



ICT Usage Survey 2001

A survey on the ICT adoption of businesses in Mauritius

Note:

The findings in this survey report are those for the National Computer Board. Readers are, however, kindly invited to note that differences of opinion may arise as regard to interpretations and conclusions expressed herein. We welcome constructive critical comments.

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Preface

The future development path of the world will inevitably and increasingly be carved by information and communication technologies (ICT) as they are providing countries around the globe with opportunities to reinvent themselves and aspire higher levels of sustainable growth. ICT is indeed changing the whole perception of development, pushing forward the frontiers of communications, medicine, agriculture, energy and sources of growth which altogether are enhancing productivity and competitiveness of nations and helping them achieve higher living standards for their people. The unique feature of this network age, in which we have to plug into, is the cost-slashing element in information diffusion, which is expanding the possibilities of global growth and development.

Mauritius has already joined this borderless world and in order to know the extent of digital adoption among establishments, this survey, the ICT Usage Survey 2001, has been carried out by the NCB. This survey sheds light on our preliminary understanding of how ICT is used in Mauritius in establishments both in the public and private sectors.

The survey questionnaire was developed in concert with private and public sector institutions such as the Central Statistical Office, the Central Informatics Bureau, the Mauritius IT Industry Association, the Joint Economic Council and many private sector companies.

The survey focuses on the use of information and communications technologies such as personal computers, e-mail and the Internet and distinguishes usage across 13 different business activities. Indications of the use, whether enterprises have plans to use or have no plans to use the technologies are examined. Both the industries that are using and those that are not using the technologies are presented. It also addresses the extent of use of e-

commerce and some of the reasons that businesses and institutions provide for not using the Internet to trade.

On the human resource side, this survey investigated about employee access to various information and communications technologies and reports the percentage of employees with access to personal computers, e-mail and the Internet.

The NCB is grateful to many organisations for their contributions to the various stages of the survey - particularly to the Central Statistical Office for their constant guidance and advice for conducting the survey and the Central Information Systems Division for undertaking the Data Entry job.

Finally, the NCB wishes to express its gratitude and appreciation to those who served as outside reviewers who provided valuable input into the questionnaire content and all the establishments that responded to the survey. I would like to assure our respondents that individual survey responses remain strictly confidential.

Kemraz Mohee
Executive Director

1 Executive Summary

The survey was conducted in August 2001 through a stratified sample survey on 300 business establishments in the Island of Mauritius. It complements the efforts of the NCB in assessing ICT adoption, usage and penetration, following the IT Household Survey 2000. The emphasis this time is placed on the business community in terms of the extent of the use of information and communications technologies such as computers, Internet, e-mails and e-commerce across key economic sectors of the country. The information gathered thereby can provide useful input for the elaboration of ICT policies, notably with regard to areas such as ICT professionals, ICT culture promotion, development and adoption of new ICT trends such as E-commerce. This will also help to update our current ICT statistics, which is useful to stakeholders in the ICT sector as well.

Characteristics of Sample

- All the establishments in the sample were those that employed more than 10 employees.
- The sample cut across all economic sectors. 48% of the establishments surveyed coming from the tertiary sector¹, 45.3% from the secondary sector² (mainly manufacturing and construction) and the remaining 6.7% from the primary sector³ (agriculture).
- Around 60% of the establishments in the sample have had annual turnovers of more than twenty million rupees.
- 79.7% of the establishments were also incorporated before 1990.

The main results of the survey are as follows:

Computerisation level

- 83.3% of business establishments surveyed owned at least one computer.
- Computer usage by business activity fluctuated in the range of 50 to 100%.
- The reason put forward by most of the uncomputerised establishments for not owning a computer has been the low necessity of it for the moment. However,

- 42% of them intend to computerise and the majority (76%) would do so in less than two years time.

Features of Computer Owned

- 37.3% of establishments have between one to three servers.
- 24.3% of establishments have between one to three PCs and 20% of them have more than 20 PCs.
- The possession of cloned Notebooks/Laptops, Thin Client and Terminal is relatively low.
- 93.2% of establishments wish to upgrade their computer.
- The most widely used software packages were office tools (96%), financial and accounting packages (44.8%), inventory/stock control system (28.4%), and payroll system (27.2%).
- The applications that formed critical IT systems in the day to day running of business of the establishments in the sample were stock control (41.6%), payroll (38.4%) and process control (12%).
- 96.4% of the computerised establishments have an anti-virus software.
- 73.6% of the establishments have an uninterruptible power supply (UPS).
- 83.6% of the establishments review their security procedures once a year.

ICT Infrastructure

- 43% have Local Area Networks (LAN) and 12.7% have Wide Area Networks (WAN).
- Electronic transfer of funds are conducted by 17% of the establishments while only 10.7% of them indicated using electronic data interchange⁴ on the internet.

Internet Access

- 90% of the computerised establishments have access to the Internet.
- 75% of all establishments surveyed have access to the Internet.
- Internet usage is high in sectors like manufacturing, wholesale and retail trade, hotels and restaurants, transport, storage and communication and banking and finance.
- Use of the Internet in the education and training sector is 63.2%.
- Use of the Internet in public administration is 72.7%

- Establishments mainly use the Internet for information search, exploring new modes of business and maintaining their competitive position.
- 28% of those establishments not having Internet access have indicated their intentions to get connected shortly through dial up line mainly.
- The two most important reasons put forward by establishments for not having Internet access have been security concerns and other priority items.

E-commerce Adoption

- 21.3% of the establishments have websites and 27.1% of them hosted their website at site of work but the majority (72.9%) of them have their websites hosting outsourced.
- Establishments are resorting more and more to electronic means of conducting business like having websites
- There are evidences that the Internet is also increasingly being used for purposes of enhancing the trading process and confirming by the same token that e-commerce has taken off as well.
- In this regard, 25.8% of the establishments use the Internet to get access to databases of suppliers and 8% of them conduct purchasing of goods and services whilst another 3.6% sell over the net.
- A significant proportion of the establishments also advertise and undertake marketing activities over the net and this is expected to grow with time as both the computerisation and the extent of ICT adoption improves.
- Establishments face a number of constraints in adopting e-commerce. The main ones reported have been the limited size of the market (42.2%), inadequate IT infrastructure (31%), shortage of IT skills (26.2%) and that goods or services produced do not lend themselves to transactions over the Internet (23%).
- 19.8% of establishments which do not have a website have expressed their intention to invest in e-commerce.

ICT Spending

- Establishments have spent a greater proportion of their ICT budget on three main items namely, softwares (43.2%), consultancy (15.9%) and hardware (14.8%).
- The establishments have indicated that they have an ICT budget, which can go well beyond Rs 5 million.
- It is observed that over the last three financial years most of the establishments have had a tendency to have their budget on software within the range Rs 80,000 to Rs 500,000.
- As far as hardware are concerned there has been no big discrepancy in the number of establishments having budget ranges of Rs 1 to Rs 500,000.
- A similarity has been observed for budgets on consultancy, maintenance, Internet access, Intranet, ICT staff training and e-commerce. In fact, the majority of the establishments tend to have a budget less than Rs 50,000.

ICT Benefits

- Among the computerised establishments whilst 79.6% have reported to be satisfied with the return on their IT investment, a larger proportion (88%) have confirmed that computerisation have had a positive impact on their organisation.
- Establishments reported that computerisation has also brought in its wake other beneficial effects like an increase in turnover as well as a reduction in costs.

ICT Manpower

- It is observed that the proportion of ICT staff to the total number of employees turned around a threshold of 11% during the year 2001.
- ICT support staff⁵ form 92.9% of the total ICT staff employed during the year 2001.
- Prospects for employment exist across the ladder from Project Managers to Computer Operators.
- 46.1% of staff employed is qualified up to the computer literacy skill level.

2 Introduction

As Mauritius walks rapidly in the direction of becoming a Cyber Island an important step, amongst others, is to take stock of the extent of ICT usage in the business community. It is indeed against this backdrop that this survey, the ICT Usage Survey 2001, has been conducted and which has enabled the provision of a cliché on the scope and extent of use of information and communications technologies such as computers, Internet, e-mails and e-commerce among business establishments in key economic sectors of the country.

It is believed that the results of this survey would enable stakeholders in the Information & Communication Technology (ICT) industry and policy-makers in general to make an assessment on the following:

- the extent businesses use computers and related technologies,
- how businesses use ICT for communication, marketing, and transaction purposes,
- the overall impact of ICT on business,
- the opinions of businesses on these technologies,
- whether businesses have considered implementing ICT, and
- barriers for businesses to further develop their capabilities in this area.

2.1 Objectives

The main objectives of this survey are as follows: -

- to measure the computerisation level by sector,
- to measure the ICT spending by sector,
- to assess the ICT infrastructure by sector
- to assess the ICT human resource profile by sector, and
- to assess the extent of e-commerce adoption by sector.

2.2 Characteristics of Sample

The survey has been carried out by sending questionnaires to a sample of 300 establishments from a list of 2,132 establishments obtained from the Central Statistical Office. The questionnaire for this survey was designed in such a way that it would provide inputs both from management as users of ICT, and from the technical division of establishments enabling the capture of information on the specific ICT needs of establishments. The sample cut across all sectors with 48% of the establishments surveyed coming from the tertiary sector (services), 45.3% from the secondary sector (mainly manufacturing and construction) and the remaining 6.7% from the primary sector (agriculture). The distribution of the establishments in the sample across the various sectors is illustrated in the figure below:

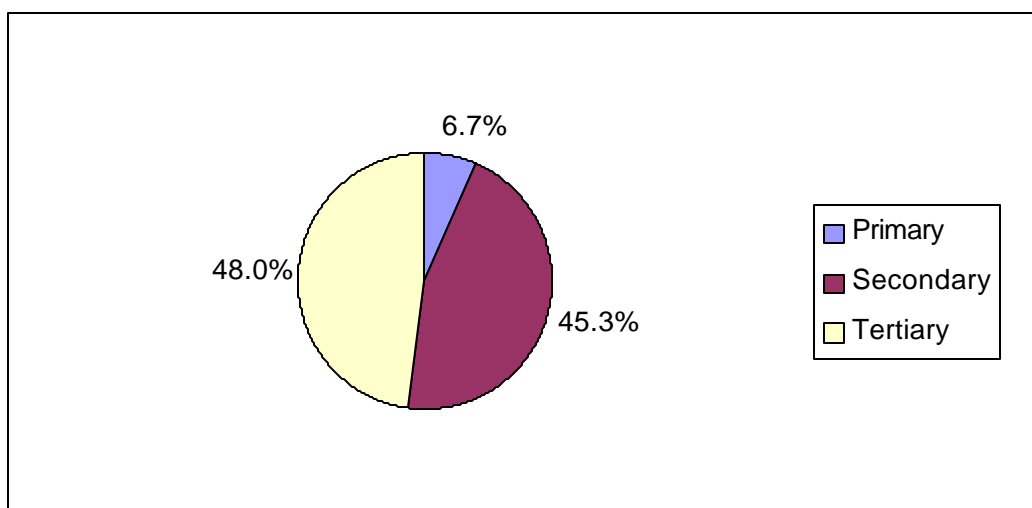


Figure 1: Distribution of establishments by sector

All the establishments in the sample employed more than 10 employees and are considered as large establishments. Around 60% of them in the sample have had annual turnovers of more than twenty million rupees over the last three financial years. The majority of the establishments (79.7%) were also incorporated before 1990.

3 Computerisation Levels

3.1 Overall

Computerisation in simple terms may be defined as any site with at least a single standalone PC present at site and this gives an indication of the extent of the adoption of technology in organisations. Using this definition the sample survey reveals that an 83.3% computerisation level has been reached . While 11.7% of the establishments have confirmed no plans to use computers for the moment, the remaining 5% indicated that they would start using computers in about one year's time.

3.2 Use of computer by business activity

The outcome of the survey has shown that the level of computerisation is compounded by the extent of computer usage in the various economic sub-sectors. In fact, the use of computers fluctuated in a high band with 50% of establishments in the agricultural sector resorting to computers at the lower end compared to 100%, that is, all the establishments in the banking & insurance industry at the upper end. In other sub-sectors like the manufacturing of textile the percentage of establishments using computers was 91.2% whilst in transport and communications it was 92.3%. The bar chart below illustrates the use of computers by sector.

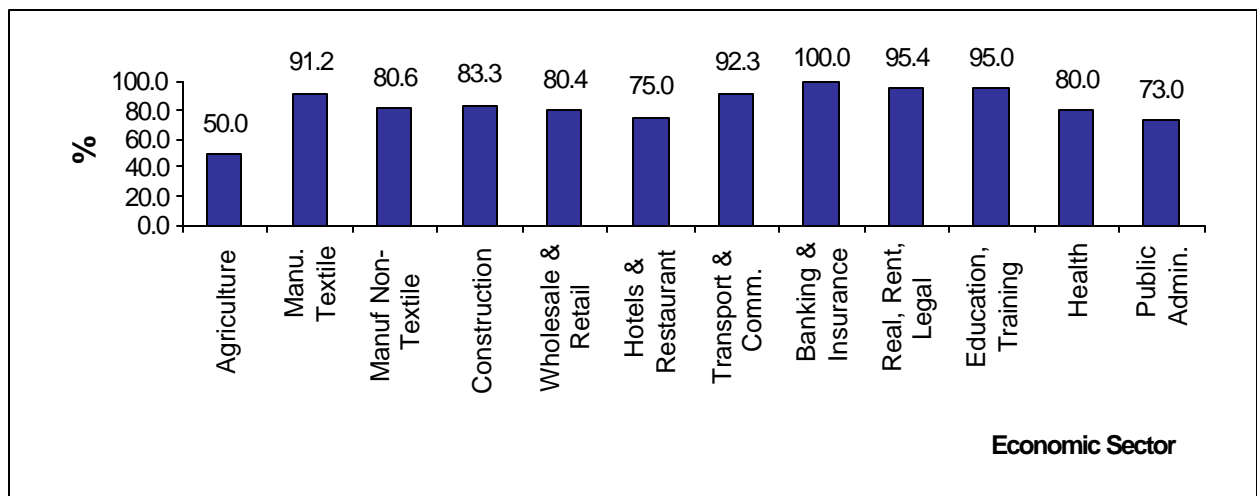


Figure 2: Use of computer by business activity

3.3 Use of Computer by number of employees

An indication of the level of adoption of technology may be estimated by the proportion of employees with access to technology. The survey asked respondents the range of employees using computers and the results showed that there is a close relationship between the level of adoption of technology and the percentage of establishments in which employees have access to computers.

3.4 Use of Computer by turnover 2000/2001

The use of computers appears to be highly correlated with the size of turnover of the establishments and this is in line with expectations, that is, establishments would try to modernize and increase their efficiency by using ICT as their turnover grows.

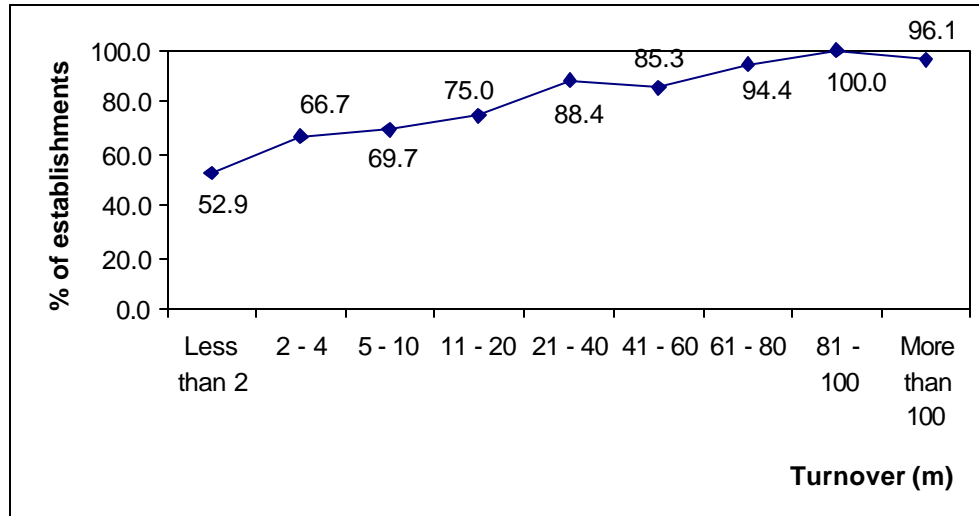


Figure 3: Use of Computer by turnover 2000/2001

3.5 Establishments not owning computer

The reason put forward by 60% of the uncomputerised establishments for not owning a computer has been the low necessity of it for the moment. However, 42% of them intend to computerise and out of which the majority (76%) would do so in less than two years time. The two main applications that these establishments intend to use their computers for are in the field of office tools and in payroll system.

4 ICT Infrastructure

4.1 Introduction

The survey has tried to go beyond computerisation level and as such it has attempted to assess the extent of ICT penetration and adoption by establishments both at the level of hardware and software. The results demonstrate that a fair degree has been attained but still much can be done to improve the degree of sophistication of the computerisation process of establishments in the country.

4.2 Features of computers owned

4.2.1 Hardware

The companies in the sample reported that they own both branded and cloned hardware. 37.3% of the establishments have reported that they have servers in the range of one to three.

Among the computerised establishments ownership of workstations (PCs) is dispersed in two poles. This is explained by the fact that 24.3% of them have workstations in the range of one to three and 20% of them have more than 20 PCs.

The percentage of establishments possessing Notebooks/Laptops and Thin Client, with minimal processing power, and “dumb” Terminals is relatively low.

The figure below shows that the type of processors among the computerised establishments is varied and effectively depends on their requirements.

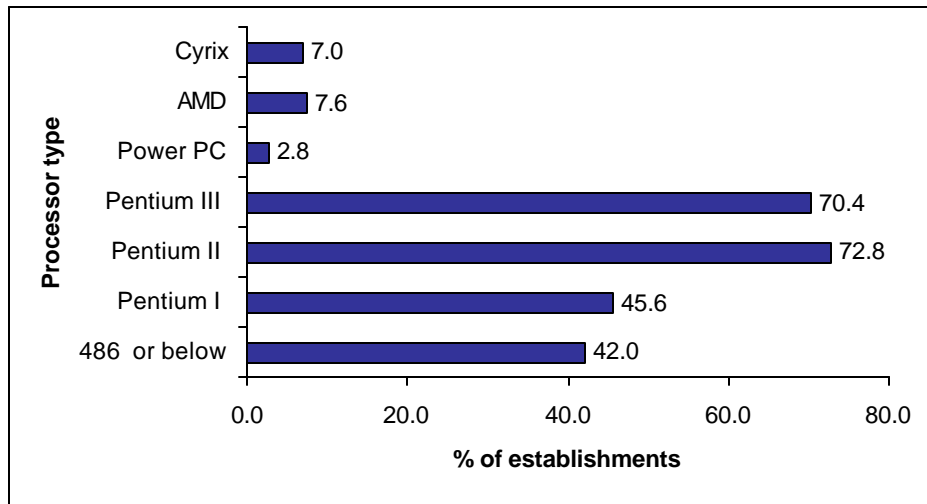


Figure 4: Types of Processors

The common factor in the ownership of the various types of processors is that possession mostly lies in the range of 1 - 5 among these establishments and that 93.2% of them wish to upgrade their computer.

The chart below illustrates that computerised establishments have a wide array of peripherals annexed to their computers. On the whole 99.2% of them have printers and 89.2% have a fax machine, 89.2% have a CD ROM Drive.

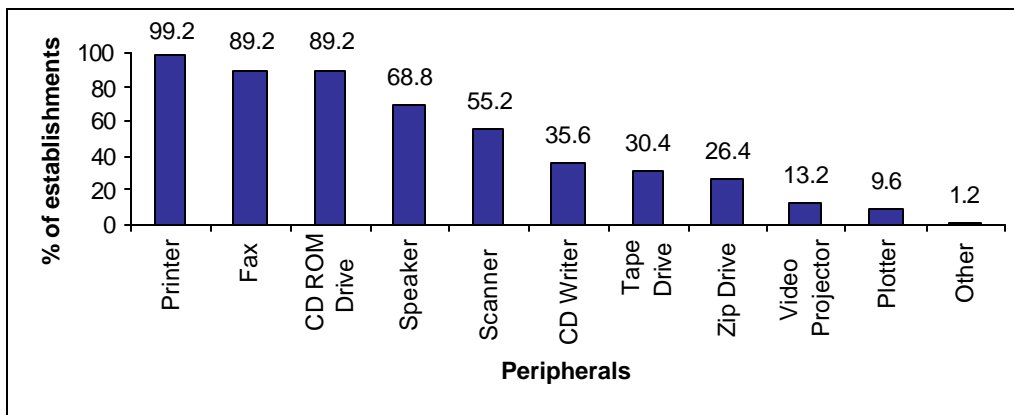


Figure 5: Types of Peripherals

4.2.2 Software

The sample results have also shown that there are various types of applications and operating systems in use and this is illustrated below:

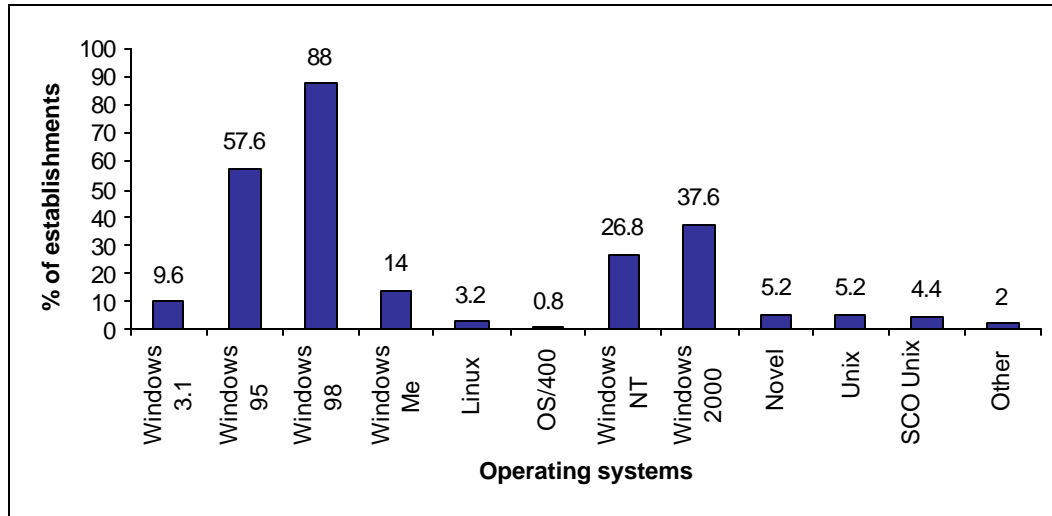


Figure 6: Commonly used Operating Systems

Most of the software that the establishments reported to be using were off-the-shelf but there were cases of usage of tailor made ones also. The most widely used software were office tools (96%), financial and accounting packages (44.8%), inventory/stock control system (28.4%), and payroll system (27.2%).

The applications that formed critical IT systems⁶ in the day to day running of business of the establishments in the sample were stock control (41.6%), payroll (38.4%) and process control (12%).

4.3 Technology

75% of the establishments indicated that they have access and use the Internet, 43% of them have Local Area Networks (LAN) and 12.7% have Wide Area Networks (WAN). Furthermore, a substantial proportion of the establishments in the sample indicated having no plans to use intranet (58.3%) and extranet (80.3%). In addition, the Electronic transfer of funds⁷ are conducted by 17% of the establishments while only 10.7% of them indicated using electronic data interchange on the Internet.

4.4 IT Security

IT security is one among the major aspects that the survey has tried to cover and which represents an important chain link in the computerisation process. This aspect seems to have been well taken care by the establishments on the major security fronts. The majority of the establishments (96.4%) have an anti-virus software and 77.2% of them have an access control to their computer system. Whilst 73.6% of the establishments have an uninterruptible power supply (UPS) only 56% of them have a power generator. There is also a good practice of taking back ups of data since 90.4% of them do it and furthermore 60.8% of them does it daily. Some of the establishments (55.2%) also have a back up of their server.

4.5 Internet access

4.5.1 Use of Internet by Business Activity

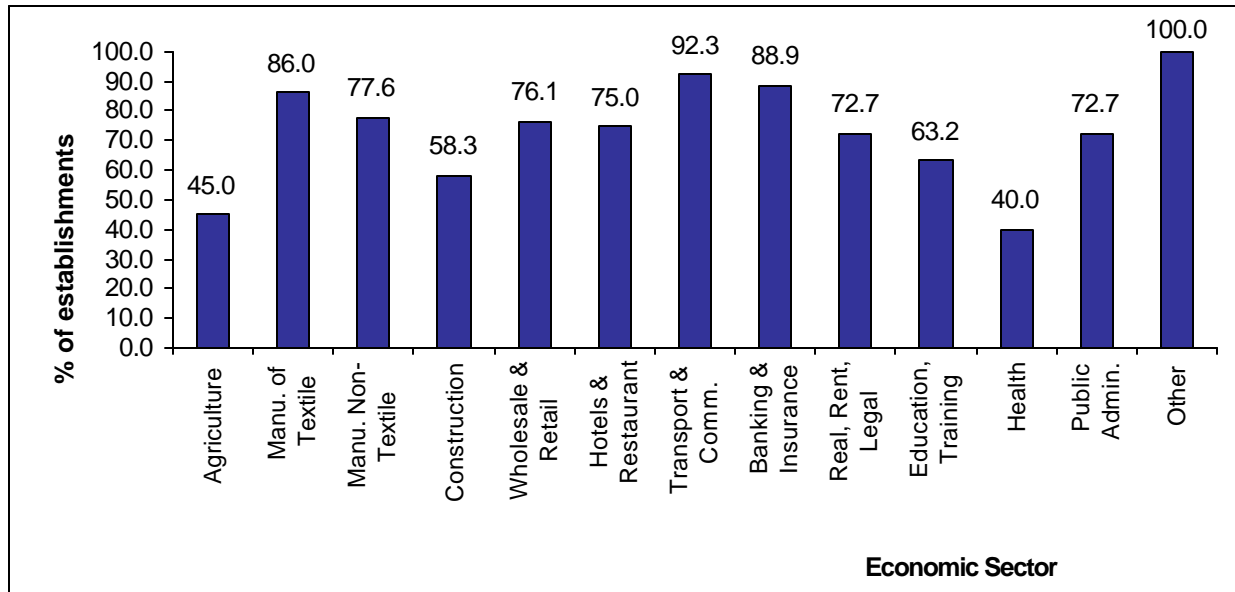


Figure 7: Use of Internet by Business Activity

The bar chart above shows that with the exception of establishments in the agricultural & health sectors that have reported weak usage of the Internet, in all other sectors the use of the Internet is quite substantive.

In order to determine the extent to which the various industries in different sectors use ICT the survey asked about the use, plans to use and if business had no plans to use the internet. The results from these questions by sub-sectors are given in Table1.

Business Activity	Use Internet			Plan to use in within yr		Plan to use after yr		No plans to use	
	No.	No.	%	No.	%	No.	%	No.	%
Agriculture	20	9	45.0	0	0.0	0	0.0	11	55.0
Manufacturing of Textiles (including Wearing Apparel)	57	49	86.0	2	3.5	2	3.5	4	7.0
Manufacturing other than Textiles	67	52	77.6	2	3.0	2	3.0	11	16.4
Construction	12	7	58.3	0	0.0	0	0.0	5	41.7
Wholesale and Retail trade	46	35	76.1	1	2.2	0	0.0	10	21.7
Hotels and Restaurants	16	12	75.0	1	6.3	1	6.3	2	12.5
Transport, storage and communication	13	12	92.3	0	0.0	0	0.0	1	7.7
Banking / Finance / Insurance	9	8	88.9	1	11.1	0	0.0	0	0.0
Real estate, Renting, legal & business activity	22	16	72.7	1	4.5	0	0.0	4	18.2
Education & Training	19	12	63.2	0	0.0	1	5.3	6	31.6
Health	5	2	40.0	1	20.0	1	20.0	1	20.0
Public Administration	11	8	72.7	0	0.0	0	0.0	3	27.3
Other	3	3	100.0	0	0.0	0	0.0	0	0.0

Table 1: Use of Internet by Business Activity

The main deduction that springs from the table above is that establishments that use the Internet are mostly found in the competitive sectors, that is, whereby access to information enables quick delivery and hence provides an edge in business activity. This is why Internet usage is high in sectors like manufacturing, wholesale and retail trade, hotels and restaurants, transport, storage and communication and banking and finance. It should be noted that use of the Internet in the education and training sector is relatively low with a percentage of 63.2%. However, public administration is in the bandwagon with 72.7% of organisations using the Internet.

Among the Mauritian owned establishments 72.2% of them have access to the Internet as compared to 92.3% of establishments owned by foreigners and 95.8% of jointly owned establishments.

4.5.2 Relationship of age of establishment with access to Internet

The sample contained a wide array of establishments, which have been incorporated in as far back as before 1900. The survey results show that the further back in time a establishment has been incorporated the higher the probability it has access to the Internet. A possible explanation to this relationship could be that these establishments are well established and as such they have invested in ICT before those recently incorporated ones and also they may be in a better position to afford the Internet.

4.5.3 Employee Access to the Internet

The Internet is an undeniable and worldwide communications tool. The survey shows that there is a close relationship between the percentage of employees having access to personal computers, e-mail and the Internet. Top management arrives at almost a one to one relationship between computers, the Internet and e-mail access and this probably indicates also a certain degree of control over the flow of information in organisations. As we go down the ladder we find that computer access diminishes in the other strata of employees except for the administrative staff. However, the Internet and e-mail access for the other strata of employees may not necessarily follow the same trend as top management, that is access is relatively lower in middle management, technical staff and operational staff. Table 2 overleaf summarises these findings:

Status of employees	Computer		E-mail		Internet	
	No.	%	No.	%	No.	%
Top management	215	86.0	200	80.0	199	79.6
Middle management	139	55.6	105	42.0	95	38.0
Technical Staff	66	26.4	36	14.4	29	11.6
Operational staff	60	24.0	27	10.8	15	6.0
Administrative staff	221	88.4	121	48.4	88	35.2
Other	5	2.0	2	0.8	3	1.2

Table 2: Employees having access to Computer, e-mail and Internet

4.6 Internet usage

4.6.1 Reasons to use the Internet

Whilst access to the Internet is mainly through dial up line, the survey results confirm that the main reason that establishments use the Internet is essentially for information search. Exploring new modes of business and maintaining the competitive position are the other reasons that come immediately after and explain why establishments use the Internet.

4.6.2 E-commerce Adoption

21.3% of the establishments have websites and 27.1% of them hosted their website at site of work but the majority (72.9%) of them has their websites hosting outsourced. Establishments are resorting more and more to electronic means of conducting business like having websites as they have confirmed that these are convenient ways to provide information about company information and they are have growing confidence in modern technology in bolstering sales and access to overseas markets. Table 3 details out the reason why establishments have websites:

Reasons for setting up a website	No.	%
Growing confidence in the technology	15	31.3
Strengthen contacts with key trading partners	13	27.1
Improving the efficiency of supply and distribution chains	4	8.3
Convenient way of providing company information after sales service, tracking orders etc	25	52.1
Exploring a new mode of business, keeping up-to-date with new technology	10	20.8
Reduces administrative formalities	3	6.3
Increase sales (better customer service, easy contact, etc)	12	25.0
To reduce cost (can be used for advertisements without any further cost , provide information on a 24 hr basis)	5	10.4
Creating better access to overseas markets	11	22.9
Pressure from competitors	3	6.3
Gaining competitive advantage	8	16.7
Room to expand market by providing service outside the country	6	12.5
Other	2	4.2

Table 3: Reasons for establishments to have websites

There are evidences that the Internet is also increasingly being used for purposes of enhancing the trading process and confirming by the same token that e-commerce has taken off as well. In this regard, 25.8% of the establishments use the Internet to get access to databases of suppliers and 8% of them conduct purchasing of goods and services whilst another 3.6% sell over the net. A significant proportion of the establishments also advertise and undertake marketing activities over the net and this is expected to grow with time as both computerisation and the extent of ICT adoption improves.

4.6.3 Barriers to E-commerce Adoption

Establishments face a number of constraints in adopting e-commerce. The main ones reported have been the limited size of the Mauritian market (42.2%), inadequate IT infrastructure (31%), shortage of IT skills (26.2%) and that some goods or services produced do not lend themselves to transactions over the Internet (23%). However, despite these difficulties 19.8% of organisations, which do not have a website, intend to invest in e-commerce in the medium term as follows:

Year	No.	%
2001	4	10.8
2002	17	45.9
2003	12	32.4
2004	3	8.1
2005	1	2.7
After 2005	1	2.7

Table 4: Intention to Invest in E-commerce

4.7 Organisations without Internet Access

Whilst 25% of organisations have reported not having Internet access, 28% have indicated their intentions to get connected shortly through dial up line mainly. The two most important reasons put forward by establishments for not having Internet access have been security concerns and other items have higher priority.

5 ICT Strategy

5.1 Introduction

This sub-section of the survey questionnaire has tried to capture an important element in the overall management of the establishments and which concerns a strategy, related to ICT, for the future on knowledge management⁸, staffing or budgetary issues. It is a fact, ICT is a different world whereby change and dynamism are constant parameters that whirlwinds into growing inter-linked concentric circles and forms the orders of day in the business universe. Thus, with such a background, it is vital that establishments have a strategy to adjust themselves both in terms of infrastructure and human resources to face up the challenges of the connected world.

The results of the survey show that 23.6% of the establishments have a strategy for knowledge management and this is shared between pure technology and rewards for knowledge sharing among employees. Obviously, those responsible for knowledge management have been reported to be mainly the Chief Executive Officers and Heads of IT Departments of establishments. In general, the IT heads (60.7%) report directly to the Managing Directors of establishments and 52.5% of them form part of management committees.

5.2 ICT Spending

The pie chart below shows that the establishments have spent a greater proportion of their budget on three main items namely, software (43.2%), consultancy (15.9%) and hardware (14.8%).

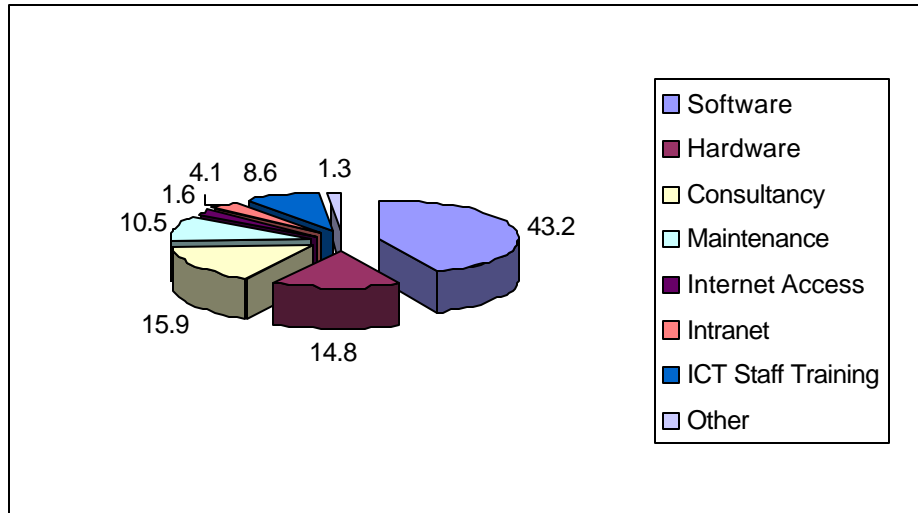


Figure 8: Expenditure on ICT -2001

The establishments have indicated that they do have an ICT budget, which can go well beyond the Rs 5 million mark. It is observed that over the last three financial years most of the establishments have had their budget on software within the range Rs 80,000 to Rs 500,000. However, the most common budget band for software has been the first one with a cap of Rs50,000. The percentage of establishments that have had a budget of more than Rs 1 million has been turning around only 3.3%.

As far as hardware is concerned there has been no big discrepancy in the number of establishments having budget ranges of Rs 1 to Rs 500,000. However, the number of establishments falls drastically for budget on hardware after the Rs 500,000 cap. A commonality has been observed for budgets on consultancy, maintenance, Internet access, Intranet, ICT staff training and e-commerce. In fact, the majority of the establishments tend to have a budget less than Rs 50,000, which is by general standards quite low.

5.3 ICT Benefits

Among the computerised establishments whilst 79.6% have reported to be satisfied with the return on their IT investment, a larger proportion (88%) have confirmed that computerisation have had a positive impact on their organisation. They reported that computerisation has also brought in its wake other beneficial effects like an increase in turnover as well as a reduction in costs. In fact, 68% of them indicated that their turnover has increased in the range of 1-10% while around 53% of those, which have experienced cost reductions, reported gains within the same range. Over and above these improvements, computerisation has, in addition, led to significant efficiency gains and around 37.3% of the establishments have confirmed gains in the range of 41-50%. The results of the survey, therefore, have shown that a high correlation between computerisation and establishment performance exists and it could be in terms of cost reductions, increase in turnover or gains in efficiency.

6 ICT Manpower

6.1 Introduction

The survey has tried to investigate into the total number of employed by the 300 establishments in the sample in order to assess the proportion of employees qualified in ICT. In addition, the objective was also to investigate on the profile of ICT staff employed and move a step forward to, at least, shed light on the opportunities that might exist in the broader ICT sector and ICT related activities in the medium to longer term.

The proportion of ICT staff within the total number employed in the sample during the year 2001 is given in the pie-chart below:

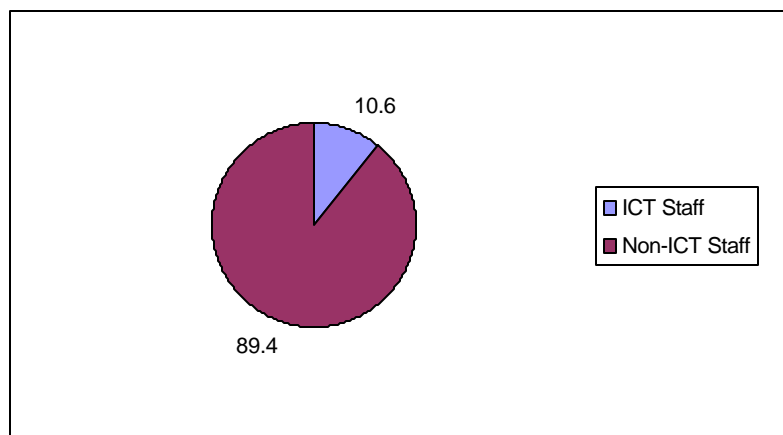


Figure 9: Composition of Total Employed

It is observed that the proportion of ICT staff to the total number of employees turned around a threshold of 11% during the year 2001 (section 6.2).

6.2 ICT Staff Profile

The profile of the ICT staff employed in the sample is depicted in the table below:

Job Title	As a % of ICT Staff employed in 2001
Project Manager / IT Manager	0.7
IT Consultant / IT Advisor	0.3
Software Engineer	0.2
Database Administrator	0.4
Systems Engineer / Hardware Engineer	0.2
Systems Analyst / Business Analyst	0.2
IT Trainer/Lecturer	0.4
Analyst Programmer	0.6
Programmer	0.4
Technician	1.1
Webmaster	0.1
Graphic Designer	0.3
Computer operator	92.9
Other	2.1

Table 5: ICT Staff Profile

The striking result shown in the table is that ICT support staff form 92.9% of the total ICT staff employed during the year 2001. This finding is in conformity with other recent studies, like the "the Interim Report of the Task Force on E-Education and E-Training", which supported the view that the ratio of IT professionals to IT support staff is not at all a one to one relationship.

The ICT industry has some specific characteristics endogenous to it as opposed to other sectors. Prospects for employment exist across the ladder from Project Managers to Computer Operators. Thus, it can safely be said at this juncture that IT support staff,

amongst others, would find wider opportunities for employment as new projects are increasingly being envisaged in the context of developing Mauritius into a Cyber Island.

In fact, an in-house estimation for IT vacancies during the period January to June 2001, as depicted below, shows that prospects exist in different IT skills required.

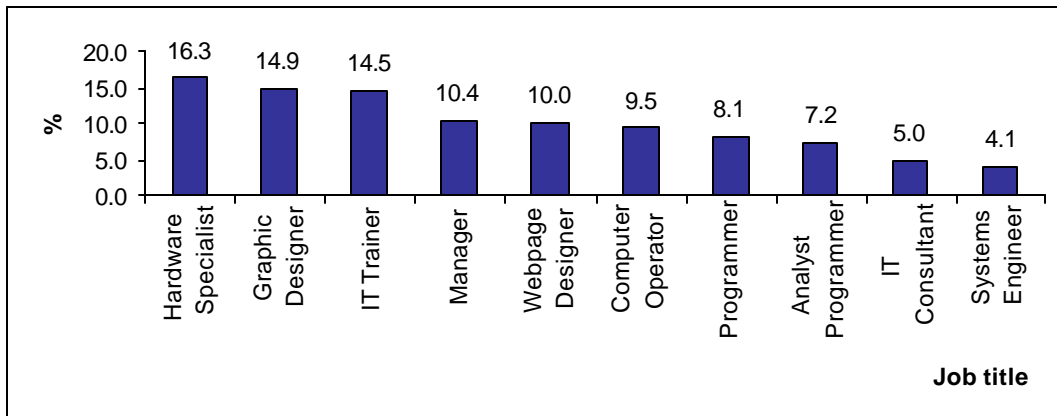


Figure 10: Trend in IT Vacancies (Jan to Jun 2001)

6.3 ICT Skills level

In general seven different levels of IT skills may be identified ranging from the lower limit of computer awareness⁹ to the upper limit of IT specialists. The survey has tried to look into the profile of the qualifications of staff using computers and this is shown below:

Qualifications	As a % of those using computer
Computer awareness	25.3
Computer literacy ¹⁰	46.1
Computer proficiency ¹¹	19.1
Computer studies ¹²	2.7
Associate Computer professional ¹³	2.2
Computer professional with diploma in IT ¹⁴	2.3
Computer professional with degree in IT ¹⁵	1.5
IT Specialist ¹⁶	0.8

Table 6: Profile of Staff Qualifications using computers

It can be seen that the majority employed is qualified up to the computer proficiency skill level, which is in line with the 92.9% of ICT staff employed as computer operators. Among those employed and not using computers we find that there are no one above computer proficiency skill level meaning that all those who are relatively more IT skilled are fully employed.

The survey has also investigated on the staff training requirements for the medium term and the results are depicted below. The figure shows that establishments require training for their staffs mostly in office tools and operating systems.

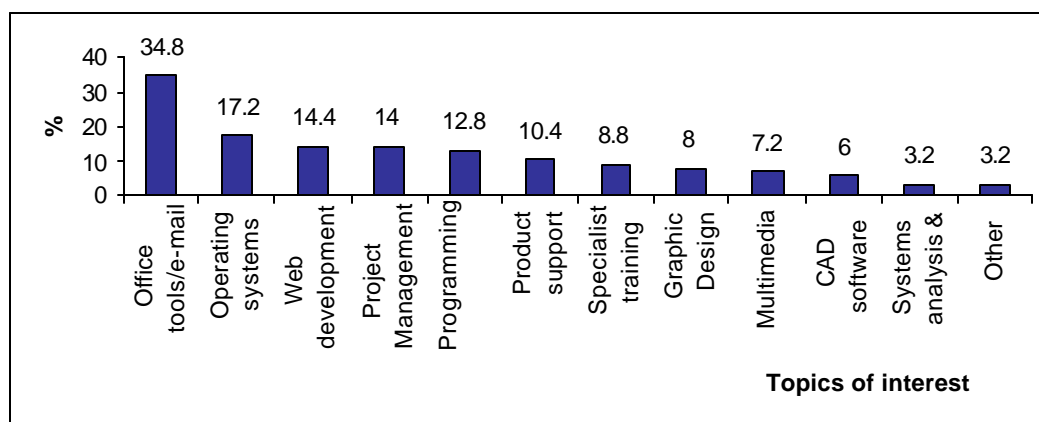


Figure 11: Staff Training requirements

7 Methodology

7.1 Questionnaire

The National Computer Board (NCB) as instrument for data collection prepared a draft questionnaire. It was circulated among stakeholders to ensure exhaustiveness and relevancy of the themes.

The draft questionnaire was then subjected to a pretest by interviewing respondents who are similar to the final study respondents. This was considered essential to identify problems in wording, questionnaire structure and other areas that may have a profound impact on the validity of the findings. Once these areas located, the NCB finalised the questionnaire after making relevant amendments.

7.2 Sampling methodology

A list of 2,132 establishments having more than 10 employees was obtained from the CSO. The sample of 300 establishments of 10 or more employees was drawn randomly and was stratified by geographic location. This population includes all businesses irrespective of their legal status, i.e. partnerships and sole proprietorships as well as companies and public corporations. The sampling unit is the business.

7.3 Data collection

Data collection was conducted in August 2001. After the sample was selected, questionnaires were mailed to establishments and respondents were urged to complete and return it to the NCB. Units that had not responded by a particular date were subject to mail and telephone follow-up and personal interviews to ensure data was obtained. The data were captured were edited and re-coded where necessary.

For each establishment, IT Directors, or IT Managers, or owners of the enterprise were subjected to answer the questions.

7.4 Data Entry

The questionnaires duly filled and edited were returned to the NCB. The Central Information Systems Division (CISD) conducted the data entry using IMPS software and the raw data was handed over to the NCB in softcopy for analysis purposes.

7.5 Data Analysis & report writing

Analysis and report writing were done by the NCB with technical advice of CSO and an Economist.

8 Conclusion

The Survey results show that the march towards the overall objective of Mauritius becoming a cyber Island is well on. It has been confirmed that a fair degree of computerisation has been achieved although much can still be done to improve the degree of sophistication of the computerisation process of establishments in the country. In addition, it has been observed that there is high correlation between computerisation & establishment performance in terms of cost reduction, increase in turnover and overall gain in efficiency.

At this stage it is vital that establishments develop an on-going strategy to adjust themselves both at the level of infrastructure & human resources to face up the challenges of the increasingly connected world.

Capacity building, among others, is indeed the most important input that we need to build on now in order to win the battle of this Internet age. Recent investigations have shown that vacancies across the board in the ICT sector & prospects are even brighter for more IT-qualified people.

ICT is that lubricant that will help the country not only improve on productivity & competitiveness, especially in the very competitive sub-sectors, but also develop into a driving & dynamic fifth pillar of the economy. With the right framework, incentives and mindset, the ICT sector is found to make the country step further into this new millennium with confidence & faith in as far as securing in the world economy is concerned and as well as security sustainable development.

9 APPENDIX

Appendix 1: Summary of Results

Appendix 2: Glossary of Terms

Appendix 3: Questionnaire