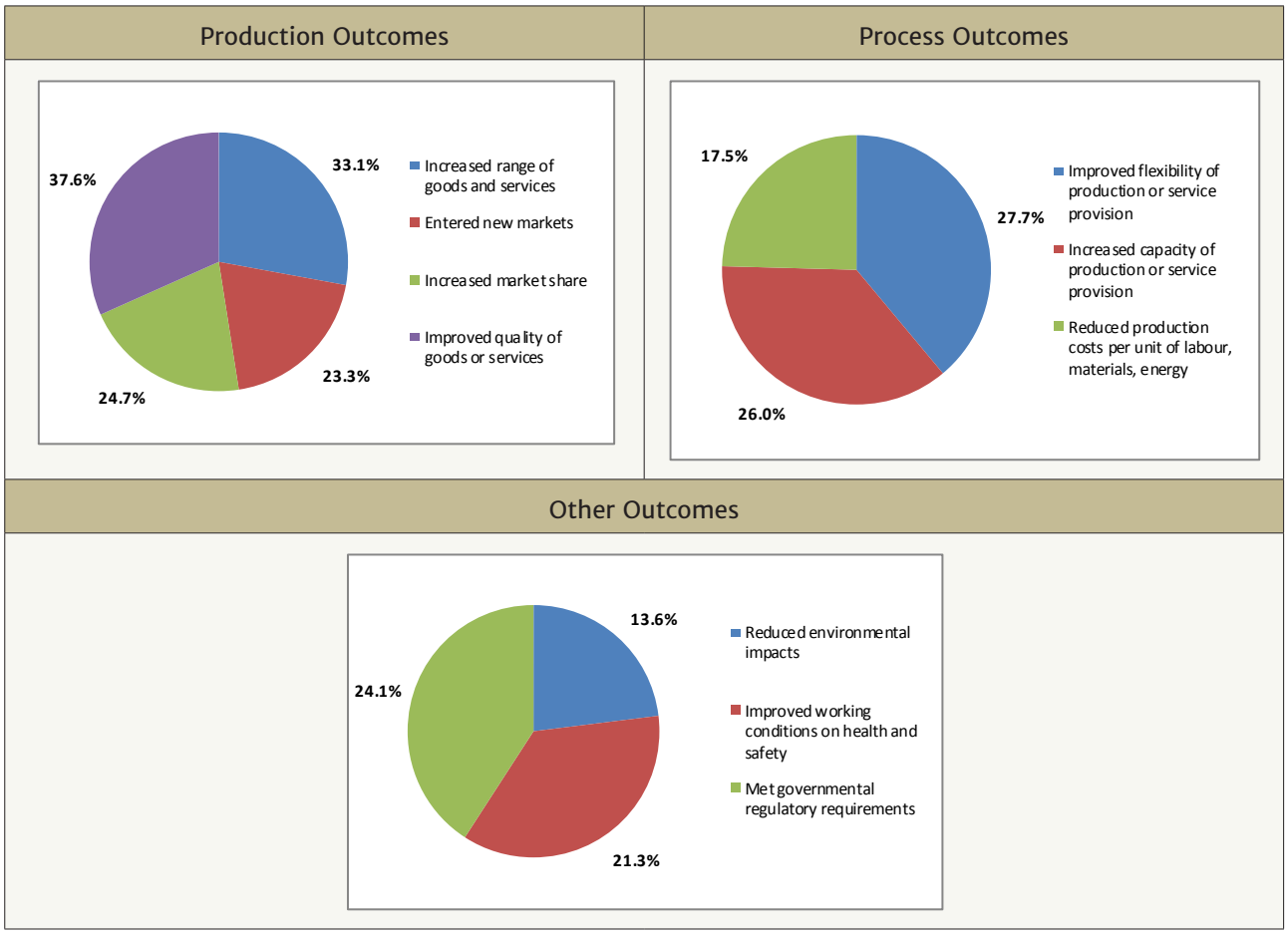
Percentage of enterprises	Total	Industry	Services
Objectives			
Increase range of goods or services	45.9	44.2	46.6
Replace outdated products or processes	30.9	26.3	32.9
Enter new markets	29.0	24.1	31.1
Increase market share	34.1	28.6	36.5
Improved quality of goods or services	52.7	52.0	53.0
Improve flexibility for producing goods or services	36.5	36.0	36.7
Increase capacity for producing goods and services	33.8	34.6	33.5
Reduce production costs per unit output (labour, materials, energy)	23.1	22.9	23.2
Improve working conditions – health and safety	29.3	31.4	28.3

Source: UNCST – National Innovation Survey 2011–2014; Appendix D Tables 1.24a & 1.24b

3.8.2 Market and Operation Outcomes

Improving the quality of goods and services was indicated as having a 'highly important' effect on innovation by 37.6% of innovative enterprises, and this was more significant for industrial enterprises (42.2%) than for services enterprises (35.8%). 'Increased range of goods and services' was also an important outcome for 33.1% of enterprises (31.3% for industrial sector and 33.8% for services sector). *See Figure 3.12.*

Figure 3.12: 'Highly Important' Effects of Innovation on Outcomes for Innovative Enterprises, 2011 – 2014



Source: UNCST – National Innovation Survey 2011–2014; Appendix D Tables 1.25a & 1.25b

3.9 Barriers to Technological Innovation

Enterprises were asked to rank factors that may have curtailed technological innovation activities as being of high, medium or low importance. Enterprises were also asked to rank reasons why they did not innovate over the period. Results are shown for factors and reasons that enterprises indicated as being of high importance.

3.9.1 Delayed or Abandoned Innovations

Almost a third (32.6%) of innovative enterprises experienced problems which seriously delayed innovation activities during the period 2011 – 2014. Nearly 23% of innovative enterprises reported abandoning innovation projects during the concept stage, while 21.3% abandoned innovation projects that had already begun. *See Table 3.24.*

Table 3.24: Enterprises with Innovation Activity that Cited Problems with their Innovation Activity, 2011 - 2014

Number of innovative enterprises	Total	Industry	Services
Cited problems			
Abandoned in the concept stage	1,127	365	762
Abandoned after the activity or project was begun	1,064	372	692
Seriously delayed	1,625	561	1,064
Percentage of innovative enterprises			
Cited problems			
Abandoned in the concept stage	22.6	24.0	22.0
Abandoned after the activity or project was begun	21.3	24.5	20.0
Seriously delayed	32.6	36.9	30.7

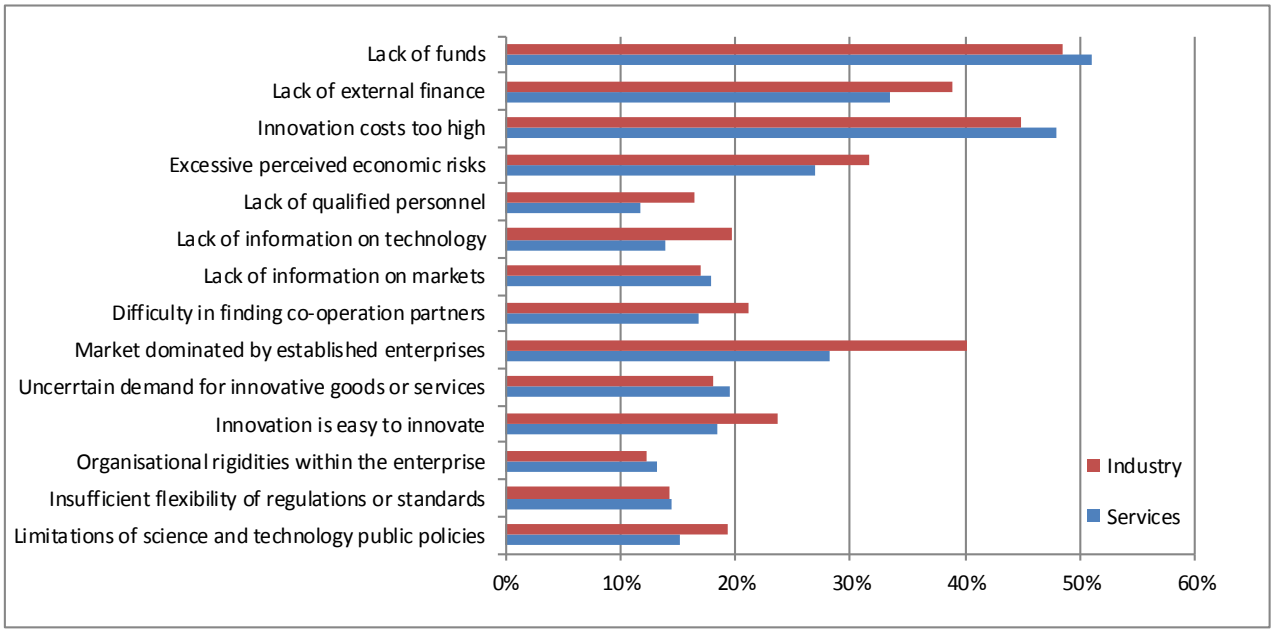
Source: UNCST - National Innovation Survey 2011-2014.

3.9.2 Barriers to Technological Innovation

Enterprises that were innovative or non-innovative indicated that the three most significant factors hampering innovation activities were lack of funds, high innovation costs and lack of external finance. Over half of both innovative enterprises (50.3%) and non-innovative enterprises (53.4%) indicated that lack of funds was a highly important factor hampering innovation. Close to half (46.9%) of innovation active firms indicated high innovation costs as a high hampering factor. *See Table 3.25*.

Innovative industrial enterprises (48.4%) indicated that the most significant hampering factor was lack of funds. The corresponding figure for enterprises in the services sector was 51.1%. *See Figure 3.13 and Table 3.25*.

Figure 3.13: Highly important hampering factors to innovation activities for innovative enterprises by sector, 2011 - 2014

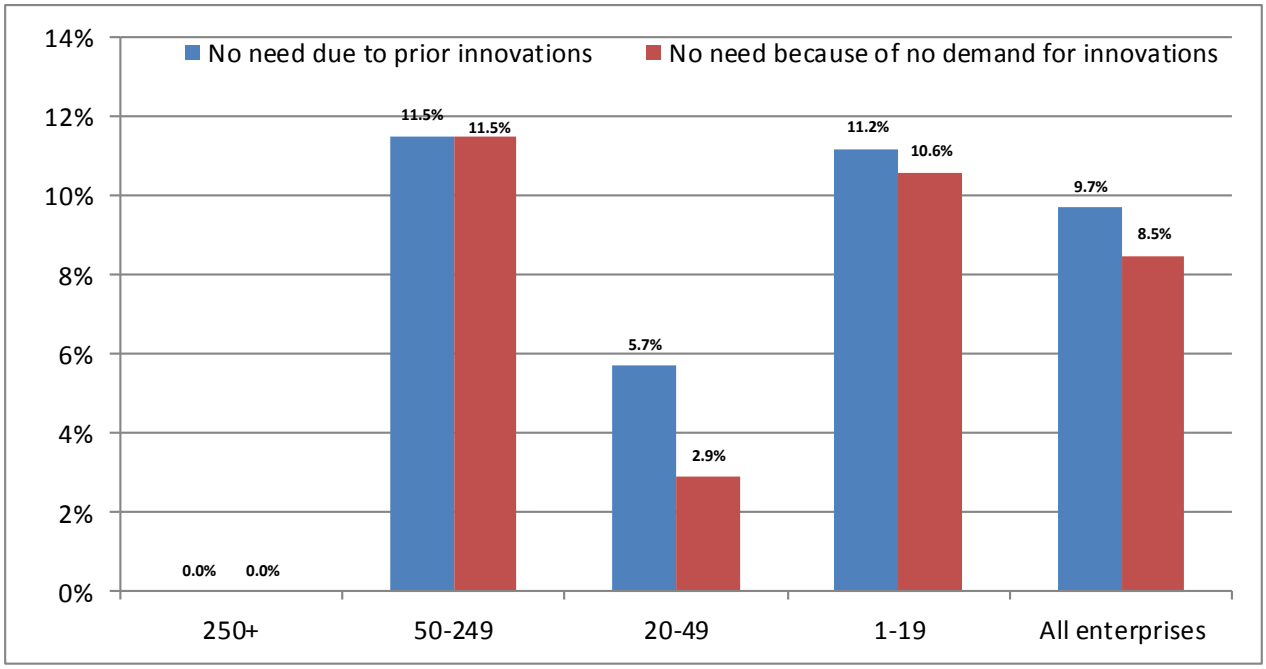


Source: UNCST - National Innovation Survey 2011-2014; Appendix D Tables 1.26a & 1.26b

3.9.3 Reasons not to Innovate

Almost 10% of non-innovative enterprises indicated prior innovations as their reason not to innovate and over 8% indicated that there was no need to innovate because there was no demand to do so. *See Figure 3.14 and Table 3.26.*

Figure 3.14: Highly important reasons not to innovate for non-innovative enterprises by number of persons engaged, 2011 - 2014



Source: UNCST - National Innovation Survey 2011-2014; Appendix D Tables 1.27

Nearly a quarter (23.1%) of non-innovative industrial enterprises indicated that a highly important reason not to innovate was that there was no need due to prior innovations while 8.8% of non-innovative enterprises in the services sector indicated that they did not innovate mainly because there was no demand for innovations. *See Table 3.26*.

Table 3.25: Highly important hampering factors to innovation activities for innovative and non-innovative enterprises by sector and number of persons engaged 2011 - 2014

%

Hampering Factor	Sector of activity				Number of persons engaged									
	Industry		Services		1-19		20-49		50-249		250+		All Enterprises	
	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises
Lack of funds	48.4	41.9	51.1	55.7	22.7	-	40.3	39.8	51.9	44.7	54.4	58.7	50.3	53.4
Lack of external finance	38.8	32.2	33.5	26.3	17.7	-	32.6	9.1	32.4	21.8	38.3	31.8	35.1	27.3
Innovation costs too high	44.8	29.6	47.9	32.6	37.9	-	38.9	25.8	51.1	41.2	48.1	28.7	46.9	32.1
Excessive perceived economic risks	31.6	25.9	26.9	23.7	19.0	-	26.3	9.1	24.1	13.7	31.5	30.4	28.4	24.1
Lack of qualified personnel	16.4	3.8	11.8	11.9	12.7		11.2	-	11.9	2.3	14.4	15.3	13.2	10.5
Lack of information on technology	19.7	3.8	13.9	17.8	14.1	-	10.7	-	12.4	10.9	18.8	19.1	15.7	15.4
Lack of information on markets	17.0	7.0	17.9	15.3	14.1	-	7.2	16.7	16.5	8.6	21.5	15.9	17.6	13.9
Difficulty in finding co-operation partners	21.1	3.8	16.8	7.8	11.3	-	12.5	-	21.7	8.6	18.7	7.2	18.1	7.1
Market dominated by established enterprises	40.2	41.9	28.2	25.4	-	-	28.8	51.4	31.9	19.5	35.0	29.5	31.8	28.2
Uncertain demand for innovative goods or services	18.0	3.8	19.5	12.7	6.4	-	16.8	-	16.7	5.7	21.7	14.9	19.1	11.2
Innovation is easy to innovate	23.7	7.6	18.5	7.9	33.1		22.9	9.1	18.9	11.8	18.9	6.0	20.1	7.9
Organisational rigidities within the enterprise	12.2	7.6	13.1	9.4	5.0		8.3	-	15.8	11.5	13.4	9.0	12.8	9.1
Insufficient flexibility of regulations or standards	14.2	8.5	14.4	3.4	6.4		6.8	-	16.3	2.9	16.3	5.4	14.4	4.3
Limitations of science and technology public policies	19.4	16.1	15.2	9.3	-		14.3	-	18.4	5.1	17.4	14.0	16.5	10.5

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Tables 1.26a & 1.26b

Table 3.26: Highly important reasons not to innovate by sector and number of persons engaged, 2011 - 2014

%

Reasons not to Innovate	Sector of activity				Number of persons engaged									
	Industry		Services		1-19		20-49		50-249		250+		All Enterprises	
	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises
No need due to prior innovations	12.3	23.1	8.1	6.9	11.2		4.8	11.5	7.6	5.7	11.5	11.2	9.4	9.7
No need because of no demand for innovations	9.8	7.0	7.4	8.8	-		2.7	11.5	4.6	2.9	12.0	10.6	8.2	8.5

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Tables 1.27

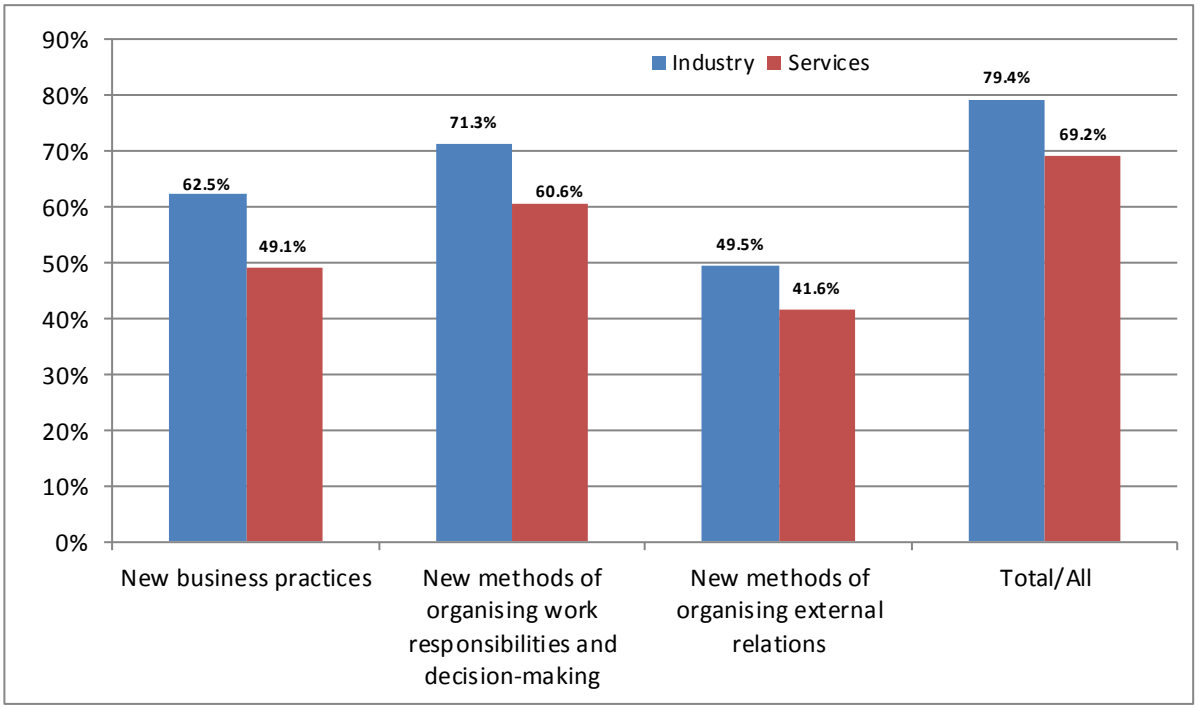
3.10 Organisational Innovation

Enterprises were asked details of organisational innovations that they introduced in the period 2011–2014 and to evaluate the objectives of these innovations.

Nearly three in four (72%) enterprises carried out an organisational innovation between 2011 and 2014. New methods of organising work responsibilities and decision-making was the most common form of organisational innovation at 63.5%. An organisational innovation was introduced by 95.1% of large enterprises over the survey period. *See Table 3.27.*

Industrial enterprises had 10.2% more organisational innovations than services sector enterprises. *See Figure 3.15 and Table 3.27.*

Figure 3.15: Organisational innovation activity rates by sector, 2011 – 2014

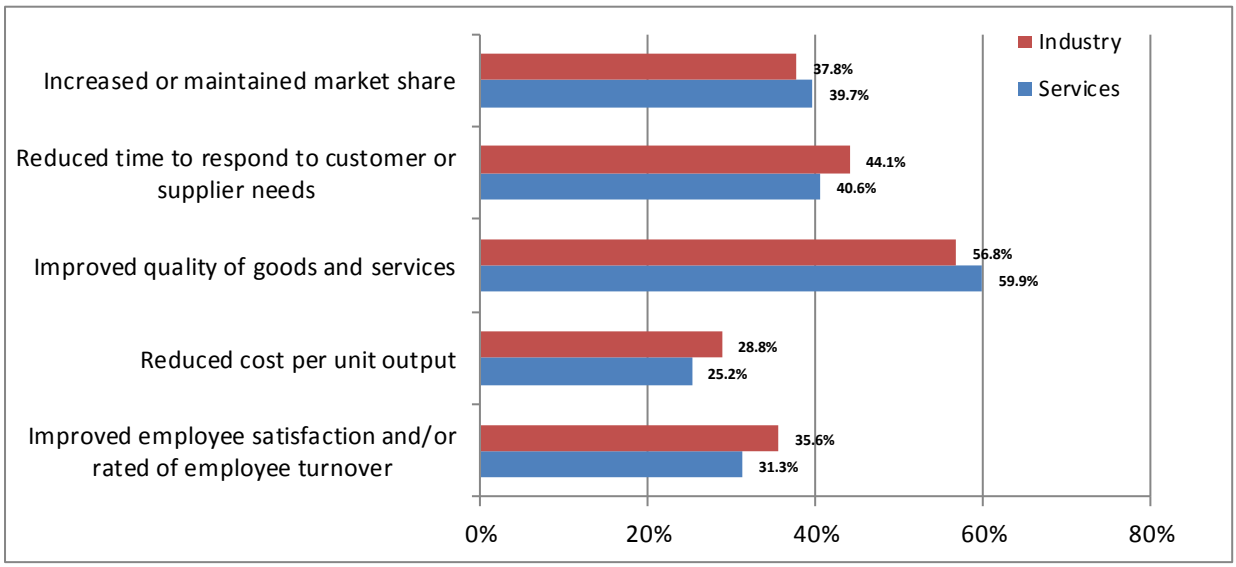


Source: UNCST – National Innovation Survey 2011–2014; Appendix D Table 1.28

The improvement in quality of goods or services was indicated as a highly important objective of introducing organisational innovations by 58.9% of technological innovative active enterprises. A substantial number of enterprises (41.6%) also indicated that their objective was the reduction in time responding to customer or supplier needs. *See Table 3.28.*

In terms of sectors, over 56.8% of industrial enterprises indicated that highly important objectives of introducing organisational innovations were improved quality of goods or services. Another important objective was reduction in time to respond to customer or supplier need' at 44.1%. The services sector enterprises also indicated that their main objective of introducing organisational innovations was both the improvement in quality of goods or services (59.9%) and the reduction in time to respond to customer or supplier needs (40.6%). *See Figure 3.16 and Table 3.28.*

Figure 3.16: Highly important objectives of introducing organizational innovations by sector, 2011 – 2014



Source: UNCST – National Innovation Survey 2011-2014; Appendix D Table 1.29

Table 3.27: Organisational innovation activity rates by sector and number of persons engaged, 2011 - 2014

%

	Sector of activity		Number of persons engaged				
	Industry	Services	250+	50-249	20-49	1-19	All Enterprises
New business practices	62.5	49.1	88.7	55.5	58.8	47.5	52.8
Suppliers of equipment, materials, components or software	17.0	21.6	39.4	20.9	18.7	19.4	20.3
New methods of organising work responsibilities and decision-making	71.3	60.6	88.7	74.3	64.7	59.0	63.5
New methods of organising external relations	49.5	41.6	61.0	48.9	45.0	41.1	43.8
Total / All[1]	**79.4**	**69.2**	**95.1**	**82.5**	**76.5**	**66.1**	**72.0**

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.28

[1]Respondents could engage in more than one innovation expenditure category, hence the sum of the categories does not equal the total

Table 3.28: Highly important objectives of technological innovative active enterprises with organisational innovation by sector and number of persons engaged, 2011-2014

%

	Sector of activity		Number of persons engaged				
	Industry	Services	250+	50-249	20-49	1-19	All technological innovative active enterprises with organisational innovation
Increased or maintained market share	37.8	39.7	54.9	37.3	42.9	36.8	39.1
Reduced time to respond to customer or supplier needs	44.1	40.6	50.7	36.0	40.8	43.1	41.6
Improved quality of goods and services	56.8	59.9	88.7	57.1	56.8	58.3	58.9
Reduced cost per unit output	28.8	25.2	34.4	27.4	32.0	22.9	26.3
Improved employee satisfaction and/or rated of employee turnover	35.6	31.3	19.0	30.0	26.7	36.9	32.6

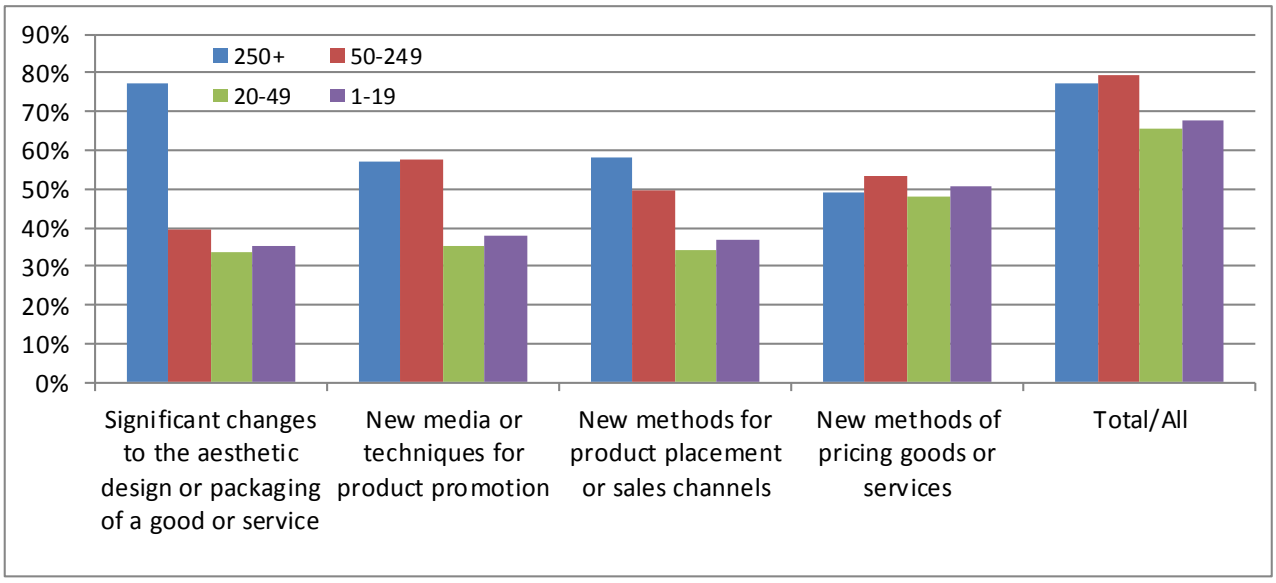
Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.29

3.11 Marketing Innovation

Enterprises were asked details of marketing innovations that they introduced in the period 2011-2014 and to evaluate the objectives of introducing these innovations.

Over two-thirds of all enterprises (69%) carried out a marketing innovation between 2011 and 2014. The most common forms of marketing innovation were the introduction of new methods of pricing goods or services (50.4%) and introduction of new media or techniques for product promotion (41.7%). Almost 41% of all enterprises introduced new media or techniques for product promotion. A marketing innovation was introduced by three-quarters of large enterprises and medium sized enterprises (77.5% and 79.2% respectively) between 2011 and 2014. *See Figure 3.17 and Table 3.29.*

Figure 3.17: Detailed marketing innovation activity rates by number of persons engaged, 2011 - 2014

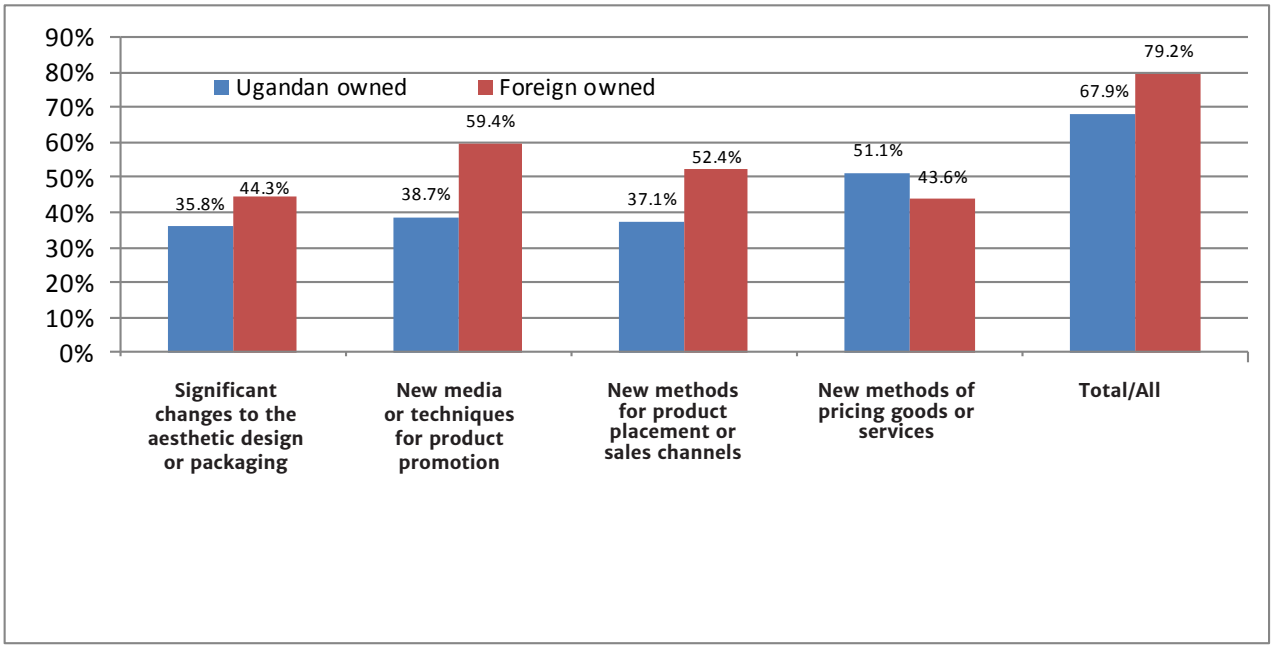


Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.30

Three in four (75.1%) industrial enterprises and two in three (67.8%) services sector enterprises had a marketing innovation. *See Table 3.29.*

Over three in four (79.2%) foreign owned enterprises introduced a marketing innovation in the period 2011-2014 compared to over two in three (68.9%) Ugandan owned enterprises. Foreign owned enterprises that introduced new media or techniques for product promotion accounted for 59.4% compared to 38.7% of Ugandan owned enterprises. Conversely, 51.1% Ugandan enterprises introduced new methods of pricing goods or services while 43.6% of foreign owned enterprises indicated that they introduced this innovation. *See Figure 3.18 and Table 3.29.*

Figure 3.18: Detailed marketing innovation activity rates by nationality of ownership, 2011 – 2014



Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.30

Table 3.29: Marketing innovation activity rates by nationality of ownership, sector and number of persons engaged, 2011 - 2014

%

	Nationality of ownership		Sector of activity		Number of persons engaged				
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	All Enterprises
Significant changes to the aesthetic design or packaging of a good or service	35.8	44.3	46.0	33.1	77.5	39.3	33.7	35.1	36.6
New media or techniques for product promotion	38.7	59.4	38.0	41.7	57.0	57.8	35.1	38.1	40.7
New methods for product placement or sales channels	37.1	52.4	37.9	38.9	58.4	49.8	34.2	36.8	38.6
New methods of pricing goods or services	51.1	43.6	56.8	48.0	49.3	53.1	48.2	50.7	50.4
Total[1]	**67.9**	**79.2**	**75.1**	**66.8**	**77.5**	**79.2**	**65.8**	**67.5**	**69.0**

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.30

[1]Respondents could engage in more than one innovation expenditure category, hence the sum of the categories does not equal the total

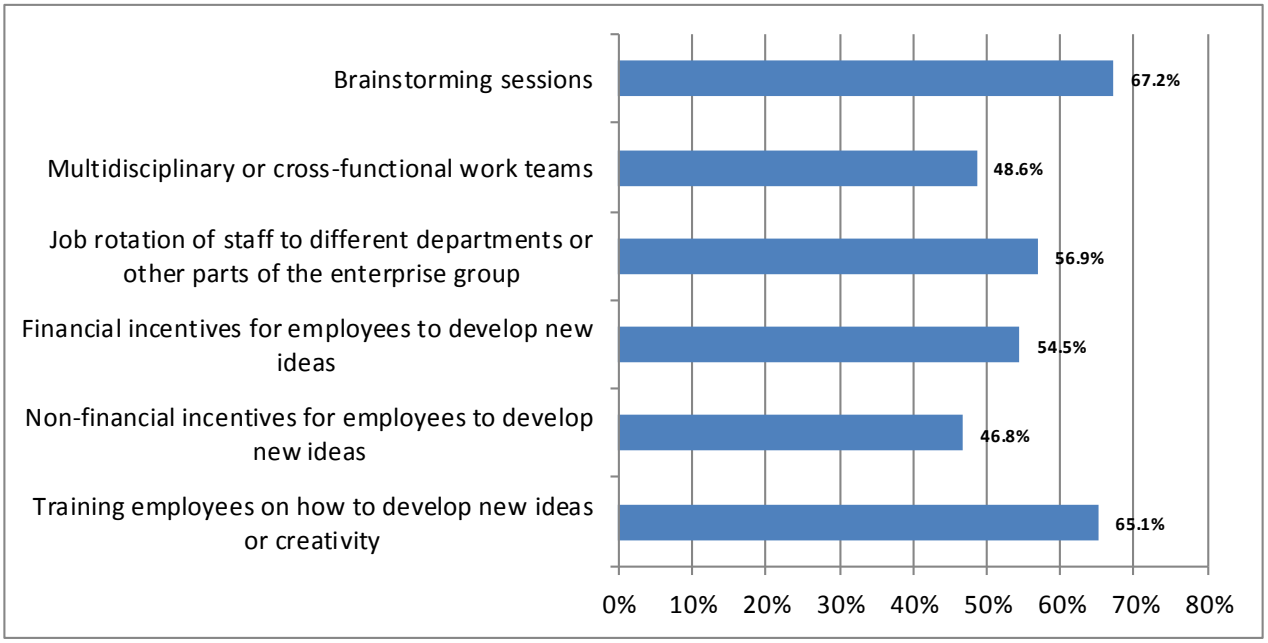
3.12 Creativity and Skills

Enterprises were asked if they used various methods from brainstorming sessions to training employees on how to develop new ideas or creativity and to indicate if they were successful. The results presented include both technological and non-technological innovation active enterprises.

3.12.1 Technological innovation enterprises

Enterprises rated the degree to which a number of factors or methods stimulated new ideas or creativity among their staff during the survey period. Over two in three (67.2%) innovation active enterprises indicated that new ideas and creativity among staff were stimulated through 'brainstorming sessions'. The second most common method at 65.1% was 'training employees on how to develop new ideas or creativity. *See Figure 3.19 and Table 3.30*.

Figure 3.19: 'Highly successful methods that stimulated new ideas or creativity among staff of technological innovative enterprises, 2011-2014



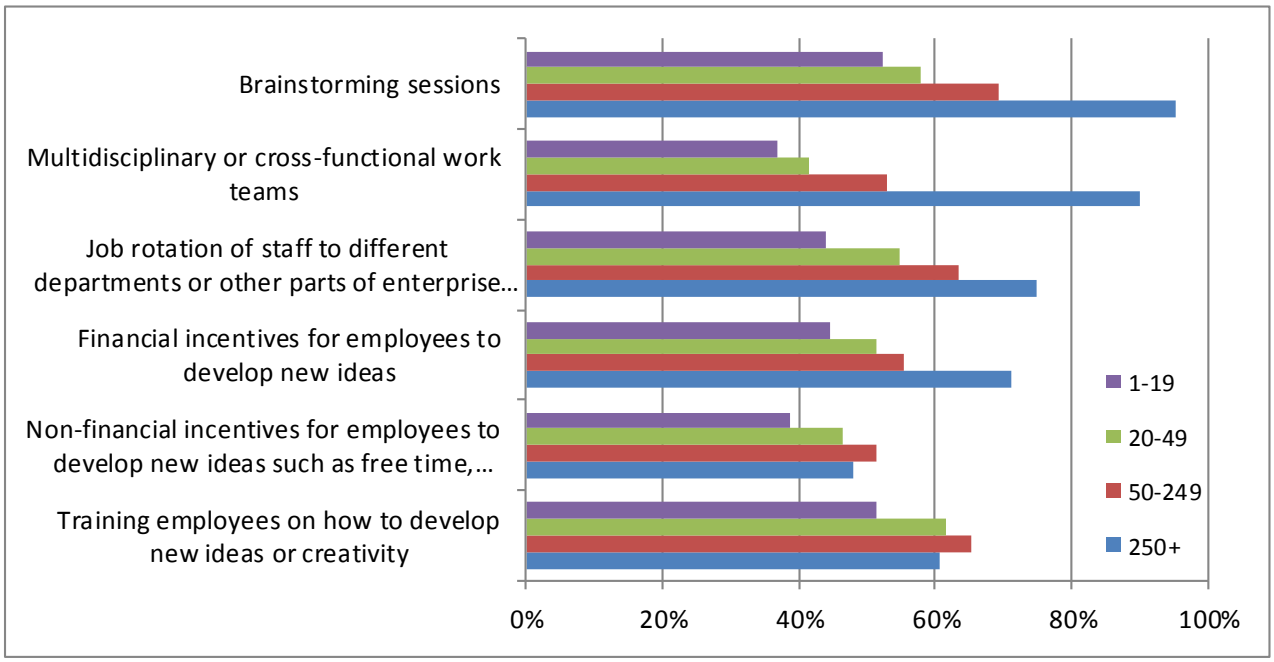
Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.31

3.12.2 Technological and Non-technological innovation enterprises

Over half of innovative active enterprises cited brainstorming sessions (57.4%), training employees on how to develop new ideas or creativity (56.2%), and job rotation of staff to different departments or other parts of enterprise group (50.4%) as successful methods used for stimulating new ideas and creativity among staff. *See Tables 3.31*.

Over nine in ten large enterprises rated the use of brainstorming sessions (95.1%) and multidisciplinary or cross-functional work teams (90.1%) as successful methods of stimulating new ideas/creativity among staff. *See Figure 3.20 and Tables 3.31.*

Figure 3.20: Type of creativity and skills employed by technological or non-technological innovative enterprises that are rated as successful, by number of persons engaged, 2011- 2014



Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.32

Table 3.30: 'Highly successful methods that stimulated new ideas or creativity among staff of all enterprises, 2011-2014

%

Methods to Stimulate Creativity and Skills	Number of Innovative Enterprises				
	*Total	Industry (total %)	Services (total %)	**Total	
				Innovative	Non-innovative
Brainstorming sessions	51.7	50.4	52.2	67.2	28.9
Multidisciplinary or cross-functional work teams	37.4	41.2	36.0	48.6	22.3
Job rotation of staff to different departments or other parts of the enterprise group	43.8	56.0	39.3	56.9	33.6
Financial incentives for employees to develop new ideas	42.0	51.2	38.5	54.5	31.5
Non-financial incentives for employees to develop new ideas	36.1	34.7	36.6	46.8	31.7
Training employees on how to develop new ideas or creativity	50.1	55.6	48.1	65.1	31.7

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.31

Table 3.31: Type of creativity and skills employed by technological or non-technological innovation enterprises that are rated as successful, by nationality of ownership, sector and number of persons engaged, 2011 – 2014

%

	Nationality of ownership		Sector of activity		Number of persons engaged				
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	All Enterprises
Brainstorming sessions	56.3	67.9	53.2	59.0	95.1	69.3	57.8	52.3	57.4
Multidisciplinary or cross-functional work teams	39.9	60.2	44.6	40.9	90.1	53.0	41.6	36.8	41.9
Job rotation of staff to different departments or other parts of enterprise group	49.4	59.6	62.1	46.0	74.7	63.4	54.7	44.0	50.4
Financial incentives for employees to develop new ideas	47.6	58.3	55.5	46.1	71.1	55.4	51.4	44.6	48.7
Non-financial incentives for employees to develop new ideas, such as free time, public recognition, more interesting work, etc.	41.9	51.3	37.9	44.7	48.0	51.4	46.4	38.8	42.8
Training employees on how to develop new ideas or creativity	55.6	61.6	57.8	55.6	60.6	65.4	61.5	51.3	56.2

Source: UNCST - National Innovation Survey 2011-2014; Appendix D Table 1.32

APPENDICES

Appendix A
Basic Definitions

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.

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.

Innovative-active firm

An ***Innovation-active*** firm is a firm that had innovation activities during the period under review, including those with ongoing and abandoned activities. In other words, a firm that has had innovation activities during the period under review, regardless of whether the activity resulted in the implementation of an innovation, is innovation-active.

Innovative firm

An ***innovative firm*** is a firm that has implemented an innovation during the period under review. This definition only includes those firms that really implemented product or process innovations.

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. The product innovation could either be new to the market or new to the firm.

Process Innovation

A ***process innovation*** is the implementation of a new or significantly improved production process, delivery method, or support activity for goods and services. This includes significant changes in techniques, equipment and/or software. The process innovation could either be new to the market or new to the firm.

New to Market Innovation

A new to ***market innovation*** is an innovation activity, which saw the introduction of a new good or service by the firm onto its operating market before other competitors.

New to Firm Innovation

A **new to *firm innovation*** is an innovation activity, which saw the introduction of a significantly improved good or service to the firm that was already available from competitors in the operating sector.

Innovation Expenditure

Innovation expenditure is spending on activities to support and implement product or process innovations.

Organisational Innovation

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

Marketing Innovation

A ***marketing innovation*** is the implementation of a new marketing method or concept involving significant changes in product design or packaging, product placement, product promotion or pricing. These 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.

Appendix B

Key to ISIC Rev.4 Classification

The selected ISIC Rev.4 divisions below are included in the results of the NIS-2015 (NIS 2011-2014).

Industry (All divisions) – Divisions 05 to 43

05–09	Mining and quarrying
10–33	Manufacturing
35	Electricity, gas, steam and air conditioning supply
36–39*	Water supply; sewerage, waste management and remediation activities
41–43	Construction

Services – Divisions 45 to 99

45–47	Wholesale and retail trade; repair of motor vehicles and motorcycles
49–53	Transportation and storage
55–56	Accommodation and food service activities
58–63	Information and communication
64–66	Financial and insurance activities
68	Real estate activities
69–75	Professional, scientific and technical activities
77–82*	Administrative and support service activities
84*	Public administration and defence; compulsory social security
85*	Education
86–88*	Human health and social work activities
90–93*	Arts, entertainment and recreation
94–96*	Other service activities
97–98*	Activities of households as employers; undifferentiated goods and services producing activities of households for own use
99*	Activities of extraterritorial organizations and bodies

*Not included in NIS 2011 – 2014

Appendix C

NIS 2011-2014 Questionnaire

UNCST Clearance

U	N	C	S	T	-	2	0	1	5	-	0	5

NATIONAL INNOVATION SURVEY

Reference Period: 2011 - 2014

The Uganda National Council for Science and Technology is responsible for the development and implementation of policies and strategies for integrating Science and Technology into the national development process.

Uganda Bureau of Statistics is the agency responsible for coordinating and supervising the National Statistical System.

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

July 2015

National Innovation Survey: 2011-2014

A. Background

1. Introduction
The Uganda National Council for Science and Technology (UNCST) together with the Uganda Bureau of Statistics (UBOS) are conducting a comprehensive National Innovation Survey to collect data on the status and levels of Inventive and Innovative activities in Uganda for the period 2011-2014.

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** of the Laws of Uganda. 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 (UBOS) Act of 1998 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 suitable representative of the Ministry/Department/Agency/Business Enterprise/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:

Contact persons	Telephone/Fax	E-mail/Website
Richard B. Lutalo	T. +256 414 705 514 M. +256 701 519 449	r.lutalo@uncst.org.ug
Patrick Mafabi	T. +256 414 705 514 M. +256 702 286 451	p.mafabi@uncst.org.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: +256 414 705 514, 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

6. 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 website: http://www.uncst.go.ug.

THANK YOU FOR YOUR CONTINUED COOPERATION

PART 1: General information about the enterprise.

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.

		Yes	No
1.3	During the period 2011 to 2014 did your enterprise:		
	Merge with or take over another enterprise	☐	☐
	Sell, close or outsource some of the tasks or functions of your enterprise	☐	☐
	Establish new subsidiaries in UGANDA	☐	☐
	Establish new subsidiaries in East African Community	☐	☐
	Establish new subsidiaries in other African Countries	☐	☐
	Establish new subsidiaries outside Africa	☐	☐

1.4	In which geographic markets did your enterprise sell goods or services during the three years 2011 - 2014?	No	Yes	Please specify the Countries
	Local Market-Uganda	☐	☐	
	East African Markets	☐	☐	
	COMESA Markets	☐	☐	
	Other African Markets	☐	☐	
	Europe Market	☐	☐	
	United States	☐	☐	
	Asia Market	☐	☐	
	All other countries NEC	☐	☐	

	Please specify area (e.g. COMESA)
Which of these geographical areas was your largest market in terms of turnover during the period 2011 to 2014?	

1.5	What was your enterprise's total number of employees in the period 2011-2014? *Both full-time and part-time. If not available, give the number of employees at the end of each year.*	
	Year	Males	Females
	2011		
	2012		
	2013		
	2014		

1.5.1	Approximately what **percentage** of your total employees had a university degree in 2014?	Males	Females
		%	%
	0%		
	1% to 4%		
	5% to 9%		
	10% to 24%		
	25% to 49%		
	50% to 74%		
	75% to 100%		

1.6	What was your enterprise's approximate total turnover for 2011 to 2014? **Turnover is defined as the market sales of goods and services (Include all taxes except VAT).**
	2011
	2012
	2013
	2014

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 2011 to 2014, 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 Part 3, otherwise go to question **2.2**

2.2	By whom were these product (goods and services) innovations developed?	*Select/tick all that apply*	
		Goods innovations	Service innovations
	• Mainly your enterprise	☐	☐
	• Mainly your enterprise group	☐	☐
	• Mainly your enterprise by adapting or modifying goods or services originally developed by other enterprises or institutions	☐	☐
	• 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
	☐ Rest of Africa
	☐ Europe
	☐ United States
	☐ Asia
	☐ Other Countries

2.3	Were any of your goods and service innovations during the period 2011 to 2014 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 2014 from:	**2014 Percentage distribution**
	• Goods and service innovations introduced during 2011 to 2014 that were **new to your market**	
	• Goods and service innovations introduced during 2011 to 2014 that were only **new to your firm**	
	• Goods and services that were unchanged or only marginally modified during 2011 to 2014 *Include the resale of new goods or services purchased from other enterprises.*	
	Total turnover in 2014	**100%**

2.5	To the best of your knowledge, were any of your product innovations during the period 2011 to 2014:	Yes	No	Don't know
	• A first in UGANDA?	☐	☐	☐
	• A first in East Africa?	☐	☐	☐
	• A first in Africa?	☐	☐	☐
	• A world first?	☐	☐	☐

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 period 2011 to 2014, 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 Part **4**. Otherwise go to question **3.2**.

3.2	By whom were these process innovations developed?		
	• Mainly your enterprise	☐	Select the single most appropriate option only
	• Mainly your enterprise group	☐	
	• Mainly your enterprise by adapting or modifying goods or services originally developed by other enterprises or institutions	☐	
	• 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
	☐ Rest of Africa
	☐ Europe
	☐ United States
	☐ Asia
	☐ Other Countries

3.3	Were any of your process innovations introduced during the period 2011 to 2014 new to your market?	Yes	No	Do not know
		☐	☐	☐

PART 4: Ongoing or abandoned innovation activities for product and process innovations

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 2011 to 2014:		Yes	No	
	• Did your enterprise have any innovation activities to develop product or process innovations that were abandoned during 2011 to 2014 or still ongoing by the end of 2014?	*Abandoned*	☐	☐	
		Still Going	☐	☐	
					If your enterprise also had no product or process innovations or innovation activity during 2011 to 2014 (no to **ALL** options in questions 2.1, 3.1, and 4.1), please go to Part **8**. Otherwise, please proceed to Part **5**.

PART 5: Activities and expenditures for product and process innovations

5.1	During the period 2011 to 2014, did your enterprise engage in the following innovation activities?	Yes	No
A	In-house R&D Research and development activities undertaken by your enterprise to create new knowledge or to solve scientific or technical problems (include software development in-house that meets this requirement).	☐	☐
	If yes, did your enterprise perform R&D during the period 2011 to 2014:	Continuously (your enterprise has permanent R&D staff in-house) ☐	
		Occasionally (as needed only) ☐	
B	External R&D *R&D that your enterprise has contracted out to other enterprises (including other enterprises in your group) or to public or private research organisations.*	☐	☐
C	1. Acquisition of machinery, equipment, software & buildings *Acquisition of advanced machinery, equipment, software and buildings to be used for new or significantly improved products or processes.*	☐	☐
D	Acquisition of existing knowledge from other enterprises or organisations *Acquisition of existing know-how, copyrighted works, patented and non-patented inventions, etc. from other enterprises or organisations for the development of new or significantly improved products and processes.*	☐	☐
E	Training for innovative activities *In-house or contracted out training for your personnel specifically for the development and/or introduction of new or significantly improved products and processes..*	☐	☐
F	Market introduction of innovations *In-house or contracted out activities for market introduction of your new or significantly improved goods or services, including market research and launch advertising.*	☐	☐
G	Design In-house or contracted out activities to design or alter the shape or appearance of goods or services	☐	☐
H	Other Other in-house or contracted out activities to implement new or significantly improved products and processes such as feasibility studies, testing, tooling up, industrial engineering, etc..	☐	☐

5.2	How much did your enterprise spend on each of the following innovation activities in 2014 only *Innovation activities are defined in question 5.1 above. Include current expenditures (including labour costs, contracted-out activities, and other related costs) as well as capital expenditures on buildings and equipment.*	**STRICTLY CONFIDENTIAL** **Amount**
A.	In-house R&D *Include current expenditures including labour cost and capital expenditures on buildings and equipment specifically for R&D.*	
B.	External R&D	
C.	Acquisition of machinery, equipment, software & buildings *Exclude expenditures on these items that are for R&D.*	
D.	Acquisition of existing knowledge from other enterprises or organisations.	
E.	All other innovation activities including design, training, marketing, and other relevant activities	
	Total expenditures on innovation activities (A+B+C+D+E) *Sum of expenditures for all types of innovation activities*	

5.3	During the period 2011 to 2014, 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	☐	☐

* The public sector includes government owned organisations such as local, regional and national administrations and agencies, schools, hospitals, and government providers of services such as security, transport, housing, energy, etc.

PART 6: Sources of information and co-operation for product and process innovations

6.1 During the period 2011 to 2014, how important to your enterprise's innovation activities were each of the following information sources?

Include information sources that provided information for new innovation projects or contributed to the completion of existing projects.

Information source		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 sources	Suppliers of equipment, materials, components or software	☐	☐	☐	☐
	Clients or customers from the private sector	☐	☐	☐	☐
	Clients or customers from the public sector	☐	☐	☐	☐
	Competitors or other enterprises in your industry	☐	☐	☐	☐
	Consultants and commercial labs	☐	☐	☐	☐
Education & research institutes	Universities or other higher education institutions	☐	☐	☐	☐
	Government, public or private research institutes	☐	☐	☐	☐
Other sources	Conferences, trade fairs, exhibitions	☐	☐	☐	☐
	Scientific journals and trade/technical publications	☐	☐	☐	☐
	Professional and industry associations	☐	☐	☐	☐

6.2 During the period 2011 to 2014, 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 institutions on innovation activities. Both partners do not need to commercially benefit.

Exclude pure contracting out of work with no active co-operation.

Yes ☐ No ☐ → *If no, please go to Part 7*

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	United States	Asia	Other countries
Other enterprises within your enterprise group	☐	☐	☐	☐	☐	☐
Suppliers of equipment, materials, components or software	☐	☐	☐	☐	☐	☐
Clients or customers from the private sector	☐	☐	☐	☐	☐	☐
Clients or customers from the public sector	☐	☐	☐	☐	☐	☐
Competitors or other enterprises in your sector	☐	☐	☐	☐	☐	☐
Consultants, commercial labs	☐	☐	☐	☐	☐	☐
Universities or other higher education institutions	☐	☐	☐	☐	☐	☐
Government, public or private research institutes	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐

6.4 Which type of co-operation partner was the most valuable for your enterprise's innovation activities? *(Tick only one option)*

	✓
Other enterprises within your enterprise group	
Suppliers of equipment, materials, components or software	
Clients or customers from the private sector	
Clients or customers from the public sector	
Competitors or other enterprises in your sector	
Consultants, commercial labs	
Universities or other higher education institutions	
Government, public or private research institutes	

PART 7: Competitiveness of your enterprise's product and process innovations

7.1 How effective were the following methods for maintaining or increasing the competitiveness of product and process innovations introduced during 2011 to 2014?

Methods	Degree of effectiveness Tick "Not used" if there were no competitiveness outcomes.			
	High	Medium	Low	Not used
Patents	☐	☐	☐	☐
Utility patents	☐	☐	☐	☐
Design registration	☐	☐	☐	☐
Copyright	☐	☐	☐	☐
Trademarks	☐	☐	☐	☐
Lead time advantages	☐	☐	☐	☐
Complexity of goods or services	☐	☐	☐	☐
Secrecy (include non-disclosure agreements)	☐	☐	☐	☐

7.2 During the period 2011 to 2014, did your enterprise:

	Yes	No
• Secure a patent from ARIPO1?	☐	☐
• 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?	☐	☐

PART 8: Effects/Objectives of innovation during 2011 - 2014

8.1 How important or successful were each of the following types of outcomes for your products (goods or services) and process innovations introduced during the period 2011 to 2014?

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	☐	☐	☐	☐

8.2 How important or successful were each of the following objectives for your products (goods or services) and process innovations introduced during the period 2011 to 2014?

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	☐	☐	☐	☐

PART 9: Factors hampering innovation activities

9.1	During the period 2011 to 2014, 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	☐	☐

QUESTIONS 9.2, 10 to 13 TO BE ANSWERED BY ALL ENTERPRISES:

9.2 During the period 2011 to 2014, 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 10: Organisational innovation

An organisational innovation is a new organisational method in your enterprise's business practices (including knowledge management), workplace organisation or external relations that has not been previously used by your enterprise. It must be the result of strategic decisions taken by management.
Exclude mergers or acquisitions, even if for the first time.

10.1 During the period 2011 to 2014, did your enterprise introduce:

Organisational innovations

	Yes	No
• New **business practices** for organising procedures (i.e. supply chain management, business re-engineering, knowledge management, lean production, quality management, etc)	☐	☐
• New methods of **organising work responsibilities and decision making** (i.e. first use of a new system of employee responsibilities, team work, decentralisation, integration or de-integration of departments, education/training systems, etc.).	☐	☐
• New 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 If your enterprise introduced an organisational innovation during the period 2011 to 2014, 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: Marketing innovation

A marketing innovation is the implementation of a new marketing concept or strategy that differs significantly from your enterprise's existing marketing methods and which has not been used before.

It requires significant changes in product design or packaging, product placement, product promotion or pricing. Exclude seasonal, regular and other routine changes in marketing methods.

11.1 During the period 2011 to 2014, did your enterprise introduce:

Marketing innovations

	Yes	No
• Significant changes to the aesthetic **design** or **packaging** of a good or service (*exclude changes that alter the product's functional or user characteristics – these are product innovations*)	☐	☐
• 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.*)	☐	☐

PART 12: Public sector procurement and innovation

12.1 During the period 2011 to 2014, did your enterprise have any procurement contracts to provide goods or services for:

	Yes	No
Domestic public sector organisations	☐	☐
Foreign public sector organisations	☐	☐

If no to both options go to Part 13, otherwise go to question 12.2

12.2 Did your enterprise undertake any innovation activities as part of a procurement contract to provide goods or services to a public sector organisation? (*Include activities for product, process, organisational and marketing innovations)*

(If your enterprise had several procurement contracts, tick all that apply)

Yes and innovation required as part of the contract	☐
Yes but innovation *not* required as part of the contract	☐
No	☐

PART 13: Strategies and obstacles for reaching your enterprise's goals

13.1 During the period 2011-2014, how important were each of the following goals for your enterprise? (*it does not matter if your enterprise was able to attain these goals*)

Goals	Degree of importance			
	High	Medium	Low	Not relevant
• Increase turnover	☐	☐	☐	☐
• Increase market share	☐	☐	☐	☐
• Decrease costs	☐	☐	☐	☐
• Increase profit margins	☐	☐	☐	☐

13.2 During the period 2011-2014, how important were each of the following strategies for reaching your enterprise's goals?

Strategies	Degree of importance			
	High	Medium	Low	Not relevant
• Developing new markets within EAC	☐	☐	☐	☐
• Developing new markets within COMESA	☐	☐	☐	☐
• Developing new markets within the rest of Africa	☐	☐	☐	☐
• Reducing in-house costs of operation	☐	☐	☐	☐
• Reducing costs of purchased materials, components or services	☐	☐	☐	☐
• Introducing new or significantly improved goods or services	☐	☐	☐	☐
• Intensifying or improving the marketing of goods or services	☐	☐	☐	☐
• Increasing flexibility / responsiveness of your organisation	☐	☐	☐	☐
• Building alliances with other enterprises or institutions	☐	☐	☐	☐

13.3 During the period 2011 - 2014, how important were the following factors as obstacles to meeting your enterprise's goals?

Obstacles	Degree of importance			
	High	Medium	Low	Not relevant
• Strong price competition	☐	☐	☐	☐
• String competition on product quality, reputation or brand	☐	☐	☐	☐
• Lack of demand	☐	☐	☐	☐
• Innovations by competitors	☐	☐	☐	☐
• Dominant market share held by competitors	☐	☐	☐	☐
• Lack of qualified personnel	☐	☐	☐	☐
• Lack of adequate finance	☐	☐	☐	☐
• High cost of access to new markets	☐	☐	☐	☐
• High cost of meeting government regulations or legal requirements	☐	☐	☐	☐

PART 14: Creativity and Skills

14.1 Please give short descriptions of any new or significantly improved products or processes introduced or implemented in your enterprise in the period 2011-2014 (*Attach separate pages or promotional brochures*)

14.2 During the period 2011-2014, 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 D
Result Tables: NIS 2011-2014

Table 1.1: Number and percentage of enterprises, 2011-2014

Type of innovation	Number of Enterprises		
	Total	Industry	Services
All Enterprises	6,475	1,774	4,701
Enterprises with innovation activity	4,987	1,520	3,467
Product only innovators	728	127	601
Process only innovators	825	242	582
Product and process innovators	3,123	1,050	2,073
Ongoing only innovators	156	43	113
Abandoned only innovators	121	48	73
Enterprises with on-going and abandoned innovations	34	10	24
Enterprises without innovation activity	1,488	254	1,234
Percentage of Enterprises			
Type of innovation	Total	Industry	Services
All Enterprises	100.0	100.0	100.0
Enterprises with innovation activity	77.0	85.7	73.8
Product only innovators	11.2	7.2	12.8
Process only innovators	12.7	13.7	12.4
Product and process innovators	48.2	59.2	44.1
Ongoing only innovators	2.4	2.4	2.4
Abandoned only innovators	1.9	2.7	1.6
Enterprises with on-going and abandoned innovations	0.5	0.5	0.5
Enterprises without innovation activity	**23.0**	**14.3**	**26.2**

Table 1.2: Number and percentage of technological and non-technological innovation activities by sector and number of persons engaged, 2011-2014

Size class (Number)	Enterprises with technological innovation activities	Turnover that is generated by enterprises with technological innovation activities in 2014, Ushs. Bn.	Persons engaged who work in enterprises with technological innovation activities in 2014
Total Industry	**1707**	**14,300**	**161,370**
Total Services	**4266**	**49,500**	**186,354**
All Enterprises			
Large (250 and above)	193	6,290	179,766
Medium (50-249)	896	15,500	90,500
Small (20-49)	1557	10,600	45,406
Very Small (1-19)	3327	31,400	32,052
Total All Enterprises	**5973**	**65,700**	**347,724**
Size class (Percent)	**Enterprises with technological innovation activities (%)**	**Turnover that is generated by enterprises with technological innovation activities in 2014 (%)**	**Persons engaged who work in enterprises with technological innovation activities in 2014 (%)**
Total Industry	96.2	99.3	99.3
Total Services	90.7	96.5	95.8
All Enterprises			
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	96.8	91.2	96.5
Small (20-49)	94.4	98.1	94.6
Very Small (1-19)	89.7	99.4	90.3
Total All Enterprises	**92.2**	**97.1**	**97.4**

Table 1.3: Number and percentage of technological innovation activities by sector and number of persons engaged, 2011–2014

Size class (Number)	Enterprises with technological innovation activities	Turnover that is generated by enterprises with technological innovation activities in 2014, Ushs. Bn.	Persons engaged who work in enterprises with technological innovation activities in 2014
Total Industry	**1520**	**8,770**	**156,085**
Total Services	**3467**	**47,500**	**169,497**
All Enterprises			
Large (250 and above)	193	6,290	179,766
Medium (50–249)	820	15,200	83,078
Small (20–49)	1223	3,750	35,548
Very Small (1–19)	2750	31,100	27,190
Total All Enterprises	**4987**	**56,300**	**325,582**
Size class (Percent)	**Enterprises with technological innovation activities (%)**	**Turnover that is generated by enterprises with technological innovation activities in 2014 (%)**	**Persons engaged who work in enterprises with technological innovation activities in 2014 (%)**
Total Industry	**85.7**	**60.9**	**96.1**
Total Services	**73.8**	**92.6**	**87.1**
All Enterprises			
Large (250 and above)	100.0	100.0	100.0
Medium (50–249)	88.6	89.4	88.6
Small (20–49)	74.2	34.7	74.1
Very Small (1–19)	74.2	98.4	76.6
Total All Enterprises	**77.0**	**85.7**	**73.8**

Table 1.4: Technological innovation activity by sector and number of persons engaged, 2011 – 2014

Size class (Number)	Enterprises with technological innovation activities	Turnover that is generated by enterprises with technological innovation activities in 2014, Ushs. Bn.	Persons engaged who work in enterprises with technological innovation activities in 2014
Industry			
Large (250 and above)	70	2,080	101,202
Medium (50-249)	348	3,970	36,810
Small (20-49)	361	235	10,817
Very Small (1-19)	742	2,480	7,256
Total	**1520**	**8,770**	**156,085**
Services			
Large (250 and above)	124	4,210	78,563
Medium (50-249)	473	11,200	46,269
Small (20-49)	863	3,520	24,731
Very Small (1-19)	2008	28,600	19,934
Total	**3467**	**47,500**	**169,497**
All Enterprises	**4987**	**56,300**	**325,582**

Size class (Percent)	Enterprises with technological innovation activities (%)	Turnover that is generated by enterprises with technological innovation activities in 2014 (%)	Persons engaged who work in enterprises with technological innovation activities in 2014 (%)
Industry			
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	92.7	100.0	93.3
Small (20-49)	83.9	4.1	83.2
Very Small (1-19)	82.6	97.6	82.1
Total	**85.7**	**60.9**	**96.1**
Services			
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	85.8	85.5	85.1
Small (20-49)	70.8	71.0	70.7
Very Small (1-19)	71.5	98.3	74.8
Total	**73.8**	**92.6**	**87.1**
All Enterprises	**77.0**	**85.7**	**73.8**

Table 1.5 Technological innovation activity by nationality of ownership and number of persons engaged, 2011 – 2014

Size class (Number)	Enterprises with technological innovation activities	Turnover that is generated by enterprises with technological innovation activities in 2014, Ushs. Bn.	Persons engaged who work in enterprises with technological innovation activities in 2014
Ugandan			
Large (250 and above)	124	3,660	146,359
Medium (50-249)	759	12,600	74,078
Small (20-49)	1066	695	31,179
Very Small (1-19)	2478	27,400	23,447
Total	4427	44,400	275,063
Foreign			
Large (250 and above)	69	2,630	33,406
Medium (50-249)	61	2,550	9,000
Small (20-49)	157	3,060	4,369
Very Small (1-19)	272	3,620	3,743
Total	**560**	**11,900**	**50,519**
All Enterprises	**4987**	**56,300**	**325,582**

Size class (Percent)	Enterprises with technological innovation activities (%)	Turnover that is generated by enterprises with technological innovation activities in 2014 (%)	Persons engaged who work in enterprises with technological innovation activities in 2014 (%)
Ugandan			
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	90.6	86.9	90.7
Small (20-49)	73.4	10.8	73.7
Very Small (1-19)	72.4	97.9	74.4
Total	**75.8**	**84.6**	**91.1**
Foreign			
Large (250 and above)	100.0	100.0	100.0
Medium (50-249)	69.3	99.6	74.3
Small (20-49)	80.5	70.8	77.4
Very Small (1-19)	95.7	99.2	94.5
Total	**87.9**	**90.2**	**91.6**
All Enterprises	**77.0**	**85.7**	**73.8**

Table 1.6: Technological innovation activity by sector and nationality of ownership, 2011 – 2014

Nationality of Ownership	Enterprises with technological innovation activities	Turnover that is generated by enterprises with technological innovation activities in 2014, Ushs. Bn.	Persons engaged who work in enterprises with technological innovation activities in 2014
Industry			
Ugandan	1452	8,680	154,522
Foreign	68	89.5	1,564
Services			
Ugandan	2975	35,800	120,542
Foreign	492	11,800	48,955
All Enterprises	4987	56,300	325,582
Nationality of Ownership	**Enterprises with technological innovation activities (%)**	**Turnover that is generated by enterprises with technological innovation activities in 2014 (%)**	**Persons engaged who work in enterprises with technological innovation activities in 2014 (%)**
Industry			
Ugandan	85.1	60.7	96.0
Foreign	100.0	100.0	100.0
Services			
Ugandan	72.0	93.7	85.5
Foreign	86.4	90.1	91.4
All Enterprises	77.0	85.7	73.8

Table 1.7: Technological innovation activity rates by ISIC sector, 2011 – 2014

ISIC Code	ISIC Sector	Enterprises with technological innovation activities	Turnover that is generated by enterprises with technological innovation activities in 2014, Ushs. Bn.	Persons engaged who work in enterprises with technological innovation activities in 2014
Industry				
05-09	Mining and quarrying	18	9.2	336
10-33	Manufacturing	1,132	7,900	131,866
35	Electricity, gas, steam and air conditioning supply	25	12.5	500
41-43	Construction	346	850	23,384
05-43	Industry	1520	8770	156,085
Services				
45-47	Wholesale and retail trade; repair of motor vehicles and motorcycles	1,585	10,600	42,105
49-53	Transportation and storage	246	3,170	39,707
55-56	Accommodation and food service activities	784	6,150	19,370
58-63	Information and communication	68	834	2,091
64-66	Financial and insurance activities	579	15,400	57,542
68	Real estate activities	109	11,000	5,751
69-75	Professional, scientific and technical activities	94	390	2,930
69-75	Services	3467	47,500	169,497
All Enterprises		**4987**	**56,300**	**325,852**

ISIC Code	ISIC Sector	Enterprises with technological innovation activities (%)	Turnover that is generated by enterprises with technological innovation activities in 2014 (%)	Persons engaged who work in enterprises with technological innovation activities in 2014 (%)
Industry				
05-09	Mining and quarrying	0.3	0.0	0.1
10-33	Manufacturing	17.5	12.0	36.9
35	Electricity, gas, steam and air conditioning supply	0.4	0.0	0.1
41-43	Construction	5.3	1.3	6.6
05-43	Industry	85.7	60.9	96.1
Services				
45-47	Wholesale and retail trade; repair of motor vehicles and motorcycles	24.5	16.1	11.8
49-53	Transportation and storage	3.8	4.8	11.1
55-56	Accommodation and food service activities	12.1	9.4	5.4
58-63	Information and communication	1.1	1.3	0.6
64-66	Financial and insurance activities	8.9	23.4	16.1
68	Real estate activities	1.7	16.7	1.6
69-75	Professional, scientific and technical activities	1.5	0.5	0.8
69-75	Services	73.8	92.6	87.1
All Enterprises		**77.0**	**85.7**	**73.8**

Table 1.8 Detailed technological innovation activities rates by nationality of ownership, sector and number of persons engaged, 2011-2014

No.

Number	Nationality of ownership		Sector of activity		Number of persons engaged				All Enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Product innovation	659	69	127	601	12	112	129	475	728
Process innovation	776	49	242	582	-	186	167	471	825
Product and process innovation	2696	427	1050	2073	168	511	850	1594	3123
Ongoing innovation	141	15	43	113	12	-	56	88	156
Abandoned innovation	121	-	48	73	-	12	10	99	121
Abandoned and ongoing innovation	34	-	10	24	-	-	12	22	34
Total[1]	4427	560	1520	3466	193	820	1223	2750	4987

%

Percentage	Nationality of ownership		Sector of activity		Number of persons engaged				All Enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Product innovation	11.3	10.8	7.2	12.8	6.4	12.0	7.8	12.8	11.2
Process innovation	13.3	7.7	13.7	12.4	-	20.1	10.2	12.7	12.7
Product and process innovation	46.2	67.0	59.2	44.1	87.2	55.1	51.5	43.0	48.2
Ongoing innovation	2.4	2.3	2.4	2.4	6.4	-	3.4	2.4	2.4
Abandoned innovation	2.1	-	2.7	1.6	-	1.3	0.6	2.7	1.9
Abandoned and ongoing innovation	0.6	-	0.5	0.5	-	-	0.7	0.6	0.5
Total[1]	**75.8**	**87.9**	**85.7**	**73.7**	**100.0**	**88.6**	**74.2**	**74.2**	**77.0**

1Respondents could engage in more than one type of product innovation, hence the sum of the categories does not equal the total.

Table 1.9: Detailed product and process innovation activity by nationality of ownership, sector and number of persons engaged, 2011 – 2014

No.

Number	Nationality of ownership		Sector of activity		Number of persons engaged				All Enterprises
	Ugandan	Foreign	Industry	Services	1-19	20-49	50-249	250+	
Product innovations									
New or significantly improved goods	2,227	284	958.1	1552	1,420	598	390	102	2,511
New or significantly improved services	2,935	450	896.8	2488	1,864	832	528	162	3,385
Total product innovation1	659	69	127	601	475	129	112	12	728
Process innovations									
New or significantly improved methods of manufacturing or producing goods or services	2,249	365	932.5	1681	1,388	637	451	139	2,614
New or significantly improved logistics, delivery or distribution methods	2,207	334	750.1	1791	1,331	675	376	159	2,541
New or significantly improved supporting activities for processes	2,319	427	796	1950	1,319	731	551	144	2,746
Total process innovation[2]	776	49	242	582	471	167	186	-	825
Total innovation	4427	560	1520	3466	2750	1223	820	193	4987

%

Percentage	Nationality of ownership		Sector of activity		Number of persons engaged				All Enterprises
	Ugandan	Foreign	Industry	Services	1-19	20-49	50-249	250+	
Product innovations	11.3	10.8	7.2	12.8	12.8	7.8	12.0	6.4	11.2
New or significantly improved goods	38.1	44.5	54.0	33.0	38.3	36.3	42.1	53.0	38.8
New or significantly improved services	50.3	70.6	50.6	52.9	50.3	50.4	57.0	83.7	52.3
Total product innovation[1]	11.3	10.8	7.2	12.8	12.8	7.8	12.0	6.4	11.2
Process innovations									

New or significantly improved methods of manufacturing or producing goods or services	38.5	57.2	52.6	35.8	37.4	38.6	48.6	71.9	40.4
New or significantly improved logistics, delivery or distribution methods	37.8	52.4	42.3	38.1	35.9	40.9	40.6	82.3	39.2
New or significantly improved supporting activities for processes	39.7	67.0	44.9	41.5	35.6	44.3	59.5	74.6	42.4
Total process innovation2	13.3	7.7	13.7	12.4	12.7	10.2	20.1	–	12.7
Total innovation	75.8	87.9	85.7	73.7	74.2	74.2	88.6	100.0	77.0

1Respondents could engage in more than one type of product innovation, hence the sum of the categories does not equal the total.

2Respondents could engage in more than one type of product innovation, hence the sum of the categories does not equal the total.

Table 1.10: Innovative Enterprises: responsibility for the development of product innovations, 2011–2014

Responsibility for the Development of Product Innovation	Number of Innovative Enterprises		
	Total	Industry	Services
All Innovative enterprises	4,987	1,520	3,467
Mainly own enterprise	2,980	843	2,137
Mainly own enterprise group	1,312	308	1,004
Own enterprise through adaptation or modification	1,381	367	1,014
Own enterprise in collaboration with other enterprises or institutions	904	238	667
Other enterprises or institutions	764	242	521
Enterprises which did not respond to the question	–	–	–

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	59.8	55.4	61.6
Mainly own enterprise group	26.3	20.3	29.0
Own enterprise through adaptation or modification	27.7	24.2	29.2
Own enterprise in collaboration with other enterprises or institutions	18.1	15.6	19.2
Other enterprises or institutions	15.3	15.9	15.0
Enterprises which did not respond to the question	–	–	–

Table 1.11: Innovative enterprises: origin of product innovations, 2011–2014

Origin of Product Innovation	Number of Innovative Enterprises		
	Total	Industry	Services
All Innovative enterprises	3,851	1,177	2,674
Uganda	2,898	840	2,058
Abroad	926	337	589
Enterprises which did not respond to the question	27	–	27
Origin of product innovation	**Percentage of Innovative Enterprises**		
	Total	Industry	Services
All Innovative enterprises	100.0	100.0	100.0
Uganda	75.3	71.4	77.0
Abroad	24.0	28.6	22.0
Enterprises which did not respond to the question	0.7	–	1.0

Table 1.12: Innovative enterprises: responsibility for the development of process innovations, 2011–2014

Responsibility for the Development of Process Innovation	Number of Innovative Enterprises		
	Total	Industry	Services
All Innovative enterprises	4,987	1,520	3,467
Mainly own enterprise	2,250	848	1,402
Mainly own enterprise group	556	164	392
Own enterprise through adaptation or modification	653	192	461
Own enterprise in collaboration with other enterprises or institutions	186	31	155
Other enterprises or institutions	237	58	179
Enterprises which did not respond to the question	67	-	67

Responsibility for the Development of Process Innovation	Percentage of Innovative Enterprises		
	Total	Industry	Services
All Innovative enterprises	100.0	100.0	100.0
Mainly own enterprise	45.1	55.8	40.4
Mainly own enterprise group	11.1	10.8	11.3
Own enterprise through adaptation or modification	13.1	12.6	13.3
Own enterprise in collaboration with other enterprises or institutions	3.7	2.1	4.5
Other enterprises or institutions	4.7	3.8	5.2
Enterprises which did not respond to the question	1.3	-	1.9

Table 1.13: Origin of process innovations, 2011–2014

Origin of Process Innovations	Number of Process Innovators		
	Total	Industry	Services
All Process Innovators	**3,948**	**1,292**	**2,655**
Uganda	2,987	908	2,080
Abroad	917	366	551
Enterprises which did not respond to the question	44	19	24

Origin of Process Innovations	Percentage of Process Innovators		
	Total	Industry	Services
All Process Innovators	100	100	100
Uganda	75.7	70.2	78.3
Abroad	23.2	28.3	20.8
Enterprises which did not respond to the question	1.1	1.5	0.9

Table 1.14a: Product (goods and services) innovators: breakdown of turnover by type of product innovation, 2014 (year specific question).

Type of Product Innovation	Turnover Breakdown (Ushs. billion)		
	Total	Industry	Services
All product innovators	47,000	8,020	39,000
Innovations new to the market	3,670	105	3,560
Innovations new to the firm	6,540	433	6,100
Unchanged or marginally modified	36,800	7,490	29,300
Product only innovators	21,800	962	20,800
Innovations new to the market	1,350	4.94	1,340
Innovations new to the firm	1,830	167	1,660
Unchanged or marginally modified	18,600	790	17,800
Product and Process innovators	25,300	7,060	18,200
Innovations new to the market	2,320	100	2,220
Innovations new to the firm	4,710	265	4,440
Unchanged or marginally modified	18,200	6,700	11,500

Table 1.14b: Product (goods and services) innovators: percentage breakdown of turnover by product type, 2014 (year specific question)

	Turnover Breakdown (% of Total Turnover)		
	Total	Industry	Services
All product innovators	**100.0**	**100.0**	**100.0**
Innovations new to the market	7.8	1.3	9.1
Innovations new to the firm	13.9	5.4	15.6
Unchanged or marginally modified	78.3	93.4	75.1
Product only innovators	**100.0**	**100.0**	**100.0**
Innovations new to the market	6.2	0.5	6.4
Innovations new to the firm	8.4	17.4	8.0
Unchanged or marginally modified	85.3	82.1	85.6
Product and Process innovators	**100.0**	**100.0**	**100.0**
Innovations new to the market	9.2	1.4	12.2
Innovations new to the firm	18.6	3.8	24.4
Unchanged or marginally modified	71.9	94.9	63.2

Table 1.15 Number and Percentage of total turnover attributed to new to firm and new to market product innovation activities by nationality of ownership, sector and number of persons engaged, 2011 – 2014

Ushs. m

Number	Nationality of ownership		Sector of activity		Number of persons engaged				All Enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Turnover									6,540
New to firm product innovations	4,800	1,740	433	6,100	619	3,900	636	1,380	3,670
New to market product innovations	2,730	943	105	3,560	1,030	1,030	387	1,220	36,800
Unchanged	28,800	7,980	7,490	29,300	4,600	8,790	2,510	20,900	47,000
Total	**36,400**	**10,700**	**8,020**	**39,000**	**6250**	**13,700**	**3,530**	**23,500**	**6,540**

%

Percent	Nationality of ownership		Sector of activity		Number of persons engaged				All Enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Turnover									
New to firm product innovations	13.2	16.3	5.4	15.6	9.9	28.5	18.0	5.9	13.9
New to market product innovations	7.5	8.8	1.3	9.1	16.5	7.5	11.0	5.2	7.8
Unchanged	79.1	74.6	93.4	75.1	73.6	64.2	71.1	88.9	78.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 1.16: Percentage of enterprises engaged in new to firm and new to market product innovation activities by nationality of ownership, sector and number of persons engaged, 2011 - 2014

No.

Number	Nationality of ownership		Sector of activity		Number of persons engaged				All Enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
New to firm product innovations	2,277	353	777	1,853	106	520	682	1,321	2,629
New to market product innovations	1,447	350	560	1,237	96	318	480	901	1,796

%

Percent	Nationality of ownership		Sector of activity		Number of persons engaged				All Enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
New to firm product innovations	68.1	71.1	66.0	69.6	58.6	83.6	70.6	58.6	68.5
New to market product innovations	43.3	70.5	47.6	46.5	53.3	51.2	49.7	53.3	46.8

Table 1.17: Number and Percentage of innovative enterprises having engaged in specific innovation expenditure, 2014 (year specific question)

Type of Expenditure	Number of Innovative Enterprises		
	Total	Industry	Services
In-house R&D	2,364	771	1,593
External R&D	1,342	255	1,087
Acquisition of machinery, equipment and software	3,361	1,089	2,273
Acquisition of other external knowledge	2,630	832	1,798
Training for innovative activities	3,135	940	2,195
Market introduction of innovations	2,323	644	1,679
Design	2,218	809	1,409
Other activities	1,594	529	1,065

Type of Expenditure	Percentage of Innovative Enterprises		
	Total	Industry	Services
In-house R&D	47.4	50.7	45.9
External R&D	26.9	16.8	31.4
Acquisition of machinery, equipment and software	67.4	71.6	65.6
Acquisition of other external knowledge	52.7	54.7	51.9
Training for innovative activities	62.9	61.8	63.3
Market introduction of innovations	46.6	42.4	48.4
Design	44.5	53.2	40.6
Other activities	32.0	34.8	30.7

Table 1.18: Technological innovation expenditure by nationality of ownership, sector and number of persons engaged, 2014

Ushs. bn

Number	Nationality of ownership		Sector of activity		Number of persons engaged				All technological innovative active enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
In-house R&D	76	78.7	10.9	144	4.3	8.14	48.6	93.6	155
Purchase of external R&D	325	21.2	9.99	336	3.98	9.9	309	23.3	346
Acquisition of machinery, equipment and software	984	169	412	741	134	880	54	85.9	1,150
Acquisition of other external knowledge	19.9	17.9	2.31	35.5	0.419	12.5	7.2	17.7	37.8
All other innovation activities	26.1	74.7	21.8	78.9	1.28	15.5	4.74	79.2	101
Total innovation expenditure	1,430	360	456	1,330	144	917	422	305	1,790

%

Percent	Nationality of ownership		Sector of activity		Number of persons engaged				All technological innovative active enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
In-house R&D	5.3	21.9	2.4	10.8	3.0	0.9	11.5	30.7	8.7
Purchase of external R&D	22.7	5.9	2.2	25.3	2.8	1.1	73.2	7.6	19.3
Acquisition of machinery, equipment and software	68.8	46.9	90.4	55.7	93.1	96.0	12.8	28.2	64.2
Acquisition of other external knowledge	1.4	5.0	0.5	2.7	0.3	1.4	1.7	5.8	2.1
All other innovation activities	1.8	20.8	4.8	5.9	0.9	1.7	1.1	26.0	5.6
Total innovation expenditure	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 1.19 Number and Percentage of enterprises engaged in technological innovation expenditure by nationality of ownership, sector and number of persons engaged, 2014

No.

Number	Nationality of ownership		Sector of activity		Number of persons engaged				All Enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Engaged in:									
In-house R&D	1,399	203	506	1,097	56	236	388	923	1,603
Purchase of external R&D	639	150	169	620	27	136	191	436	789
Acquisition of machinery, equipment and software	2,109	317	735	1,692	61	422	679	1,265	2,427
Acquisition of other external knowledge	1,086	221	341	967	32	142	345	789	1,308
All other innovation activities	1,387	239	502	1,124	46	346	380	854	1,626
Total[1]	2,762	329	946	2,145	71	463	769	1,789	3,091

%

Percent	Nationality of ownership		Sector of activity		Number of persons engaged				All Enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Engaged in:									
In-house R&D	31.6	36.3	33.3	31.6	29.0	28.7	31.7	33.6	32.1
Purchase of external R&D	14.4	26.8	11.1	17.9	14.1	16.6	15.6	15.8	15.8
Acquisition of machinery, equipment and software	47.6	56.7	48.3	48.8	31.7	51.4	55.5	46.0	48.7
Acquisition of other external knowledge	24.5	39.5	22.4	27.9	16.3	17.3	28.2	28.7	26.2
All other innovation activities	31.3	42.7	33.0	32.4	24.0	42.2	31.1	31.1	32.6
Total[1]	62.4	58.8	62.2	61.9	36.7	56.4	62.9	65.1	62.0

Table 1.20: Innovative enterprises that received financial support for innovation activities from government sources, 2011–2014

Source of Financial Support	Number of Enterprises		
	Total	Industry	Services
Central government	237	53	184
Local government/authorities	206	22	184
National funding agencies	199	48	151
Foreign governments	64	25	39
Proportion of Innovative Enterprises (%)			
Central government	4.7	3.5	5.3
Local government/authorities	4.1	1.4	5.3
National funding agencies	4.0	3.2	4.3
Foreign governments	1.3	1.6	1.1

Table 1.21a: Sources of Innovation rated as 'highly important' by innovative enterprises, 2011–2014

Sources of Innovation	Number of Innovative Enterprises		
	Total	Industry	Services
Internal Sources			
Sources within your enterprise or enterprise group	2,921	869	2,052
External–Market Resources			
Suppliers of equipment, materials, components or software	1,451	444	1,007
Clients or customers from the private sector	1,993	616	1,377
Clients or customers from the public sector	1,633	566	1,067
Competitors or other enterprises in your sector	1,492	624	868
Consultants, commercial labs or private R&D institutes	758	278	480
External–Institutional Sources			
Universities or higher education institutions	519	122	397
Government or public research institutes	500	98	402
External–Other Sources			
Conferences, trade fairs, exhibitions	850	254	596
Scientific journals and trade/technical publications	608	120	488
Professional and industry associations	730	281	449

Table 1.21b: Sources of innovation rated as 'highly important' by innovative enterprises (%), 2011-2014

Sources of Innovation	Percentage of Innovative Enterprises		
	Total	Industry	Services
Internal Sources			
Sources within your enterprise or enterprise group	58.6	57.2	59.2
External-Market Resources			
Suppliers of equipment, materials, components or software	29.1	29.2	29.0
Clients or customers from the private sector	40.0	40.6	39.7
Clients or customers from the public sector	32.7	37.3	30.8
Competitors or other enterprises in your sector	29.9	41.0	25.0
Consultants, commercial labs or private R&D institutes	15.2	18.3	13.8
External-Institutional Sources			
Universities or higher education institutions	10.4	8.1	11.4
Government or public research institutes	10.0	6.5	11.6
External-Other Sources			
Conferences, trade fairs, exhibitions	17.0	16.7	17.2
Scientific journals and trade/technical publications	12.2	7.9	14.1
Professional and industry associations	14.6	18.5	13.0

Table 1.22: Type of co-operation partner for technological innovative enterprises by nationality of ownership, sector and number of persons engaged, 2011 - 2014

No.

Number	Nationality of ownership		Sector of activity		Number of persons engaged				All technological innovative active enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Other enterprises within own enterprise group	751	215	230	736	91	162	219	495	967
Suppliers of equipment, materials, components or software	836	173	259	750	76	171	228	534	1,010
Clients/customers from the private sector	780	201	218	762	88	150	221	521	981
Clients/customers from the public sector	730	161	240	651	86	150	182	474	891
Competitors/other enterprises in same sector	729	165	218	676	95	118	197	484	894
Consultants, commercial labs or private R&D institutes	623	149	170	602	52	150	187	384	773
Universities or other higher education institutes	514	134	122	526	49	109	160	331	649
Government, public or private research institutes	469	98	101	465	42	109	111	304	566
All/Total	1,093	257	336	1,015	132	184	338	697	1,351

%

Percent	Nationality of ownership		Sector of activity		Number of persons engaged				All technological innovative active enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Other enterprises within own enterprise group	17.0	38.5	15.2	21.2	47.0	19.7	17.9	18.0	19.4
Suppliers of equipment, materials, components or software	18.9	31.0	17.0	21.6	39.4	20.9	18.7	19.4	20.3
Clients/customers from the private sector	17.6	35.8	14.4	22.0	45.7	18.3	18.1	19.0	19.7
Clients/customers from the public sector	16.5	28.8	15.8	18.8	44.3	18.2	14.9	17.2	17.9
Competitors/other enterprises in same sector	16.5	29.5	14.4	19.5	49.3	14.4	16.1	17.6	17.9

Percent	Nationality of ownership		Sector of activity		Number of persons engaged				All technological innovative active enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Consultants, commercial labs or private R&D institutes	14.1	26.6	11.2	17.4	26.7	18.2	15.3	14.0	15.5
Universities or other higher education institutes	11.6	24.0	8.1	15.2	25.3	13.3	13.1	12.0	13.0
Government, public or private research institutes	10.6	17.4	6.6	13.4	21.8	13.3	9.1	11.0	11.4
All/Total	**24.7**	**46.0**	**22.1**	**29.3**	**68.3**	**22.4**	**27.7**	**25.3**	**27.1**

Table 1.23: Location of co-operation partner for technological innovative enterprises by nationality of ownership, sector and number of persons engaged, 2011 - 2014

No.

Number	Nationality of ownership		Sector of activity		Number of persons engaged				All technological innovative active enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Uganda	1,093	230	336	988	132	171	338	682	1,324
Rest of Africa	266	146	74	337	27	77	78	229	412
Europe	162	76	50	187	15	65	51	106	237
United States	65	12	10	68		22	15	41	77
Asia	234	24	101	157	31	77	49	101	258
Other Countries	152	66	19	199	12	31	39	135	218

%

Percent	Nationality of ownership		Sector of activity		Number of persons engaged				All technological innovative active enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Uganda	24.7	41.1	22.1	28.5	68.3	20.9	27.7	24.8	26.5
Rest of Africa	6.0	26.2	4.9	9.7	14.1	9.4	6.4	8.3	8.3
Europe	3.6	13.5	3.3	5.4	7.7	7.9	4.2	3.9	4.8
United States	1.5	2.2	0.6	2.0	-	2.7	1.2	1.5	1.6
Asia	5.3	4.4	6.6	4.5	16.2	9.4	4.0	3.7	5.2
Other Countries	3.4	11.9	1.3	5.7	6.4	3.8	3.2	4.9	4.4

Table 1.24a: 'Highly important' effects of innovation on objectives for enterprises, 2011–2014

Objectives	Number of Innovative Enterprises		
	Total	Industry	Services
Increase range of goods or services	2,287	672	1,614
Replace outdated products or processes	1,542	401	1,141
Enter new markets	1,445	367	1,079
Increase market share	1,700	435	1,265
Improved quality of goods or services	2,629	790	1,839
Improve flexibility for producing goods or services	1,819	547	1,272
Increase capacity for producing goods and services	1,688	525	1,163
Reduce production costs per unit output (labour, materials, energy)	1,152	348	804
Improve working conditions – health and safety	1,459	477	982

Table 1.24b: 'Highly important' effects of innovation on objectives for enterprises (%), 2011–2014

Objectives	Percentage of Innovative Enterprises		
	Total	Industry	Services
Increase range of goods or services	45.9	44.2	46.6
Replace outdated products or processes	30.9	26.3	32.9
Enter new markets	29.0	24.1	31.1
Increase market share	34.1	28.6	36.5
Improved quality of goods or services	52.7	52.0	53.0
Improve flexibility for producing goods or services	36.5	36.0	36.7
Increase capacity for producing goods and services	33.8	34.6	33.5
Reduce production costs per unit output (labour, materials, energy)	23.1	22.9	23.2
Improve working conditions – health and safety	29.3	31.4	28.3

Table 1.25a: 'Highly important' effects of innovation on outcomes for enterprises, 2011–2014

Innovation on Outcomes for Enterprises	Number of Innovative Enterprises		
	Total	Industry	Services
Product outcomes			
Increased range of goods and services	2,143	555	1,589
Entered new markets	1,508	415	1,093
Increased market share	1,601	421	1,181
Improved quality of goods or services	2,435	749	1,685
Process outcomes			
Improved flexibility of production or service provision	1,794	540	1,255
Increased capacity of production or service provision	1,683	513	1,169
Reduced production costs per unit of labour, materials, energy	1,132	350	782
Other Outcomes			
Reduced environmental impacts	884	273	610
Improved working conditions on health and safety	1,381	473	908
Met governmental regulatory requirements	1,562	437	1,125

Table 1.25b: 'Highly important' effects of innovation on outcomes for enterprises (%), 2011–2014

Effects of Innovation on Outcomes	Percentage of Innovative Enterprises		
	Total	Industry	Services
Product Outcomes			
Increased range of goods and services	33.1	31.3	33.8
Entered new markets	23.3	23.4	23.3
Increased market share	24.7	23.7	25.1
Improved quality of goods or services	37.6	42.2	35.8
Process Outcomes			
Improved flexibility of production or service provision	27.7	30.4	26.7
Increased capacity of production or service provision	26.0	28.9	24.9
Reduced production costs per unit of labour, materials, energy	17.5	19.7	16.6
Other Outcomes			
Reduced environmental impacts	13.6	15.4	13.0
Improved working conditions on health and safety	21.3	26.6	19.3
Met governmental regulatory requirements	24.1	24.6	23.9

Table 1.26a Highly important hampering factors to innovation activities for innovative and non-innovative enterprises by sector and number of persons engaged 2011 - 2014

No

Number	Sector of activity				Number of persons engaged									
	Industry		Services		1-19		20-49		50-249		250+		All Enterprises	
	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises
Lack of funds	736	106	1,771	688	44	-	331	42	635	190	1,497	562	2,507	794
Lack of external finance	590	82	1,160	324	34	-	267	10	396	93	1,052	304	1,750	406
Innovation costs too high	681	75	1,660	402	73	-	319	27	625	175	1,324	275	2,341	477
Excessive perceived economic risks	480	66	934	293	37	-	215	10	295	58	867	290	1,414	358
Lack of qualified personnel	249	10	407	146	24	-	92	-	146	10	395	146	657	156
Lack of information on technology	300	10	482	220	27	-	87	-	151	46	516	183	782	229
Lack of information on markets	259	18	621	189	27	-	59	18	202	37	592	152	880	206
Difficulty in finding co-operation partners	321	10	584	96	22	-	103	-	265	37	515	69	905	106
Market dominated by established enterprises	612	106	977	313	-	-	236	54	391	83	962	282	1,588	420
Uncertain demand for innovative goods or services	273	10	678	157	12	-	138	-	204	24	597	142	951	167
Innovation is easy to innovate	360	19	642	98	64	-	188	10	231	50	519	57	1,002	117
Organisational rigidities within the enterprise	185	19	455	116	10	-	68	-	193	49	369	86	639	135

Number	Sector of activity				Number of persons engaged									
	Industry		Services		1-19		20-49		50-249		250+		All Enterprises	
	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises
Insufficient flexibility of regulations or standards	216	22	500	42	12	-	56	-	200	12	448	52	716	64
Limitations of science and technology public policies	295	41	527	115	-	-	117	-	225	22	479	134	822	156

Table 1.26b Highly important hampering factors to innovation activities for innovative and non-innovative enterprises by sector and number of persons engaged 2011 - 2014

%

Hampering Factors	Sector of activity				Number of persons engaged									
	Industry		Services		250+		50-249		20-49		1-19		All Enterprises	
	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises
Lack of funds	48.4	41.9	51.1	55.7	22.7	-	40.3	39.8	51.9	44.7	54.4	58.7	50.3	53.4
Lack of external finance	38.8	32.2	33.5	26.3	17.7	-	32.6	9.1	32.4	21.8	38.3	31.8	35.1	27.3
Innovation costs too high	44.8	29.6	47.9	32.6	37.9	-	38.9	25.8	51.1	41.2	48.1	28.7	46.9	32.1
Excessive perceived economic risks	31.6	25.9	26.9	23.7	19.0	-	26.3	9.1	24.1	13.7	31.5	30.4	28.4	24.1
Lack of qualified personnel	16.4	3.8	11.8	11.9	12.7		11.2	-	11.9	2.3	14.4	15.3	13.2	10.5
Lack of information on technology	19.7	3.8	13.9	17.8	14.1	-	10.7	-	12.4	10.9	18.8	19.1	15.7	15.4
Lack of information on markets	17.0	7.0	17.9	15.3	14.1	-	7.2	16.7	16.5	8.6	21.5	15.9	17.6	13.9
Difficulty in finding co-operation partners	21.1	3.8	16.8	7.8	11.3	-	12.5	-	21.7	8.6	18.7	7.2	18.1	7.1
Market dominated by established enterprises	40.2	41.9	28.2	25.4	-	-	28.8	51.4	31.9	19.5	35.0	29.5	31.8	28.2
Uncertain demand for innovative goods or services	18.0	3.8	19.5	12.7	6.4	-	16.8	-	16.7	5.7	21.7	14.9	19.1	11.2

Hampering Factors	Sector of activity				Number of persons engaged									
	Industry		Services		250+		50-249		20-49		1-19		All Enterprises	
	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises
Innovation is easy to innovate	23.7	7.6	18.5	7.9	33.1		22.9	9.1	18.9	11.8	18.9	6.0	20.1	7.9
Organisational rigidities within the enterprise	12.2	7.6	13.1	9.4	5.0		8.3	-	15.8	11.5	13.4	9.0	12.8	9.1
Insufficient flexibility of regulations or standards	14.2	8.5	14.4	3.4	6.4		6.8	-	16.3	2.9	16.3	5.4	14.4	4.3
Limitations of science and technology public policies	19.4	16.1	15.2	9.3	-		14.3	-	18.4	5.1	17.4	14.0	16.5	10.5

Table 1.27 Highly important reasons not to innovate by sector and number of persons engaged, 2011 – 2014

No.

Number	Sector of activity				Number of persons engaged									
	Industry		Services		250+		50-249		20-49		1-19		All Enterprises	
	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises
No need due to prior innovations	187	58	283	85	22	–	40	12	92	24	316	107	470	144
No need because of no demand for innovations	149	18	258	109	–	–	22	12	56	12	329	102	407	126

%

Percent	Sector of activity				Number of persons engaged									
	Industry		Services		250+		50-249		20-49		1-19		All Enterprises	
	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises	Innovative enterprises	Non-innovative enterprises
No need due to prior innovations	12.3	23.1	8.1	6.9	11.2	–	4.8	11.5	7.6	5.7	11.5	11.2	9.4	9.7
No need because of no demand for innovations	9.8	7.0	7.4	8.8	–	–	2.7	11.5	4.6	2.9	12.0	10.6	8.2	8.5

Table 1.28 Organisational innovation activity rates by sector and number of persons engaged, 2011 - 2014

No.

Organisational Innovation	Sector of activity		Number of persons engaged				All Enterprises
	Industry	Services	250+	50-249	20-49	1-19	
New business practices	1109	2309	171	514	970	1,762	3417
New methods of organising work responsibilities and decision-making	1264	2849	171	689	1,067	2,186	4112
New methods of organising external relations	878.6	1957	118	453	742	1,523	2835
Total	1,409	3,252	184	764	1,261	2,452	4,661

%

Organisational Innovation	Sector of activity		Number of persons engaged				All Enterprises
	Industry	Services	250+	50-249	20-49	1-19	
New business practices	62.5	49.1	88.7	55.5	58.8	47.5	52.8
New methods of organising work responsibilities and decision-making	71.3	60.6	88.7	74.3	64.7	59.0	63.5
New methods of organising external relations	49.5	41.6	61.0	48.9	45.0	41.1	43.8
Total	79.4	69.2	95.1	82.5	76.5	66.1	72.0

Table 1.29 Highly important objectives of technological innovative active enterprises with organisational innovation by sector and number of persons engaged, 2011–2014

No.

Objective	Sector of activity		Number of persons engaged				All technological innovative active enterprises with organisational innovation
	Industry	Services	250+	50–249	20–49	1–19	
Increased or maintained market share	574	1,375	106	306	525	1,012	1,949
Reduced time to respond to customer or supplier needs	670	1,408	98	295	499	1,185	2,077
Improved quality of goods and services	863	2,075	171	468	695	1,604	2,938
Reduced cost per unit output	438	875	66	225	391	630	1,313
Improved employee satisfaction and/or rated of employee turnover	541	1,085	37	246	327	1,016	1,626

%

Objective	Sector of activity		Number of persons engaged				All technological innovative active enterprises with organisational innovation
	Industry	Services	250+	50–249	20–49	1–19	
Increased or maintained market share	37.8	39.7	54.9	37.3	42.9	36.8	39.1
Reduced time to respond to customer or supplier needs	44.1	40.6	50.7	36.0	40.8	43.1	41.6
Improved quality of goods and services	56.8	59.9	88.7	57.1	56.8	58.3	58.9
Reduced cost per unit output	28.8	25.2	34.4	27.4	32.0	22.9	26.3
Improved employee satisfaction and/or rated of employee turnover	35.6	31.3	19.0	30.0	26.7	36.9	32.6

Table 130 Marketing innovation activity rates by nationality of ownership, sector and number of persons engaged, 2011 - 2014

No.

Number	Nationality of ownership		Sector of activity		Number of persons engaged				All enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Significant changes to the aesthetic design or packaging of a good or service	2,088	282	816.2	1554	150	364	556	1,301	2,370
New media or techniques for product promotion	2,257	378	673.4	1961	110	535	579	1,411	2,635
New methods for product placement or sales channels	2,168	334	671.5	1830	113	461	564	1,364	2,502
New methods of pricing goods or services	2,983	278	1007	2255	95	492	795	1,880	3,261
Any marketing innovation1	3,966	504	1332	3138	150	733	1,085	2,502	4,470

%

Percent	Nationality of ownership		Sector of activity		Number of persons engaged				All technological innovative active enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Significant changes to the aesthetic design or packaging of a good or service	35.8	44.3	46.0	33.1	77.5	39.3	33.7	35.1	36.6
New media or techniques for product promotion	38.7	59.4	38.0	41.7	57.0	57.8	35.1	38.1	40.7
New methods for product placement or sales channels	37.1	52.4	37.9	38.9	58.4	49.8	34.2	36.8	38.6
New methods of pricing goods or services	51.1	43.6	56.8	48.0	49.3	53.1	48.2	50.7	50.4
Any marketing innovation1	67.9	79.2	75.1	66.8	77.5	79.2	65.8	67.5	69.0

Table 1.31 'Highly successful methods that stimulated new ideas or creativity among staff of all enterprises, 2011–2014

Methods to Stimulate Creativity and Skills	Number of Innovative Enterprises				
	*Total	Industry (total)	Services (total)	**Total	
				Innovative	Non-innovative
Brainstorming sessions	3,350	895	2,455	3,350	431
Multidisciplinary or cross-functional work teams	2,423	732	1,691	2,423	332
Job rotation of staff to different departments or other parts of the enterprise group	2,839	993	1,846	2,839	500
Financial incentives for employees to develop new ideas	2,720	908	1,812	2,720	469
Non-financial incentives for employees to develop new ideas	2,336	616	1,720	2,336	472
Training employees on how to develop new ideas or creativity	3,247	987	2,260	3,247	472

* Total includes all enterprises

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

Methods to Stimulate Creativity and Skills	Number of Innovative Enterprises				
	*Total	Industry (total %)	Services (total %)	**Total	
				Innovative	Non-innovative
Brainstorming sessions	51.7	50.4	52.2	67.2	28.9
Multidisciplinary or cross-functional work teams	37.4	41.2	36.0	48.6	22.3
Job rotation of staff to different departments or other parts of the enterprise group	43.8	56.0	39.3	56.9	33.6
Financial incentives for employees to develop new ideas	42.0	51.2	38.5	54.5	31.5
Non-financial incentives for employees to develop new ideas	36.1	34.7	36.6	46.8	31.7
Training employees on how to develop new ideas or creativity	50.1	55.6	48.1	65.1	31.7

Table 1.32 Type of creativity and skills employed by technological or non-technological innovation enterprises that are rated as successful, by nationality of ownership, sector and number of persons engaged, 2011 - 2014

No.

Creativity and skills	Nationality of ownership		Sector of activity		Number of persons engaged				All innovative enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Brainstorming sessions	3,284	433	944	2,773	184	642	953	1,938	3,717
Multidisciplinary or cross-functional work teams	2,331	384	792	1,924	174	491	686	1,364	2,715
Job rotation of staff to different departments or other parts of enterprise group	2,886	380	1,102	2,164	144	587	902	1,632	3,266
Financial incentives for employees to develop new ideas	2,780	372	985	2,166	137	514	848	1,653	3,152
Non-financial incentives for employees to develop new ideas, such as free time, public recognition, more interesting work, etc.	2,444	327	672	2,099	93	476	766	1,437	2,771
Training employees on how to develop new ideas or creativity	3,248	392	1,025	2,615	117	606	1,014	1,903	3,640

%

Creativity and skills	Nationality of ownership		Sector of activity		Number of persons engaged				All innovative enterprises
	Ugandan	Foreign	Industry	Services	250+	50-249	20-49	1-19	
Brainstorming sessions	56.3	67.9	53.2	59.0	95.1	69.3	57.8	52.3	57.4
Multidisciplinary or cross-functional work teams	39.9	60.2	44.6	40.9	90.1	53.0	41.6	36.8	41.9
Job rotation of staff to different departments or other parts of enterprise group	49.4	59.6	62.1	46.0	74.7	63.4	54.7	44.0	50.4
Financial incentives for employees to develop new ideas	47.6	58.3	55.5	46.1	71.1	55.4	51.4	44.6	48.7
Non-financial incentives for employees to develop new ideas, such as free time, public recognition, more interesting work, etc.	41.9	51.3	37.9	44.7	48.0	51.4	46.4	38.8	42.8
Training employees on how to develop new ideas or creativity	55.6	61.6	57.8	55.6	60.6	65.4	61.5	51.3	56.2

Appendix E
Result Tables - Size Class

Table 1.1 Number and percentage of enterprises, 2011-2014

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	**193**	**926**	**1,649**	**3,707**	**70**	**375**	**430**	**899**	**124**	**551**	**1,218**	**2,808**
Enterprises with innovation activity	**193**	**820**	**1,223**	**2,750**	**70**	**348**	**361**	**742**	**124**	**473**	**863**	**2,008**
Product only innovators	12	112	129	475	-	38	41	48	12	73	88	427
Process only innovators	-	186	167	471	-	50	58	134	-	136	110	337
Product and process innovators	168	511	850	1,594	70	259	210	512	99	251	640	1,083
Enterprises with ongoing innovations	12	-	56	88	-	-	43	-	12	-	12	88
Enterprises with abandoned innovations	-	12	10	99	-	-	10	38	-	12	-	61
Enterprises with ongoing and abandoned	-	-	12	22	-	-	-	10	-	-	12	12
Enterprises without innovation activity	**-**	**106**	**426**	**957**	**-**	**27**	**70**	**157**	**-**	**78**	**356**	**800**

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	**100.0**	**88.6**	**74.2**	**74.2**	**100.0**	**92.7**	**83.9**	**82.6**	**100.0**	**85.8**	**70.8**	**71.5**
Product only innovators	6.4	12.0	7.8	12.8	-	10.2	9.5	5.3	10.0	13.3	7.2	15.2
Process only innovators	-	20.1	10.2	12.7	-	13.4	13.4	14.9	-	24.6	9.0	12.0
Product and process innovators	87.2	55.1	51.5	43.0	100.0	69.1	48.7	56.9	80.0	45.6	52.5	38.6
Enterprises with ongoing innovations	6.4	-	3.4	2.4	-	-	10.1	-	10.0	-	1.0	3.1
Enterprises with abandoned innovations	-	1.3	0.6	2.7	-	-	2.2	4.3	-	2.2	-	2.2
Enterprises with ongoing and abandoned	-	-	0.7	0.6	-	-	-	1.1	-	-	1.0	0.4
Enterprises without innovation activity	**-**	**11.4**	**25.8**	**25.8**	**-**	**7.3**	**16.2**	**17.4**	**-**	**14.2**	**29.2**	**28.5**

Table 1.2: Innovative enterprises: responsibility for the development of product innovations, 2011–2014

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	193	820	1,223	2,750	70	348	361	742	124	473	863	2,008
Mainly own enterprise	132	504	731	1,613	48	216	140	439	84	288	591	1,174
Mainly own enterprise group	88	222	360	642	22	98	10	179	67	123	350	463
Mainly own enterprise through adaptation or modification	73	237	330	741	31	89	60	187	42	148	270	554
Own enterprise in collaboration with other enterprises or institutions	27	146	265	466	-	60	60	118	27	86	205	349
Other enterprises or institutions	49	131	175	409	22	70	41	110	27	61	134	299
Enterprises which did not respond to the question												

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	68.4	61.4	59.8	58.7	68.9	62.1	38.8	59.2	68.0	60.9	68.5	58.5
Mainly own enterprise group	45.7	27.0	29.4	23.3	31.1	28.3	2.7	24.1	53.9	26.1	40.6	23.1
Mainly own enterprise through adaptation or modification	37.9	28.9	27.0	26.9	44.9	25.5	16.6	25.2	34.0	31.3	31.3	27.6
Own enterprise in collaboration with other enterprises or institutions	14.1	17.7	21.7	17.0	-	17.2	16.6	15.8	22.0	18.1	23.8	17.4
Other enterprises or institutions	25.3	15.9	14.3	14.9	31.1	20.0	11.3	14.9	22.0	12.9	15.6	14.9
Enterprises which did not respond to the question	-	-	-	-	-	-	-	-	-	-	-	-

Table 1.3: Innovative enterprises: origin of product innovations, 2011–2014

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	181	622	979	2,070	70	298	251	560	111	325	728	1,510
Uganda	117	407	737	1,637	48	168	166	459	69	239	572	1,178
Abroad	64	215	214	433	22	130	85	101	42	85	129	332
Enterprises which did not respond to the question	-	-	27	-	-	-	-	-	-	-	27	-
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	64.8	65.4	75.3	79.1	68.9	56.4	66.1	82.0	62.2	73.7	78.5	78.0
Abroad	35.2	34.6	21.9	20.9	31.1	43.6	33.9	18.0	37.8	26.3	17.7	22.0
Enterprises which did not respond to the question	-	-	2.8	-	-	-	-	-	-	-	3.7	-

Table 1.4a: Product (goods and services) innovators: breakdown of turnover by type of product innovation , 2014 (year specific question)

Type of Product Innovation	Turnover Breakdown (Ushs. Billion)											
	Total				Industry				Services			
	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small	Large	Medium	Small	Very Small
All product innovators	6,250	13,700	3,450	23,500	2,080	3,380	140	2,420	4,170	10,300	3,400	21,100
Innovations new to the market	1,030	1,030	387	1,220	0	75.6	8.94	20.6	1,030	959	378	1,200
Innovations new to the firm	619	3,900	636	1,380	19.3	367	31.6	14.4	600	3,540	604	1,360
Unchanged or marginally modified	4,600	8,790	2,510	20,900	2,060	2,940	99.2	2,390	2,540	5,850	2,410	18,500
Product only innovators	5.24	2,760	2,470	16,500	-	424	24.7	513	5.24	2,340	2,440	16,000
Innovations new to the market	1.83	59.6	252	1,030	-	0.134	4.75	0.0547	1.83	59.5	247	1,030
Innovations new to the firm	2.88	769	496	558	-	163	4.20	0.0748	2.88	606	492	558
Unchanged or marginally modified	0.524	1,940	1,720	14,90	-	261	15.8	513	0.524	1,670	1,700	14,400
Product and Process innovators	6,250	11,000	1,070	6,970	2,080	2,960	115	1,910	4,170	8,010	955	5,060
Innovations new to the market	1,030	975	135	183	0	75.5	4.20	20.6	1,030	899	131	162
Innovations new to the firm	617	3,130	140	819	19.3	204	27.4	14.3	597	2,930	112	805
Unchanged or marginally modified	4,600	6,860	793	5,970	2,060	2,680	83.5	1,870	2,540	4,180	7,090	4,090

Table 1.4b: Product (goods and services) innovators: percentage breakdown of turnover by type of product innovation, 2014 (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	16.5	7.5	10.9	5.2	-	2.2	6.4	0.9	24.7	9.3	11.1	5.7
Innovations new to the firm	9.9	28.5	18.0	5.9	0.9	10.9	22.6	0.6	14.4	34.4	17.8	6.4
Unchanged or marginally modified	73.6	64.2	70.9	88.9	99.0	87.0	70.9	98.8	60.9	56.8	70.9	87.7
Product only innovators	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	34.9	2.2	10.2	6.2		0.0	19.2	0.0	34.9	2.5	10.1	6.4
Innovations new to the firm	55.0	27.9	20.1	3.4		38.4	17.0	0.0	55.0	25.9	20.2	3.5
Unchanged or marginally modified	10.0	70.3	69.6	90.3		61.6	64.0	100.0	10.0	71.4	69.7	90.0
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	16.5	8.9	12.6	2.6	-	2.6	3.7	1.1	24.7	11.2	13.7	3.2
Innovations new to the firm	9.9	28.5	13.1	11.8	0.9	6.9	23.8	0.7	14.3	36.6	11.7	15.9
Unchanged or marginally modified	73.6	62.4	74.1	85.7	99.0	90.5	72.6	97.9	60.9	52.2	74.2	80.8

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