Patterns of ICT Usage in Lebanon

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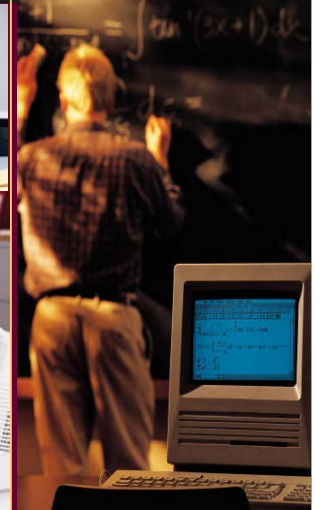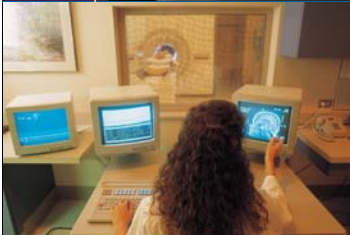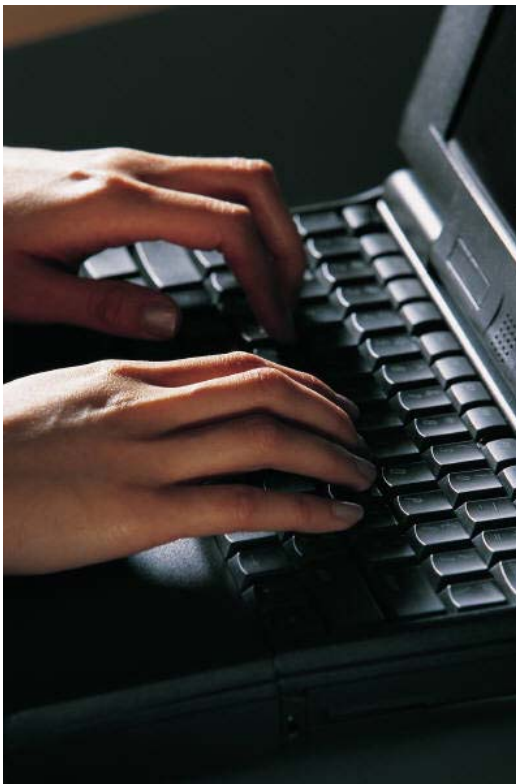
Results of the

2004 ICT User Survey

February 2005

FOREWORD

About The Survey

In the summer of 2004, SRI International conducted two surveys to determine the degree of adoption of information and communications technologies (ICTs) in Lebanon. The primary objectives of these surveys – collectively called the 2004 ICT User Survey - were to develop high-quality indicators of adoption and use of ICTs by individuals and organizations and to understand the overall demand-side dynamics, including barriers to adoption of these technologies. This report presents the key findings of the two surveys. A number of implications can be drawn from the findings of the survey. However, the scope of this report is limited to presenting the aggregate response rather than drawing implications for any strategic action.

Acknowledgements

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EXECUTIVE SUMMARY

SRI International is pleased to present the results of the 2004 ICT User Surveys conducted in Lebanon in the summer of 2004. Two separate studies on the use of information and communications technologies (ICTs) were conducted as part of this effort:

1) A national survey of individual ICT users, titled the **2004 ICT Individual User Survey**, and

2) A pilot survey of corporate ICT users, titled the **2004 ICT Corporate User Survey**.

This report presents the key findings of these two surveys, collectively called the **2004 ICT User Survey**. The goal of this report is to provide a snapshot of the current state of adoption of ICTs, rather than to present a detailed analysis of the factors leading to the current state. While the aggregate responses of consumers point to an interesting set of indicators relating to the degree and patterns of use of ICTs, they also bring to light some challenges to faster and better adoption of these technologies in Lebanon. It is hoped that these findings will enlighten the interest on demand-side dynamics and may inform policy and economic discourse.

Degree and Patterns of Use of Computers and Accessories by Individuals

- Based on the response of individuals, 65 percent of Lebanon's urban population has some level of use of computers. Noticeable disparities exist in the use of computers among various regions within Lebanon. Nabatieh is reported to be the leading *mohafaza* in terms of percentage of users reporting some level of computer use.

- Nearly 64 percent of computer users report use from home. Of those reporting home use of computers, 84 percent own a single computer and 15 percent of households own two computers.

- Computer usage at home is not restricted by individual ownership. In 85 percent of the cases, home computers are shared by at least two users. In 20 percent of cases, the home computer is shared by at least four users.

- Level of education is a significant differentiator with regard to individuals' use as well as ownership of computers.

- Computer games are the most frequently used software at home, followed by office applications and software to browse the Internet. However, for those who use computers outside of home, Internet applications are the most commonly used software.

- Some special-purpose software products such as Photoshop, Corel Draw and Quark Express also find reasonable use on home computers.

- English is the primary language for use of computers, with some users using Arabic and French language applications.

- Over 90 percent of home computers are Windows-compatible and over 62 percent are branded computers. Approximately 23 percent of home computers are locally assembled and 15 percent of home users are unaware of the brand of computer they use.

- Printers are the most widely used hardware accessories used by home computer users (75 percent), followed by scanners (39 percent) and digital cameras (28 percent).

Degree and Patterns of Adoption of the Internet

- Over 79 percent of all computer users use the Internet to some degree. Regional disparities are less severe in the case of adoption of the Internet as compared to those in the use of computers.

- Level of education and level of income are prime differentiators of the degree of Internet use. Younger people report generally higher level of Internet use, with the exception of people in the age group of 55 and above who report very high degree of adoption.

- The Internet is in the "take-off" stage with nearly one-quarter of all Internet users getting their exposure to the technology in the last one year alone.

- With over 55 percent of responses, Internet Cafes are the most preferred location for use of the Internet in Lebanon.

- Email is the primary purpose of use of the Internet, followed by entertainment and online chat. Gathering information through the Internet for academic research or for personal use is also reported as a motivation for Internet use.

Diffusion of E-commerce

- Despite high levels of computer penetration and reasonably high degree of adoption and use of the Internet, e-commerce is yet to gain ground in Lebanon. Only nine percent of Internet users reported having shopped online.

- Level of income is an important predictor of the user's willingness to engage in e-commerce.

- Books, clothes, electronics, and CDs are the most frequently purchased products, Credit cards are reported to be the most common means of payment for online purchase.

Barriers to Adoption and Diffusion of ICTs

- The lack of knowledge, followed by the lack of resources, is the most common reason for not using the computer.

- Over 47 percent of Internet users in Lebanon perceive the cost of using the Internet as "high," compared to only four percent who view the cost as "low" and 43 percent who view the charges as "fair."

- A clear majority of Internet users who shop online are worried about identity theft and invasion of privacy.

- Software piracy continues to pervade Lebanon's ICT market. Over 68 percent of all individual computer users use pirated software products as opposed to 31 percent who report using only original products.

Corporate Use of Software and Hardware

- Windows 2000 is the most popular operating system in Lebanon for core business functions, followed by Windows XP and Windows NT.

- Among office application software, Microsoft Office ranks very high with 94 percent of respondents indicating use.

- Approximately 83 percent of participating firms reported use of some database application along with core ICT applications. Microsoft SQL Server is the most widely used database software, followed by MS Access and Oracle products.

- Lebanese companies use a wide variety of security software, including anti-virus software, network security, and transaction security products.

- English is the most commonly used language. In addition, firms report use of some applications in Arabic and French.

- Most companies report that their organization owned desktop and laptop computers of various competing brands. Many firms own locally assembled desktop computers, however, branded computers dominate the laptop market.

- Servers, printers and scanners are mostly globally branded products.

Corporate Use of the Internet

■ Lebanese companies have good web presence, when measured simply by the number of corporate websites. However, most of the websites have basic information about the company and have not developed into advanced mechanisms for e-commerce.

■ Many of the firms surveyed have a liberal Internet usage policy for their employees.

■ Leased line is the most preferred mode of enterprise-wide access to the Internet. Dial-up ranks as the second most popular means, and retail broadband is not a popular means of Internet access for companies.

■ About a quarter of participants have wireless-enabled IT environment and about one fifth provide remote access to their employees.

Organizational Structure and ICT Decision Making

■ A majority of firms report the existence of an IT department in their company. Dealing with ICT vendors to select and procure software and hardware, installation and upgrade of system software and application software for other employees are the most frequently cited activities of the IT department.

■ A good number of firms report subcontracting of IT systems design, development or maintenance work to specialized, third party service providers.

■ For most companies in Lebanon, there is no annual budget for ICT activities. ICT related procurement decisions are taken on an "as and when needed" basis.

■ Some companies regularly use pirated software. However, as compared to piracy rates reported by individual consumers, piracy reported by corporate users in this study is low.

INTRODUCTION

Survey Design

Response Rate

In the summer of 2004, SRI International conducted two detailed surveys to study the patterns and degree of use of information and communications technologies in Lebanon. These two surveys, collectively called the **2004 ICT User Survey** followed the execution and release of the **2004 ICT Capabilities Survey** in May 2004. However, unlike the Capabilities Survey that examined the supply-side dynamics of Lebanon's ICT industry, the User Surveys focused on the overall demand-side dynamics and users' perception of barriers to adoption of these technologies.

The first component of the 2004 ICT User Survey was targeted toward individuals all across the country. This survey, titled the **2004 ICT Individual User Survey**, asked various questions on patterns of use of computers, familiarity with software and hardware, degree of adoption of the Internet and e-commerce and challenges faced by individuals in fully utilizing these technologies. The second component of the survey was targeted toward organizations, including firms in several manufacturing and services sectors, and non-government organizations. This survey, titled the **2004 ICT Corporate User Survey**, purported to collect information on software and hardware usage, procurement and maintenance decisions and organizational structure pertaining to ICT functions.

Survey Design

The Individual User Survey was designed to be a field survey of the general Lebanese population. Random sampling technique was used to construct the survey sample, taking major demographic factors such as gender, age, income level and religious affiliation of the population into consideration. This was done to make the sample representative of the underlying population.

The size of the sample was proportionate to the population of each of the six Lebanese *mohafazas*[1]. The sampling frame in each district was restricted to the main cities in the district. In the absence of prior statistical

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[1] *Mohafazas* are administrative regions in Lebanon. Each *mohafaza* comprises several administrative districts called *cazas*.

research on ICT adoption and use in Lebanon, certain assumptions were made to develop an estimate of the sample size. Applying Dr. William G. Zikmund's formula for estimation of sample size under the assumption of normal distribution, it was calculated that a sample size of 864 would allow for adequate degree of generalizability of survey findings[2]. Accordingly, 865 questionnaires were administered in the field. Appendix-A provides a break up of sample size by *cazas*.

It is common knowledge that collection of information on organizational resources, procurement decisions and decision-making is difficult in Lebanon. The 2004 ICT Corporate User Survey was designed and implemented as a pilot survey to collect such information so as to form a baseline of indicators with regard to corporate adoption of ICTs. The overall goal was to collect and compile broad patterns of ICT use in the first year of implementation of the survey, with the hope that the survey sample could be broadened and content enriched with subsequent rounds of similar surveys in later years. Keeping this goal in mind, a sample size of 100 companies was used where selection of firms was based on a stratified random sampling technique. The rationale for sample selection was based upon a combination of:

a) The economy-wide distribution of companies (Tourism 30 percent, Industry 20 percent, IT 20 percent, Agriculture 10 percent, Telecommunications 10 percent, Consultants: Financial, Market and Legal 10 percent), and

b) The priority sectors identified by Lebanese ICT supplier companies as the most active business sectors from an ICT standpoint (Banking, Retail, Education, Distribution, General Trade, Construction, Healthcare, Insurance, Manufacturing, and Media)[3]

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[2] The Human Development Report, 2002 estimated the degree of Internet penetration in Lebanon at 120,000 users. Adjusted calculations lead to a figure of 10% usage of the Internet in Lebanon and this percentage (10%) served as the baseline criterion to decide on the sample size of this survey. Dr. William G. Zikmund's formula was used in the estimation of the sample size. As per this formula, the equation for estimation of sample size may be represented as $n = (Z2 \ast p \ast q)/ (E2)$, where n = sample size; Z2= square of the confidence interval in standard error units; P= estimated portion of the people who use the internet; Q= (1-p) estimated portion of the people who do not use the internet; E2= square of the maximum allowance for error between the true proportion and sample proportion (assumed 2%). Under these assumptions, 865 questionnaires would be adequate to conduct the general population survey.

[3] Source: ICT Capabilities Survey, Lebanon, SRI International, May 2004

Based on this approach, the sample of organizational users was restricted to 100 companies. The sector-specific distribution of the sample is provided in Appendix-B. Selection of the firms within each target sector was random. Because of the depth and complexity of information requested and sensitivities involved in the corporate survey, a face-to-face interview method was used in administering the corporate user survey.

Response Rate

The study team recruited experienced surveyors in different regions and trained them on a consistent set of methodologies with regard to the 2004 ICT Individual User Survey. These efforts along with the close monitoring of data collection process led to the achievement of the target of 865 complete questionnaires. The respondents consisted of 53.8 percent males compared to 46.2 percent of females. The following table provides a break down of respondents by age and income groups.

Respondents By Age Group		Respondents by Income Groups	
Age in Years	Percentage of Respondents	Monthly Income in Dollars	Percentage of Respondents *
15 – 22	31 %	Less than $200	3 %
23 – 28	21 %	$201 – 500	24 %
29 – 34	13 %	$501 – 1,000	40 %
35 – 44	15 %	$1,001 – 1,500	19 %
45 – 54	11 %	$1,501 – 2,000	9 %
55 and above	9 %	Above $2,000	2 %

* Nearly 3 percent of respondents did not reveal their income group

In addition, nearly 49 percent of respondents were employed compared to 51 percent who were not. Respondents who reported themselves as employed were mostly employed in the private sector (38 percent of total respondents) as compared to the public sector (11 percent). A detailed distribution of occupations of respondents who reported as employed is presented in Appendix-C. Respondents reporting themselves as unemployed at the time of the survey included students (29 percent of total respondents), housewives (14 percent), seeking employment (7 percent), and retirees (1 percent).

As anticipated, collection of data proved to be extremely difficult with regard to the Corporate User Survey. Despite a field-tested questionnaire, face-to-face interviews and substantial follow-up efforts, the study team managed to achieve only 54 complete questionnaires. Lack of familiarity with corporate-level surveys and sensitivities involved in disclosure of corporate information and strategies were found to be the primary constraints in achieving a better response rate. Firms in the consulting industry, information technology industry, education sector and banking sector were more responsive than firms in the more traditional sectors such as manufacturing, agriculture, and retail trade. Respondents included firms of various sizes, from a 6-person supplier of information technology products to a large healthcare provider with over 1,000 employees.

KEY FINDINGS

Individual User Survey

- Degree of Use of Computers
- Location of Use and Ownership
- Patterns of Use of Computers
- Adoption and Use of the Internet
- Diffusion of E-commerce
- Barriers to Adoption, Use and Diffusion

Corporate User Survey

- Use of Software
- Use of Hardware
- Adoption and Use of the Internet
- Organizational Structure and ICT Decision Making

This section of the report presents the key findings of the user surveys. In order to render better readability and comprehension, the findings of the two surveys – individual users and corporate users – have been kept separate from each other. All the major findings from the 2004 Individual User Survey are presented first, followed by the findings of the 2004 Corporate User Survey.

Many factors affect the adoption of technologies. The most important factors include the general social and economic conditions of the target population, market dynamics, and policy and business environments in the region. This report aims to provide a snapshot of the current state of adoption of ICTs, rather than to present a detailed analysis of the factors leading to the current state. Aggregate responses of individuals and corporate consumers in this set of surveys point to an interesting set of indicators relating to the degree and patterns of use of information and communications technologies in Lebanon. Indicators relating to intensity of use, purpose of use, ownership of hardware and software, and popularity of products of certain brands of hardware and software provide evidence of adoption of ICTs, the Internet and the diffusion of e-commerce in Lebanon.

Key Findings of the Individual User Survey

Degree of use of computers

Nearly 65 percent of all individuals surveyed indicated some level of use of computers. While the average level of computer use in Lebanon is good news, notable disparities exist among users in different regions within the country. The degree of use of computers also varies by age group and level of education.

Percentage Using Computers

35%

65%

☐ Yes   ■ No

Use of Computers by Region
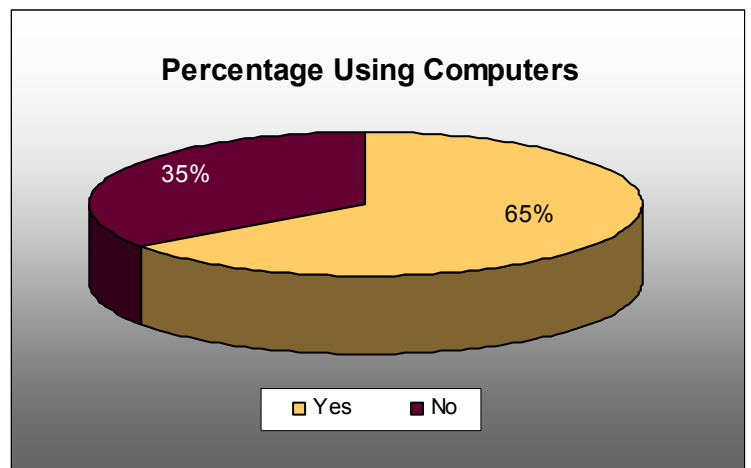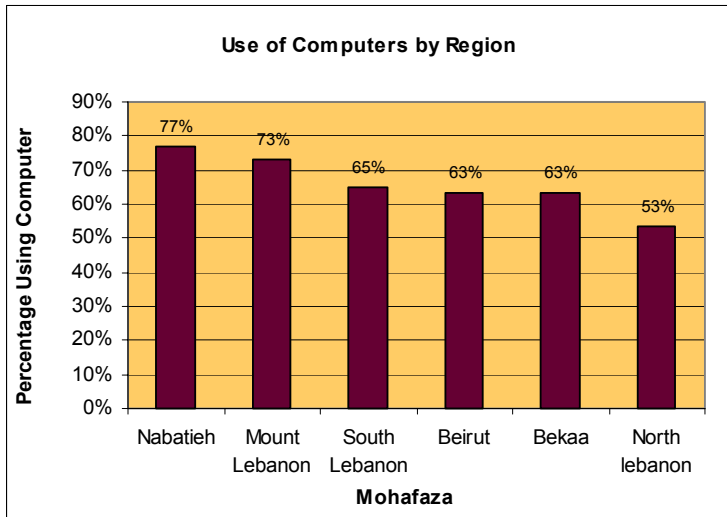
When user responses are aggregated by regions, Nabatieh turns out to be the leading *mohafaza* with 77 percent of respondents reporting some level of use of computers. Beirut region ranks in the middle whereas North Lebanon trails behind with only 53 percent users.

Extreme disparities are observed when responses are grouped by the age of respondents. Those in the age group of 18-22 years are the dominant users of computers. As seen in the chart, the percentage of users falls gradually as the age of the respondent increase. Respondents with age of 55 and above are the least active users of computers.

Use of Computers by Age Group
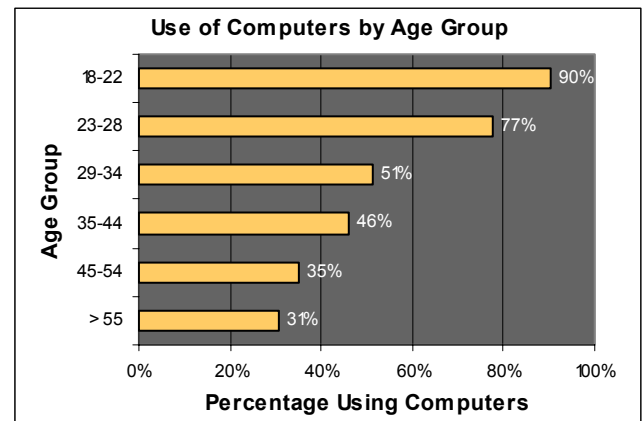
Educational achievement is observed to be a significant differentiator with regard to individuals' use of computers. Only 18 percent of the respondents with no education or only an elementary education use the computer whereas respondents with university-level education are five times more active in the use of computers. Over 80 percent of all respondents with either technical or university-level education use computers.
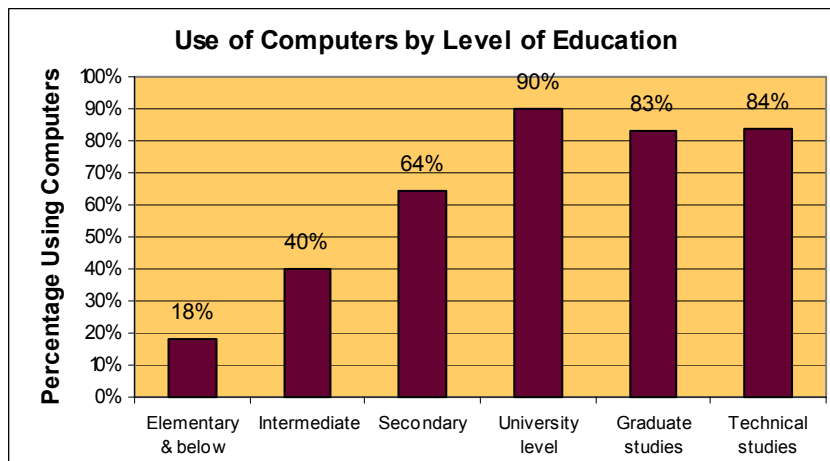
Use of Computers by Level of Education

Location of use and ownership of computers

In response to the question of location for use of computers, a clear majority of respondents indicated that they use computers at home. This question was not intended to identify the only location or the primary location of use, rather the intention was to capture all possible locations where individuals use computers. Responses lead to an important observation – of the 559 respondents who reported some use of computer, approximately 64 percent (361 respondents) indicated use from home. Many of them also reported use of computers from other locations such as work, school or Internet cafes, in addition to use from home.

Location of Computer Use
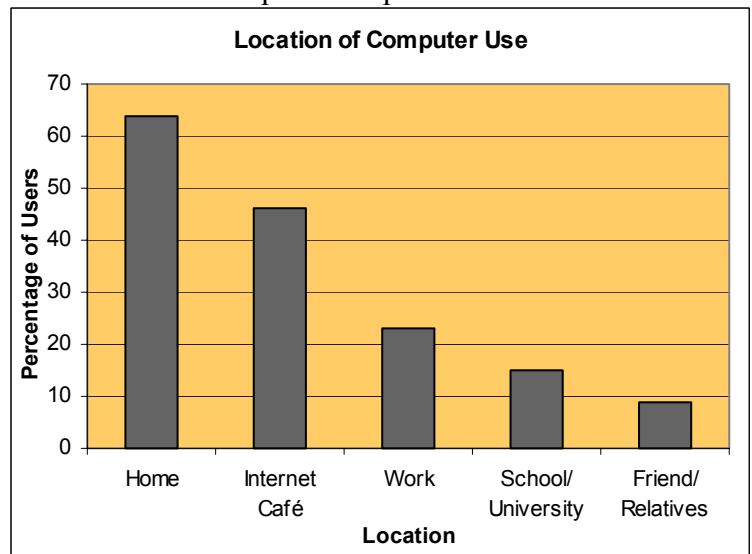
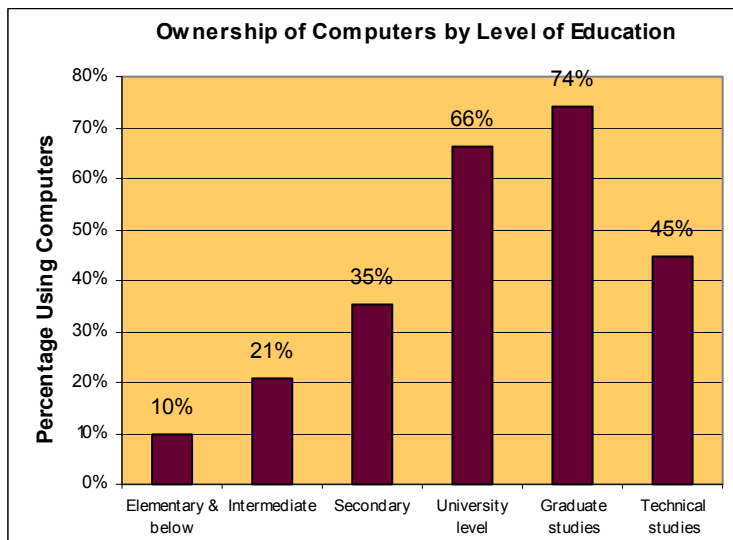A majority - approximately 84 percent - of those who use the computer at home own a single computer. Among the rest of home users, nearly 15 percent own two computers and one percent own three or more computers. Mount Lebanon and Beirut are the leading regions in terms of multiple computer ownership by households.

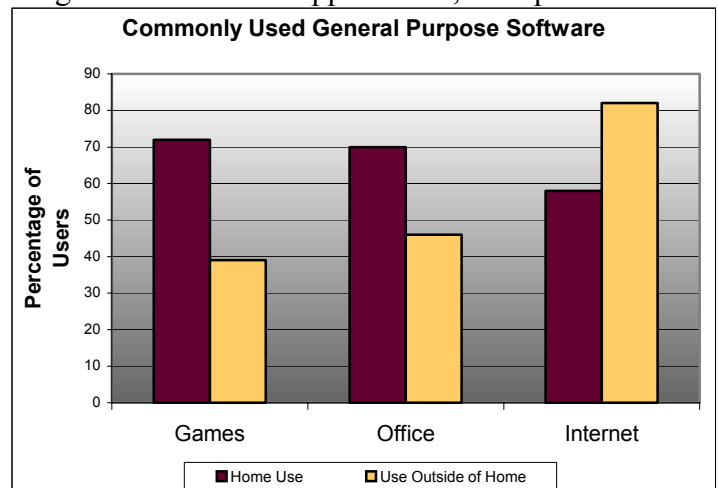**Ownership of Computers by Level of Education**

Computer use and computer ownership exhibit strong correlation with each other and both have strong positive correlation with the level of education. In order to examine this relationship in Lebanon, the study

team considered the level of education of the respondent as an indicator of educational achievement by at least one member of the household. It is observed that higher level of education supports higher degree of ownership of computers. The pattern of ownership seen in the chart follows closely with the pattern of use of computers by level of education discussed earlier.

However, ownership of a single computer per household does not restrict the use of that computer by a single user in Lebanon. As clearly indicated by the respondents, in over 85 percent of homes owning a computer, the computer is used by at least two users. While only 15 percent of households owning a computer have a single user per computer, over 20 percent of respondents indicated that their home computer is shared by at least four users. This pattern of use of computers is typical of developing economies where demand for new and expensive technologies is aggregated at the household and community levels.

Patterns of Use

Individual users reported a varying range of use of home computers with communications and entertainment applications cited as the most commonly used. Among the general software applications, computer games, used by over 72 percent of users, are the most common, followed by office applications (70 percent) and software to browse the Internet (58 percent). The intensity of use of these two types of software applications, as measured by the users' indication of frequency of use, is moderate to high.

Commonly Used General Purpose Software

Percentage of Users (y-axis: 0 to 90)

Category	Home Use	Use Outside of Home
Games	72	39
Office	70	46
Internet	58	82

Legend: ■ Home Use □ Use Outside of Home

Individual users using computers outside of home reported a different set of patterns in relation to use of general-purpose software. For these users, Internet applications were the most commonly used software (82 percent), followed by office applications (46 percent), and games (39 percent).

In addition to the above mentioned general-purpose software applications, some specialized software products are also being used at home, although by a smaller number of users. Among those specialized software product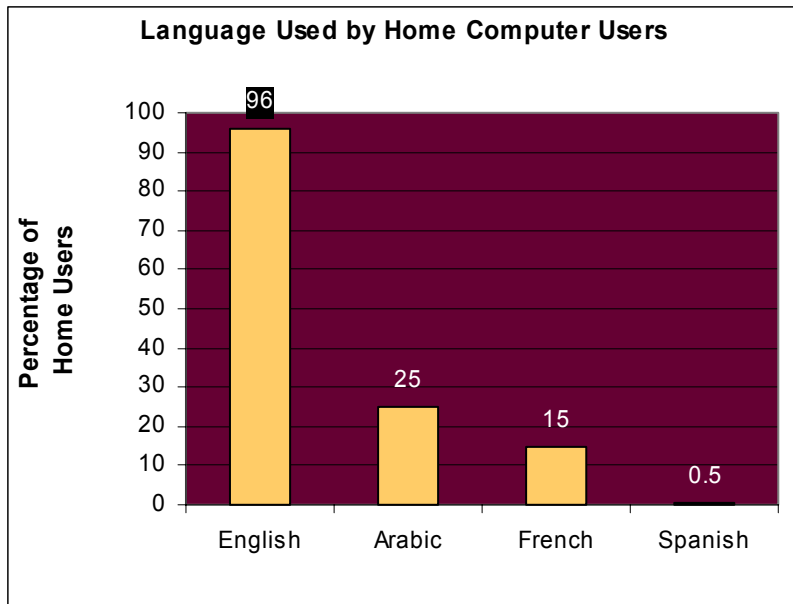s, Photoshop and Corel Draw are the leading applications. Photoshop is used by 35 percent and Corel Draw is used by at least 10 percent of all home users of computer. These users report moderate to intense use of these two software products. The degree of use of special purpose software is less on

Use of Special Purpose Software by Home Users

computers used outside of home as compared to their use on home computers.
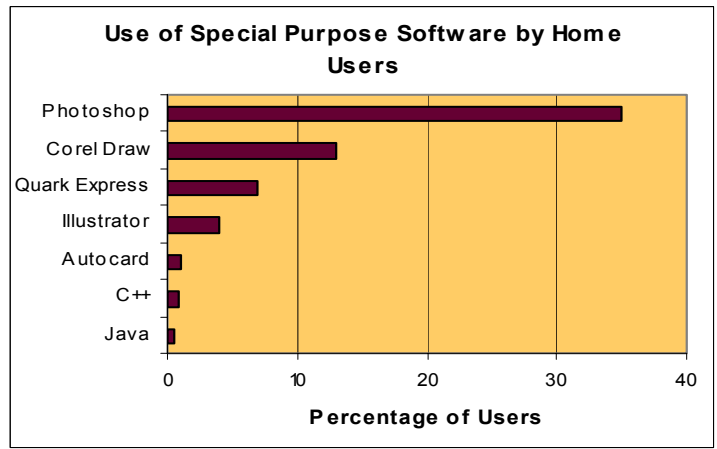
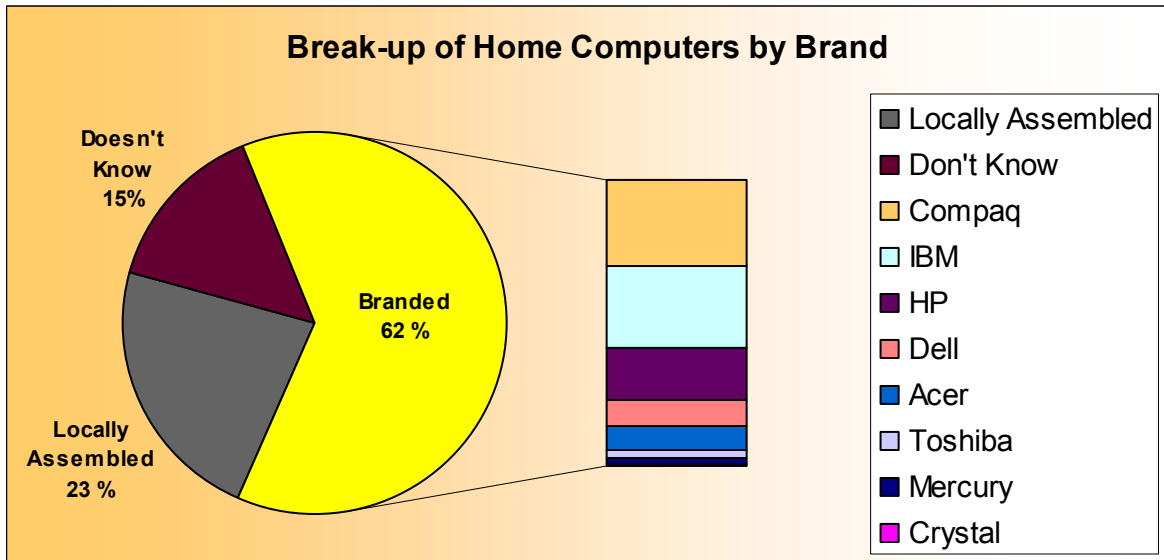English is reported to be the primary language for home computer users with Arabic following as the second most frequently used language. Over 95 percent of home computer users use software applications in English, whereas Arabic is used by 25 percent of home computer users. Many users using Arabic, French or Spanish languages also use English for computing and communications purposes.

Language Used by Home Computer Users

Nearly 90 percent of home computers are reported to be Windows-compatible whereas less than two percent are Apple Macintosh. About eight percent of respondents having home computers did not know the technology compatibility of their computers. In addition, it is also observed that over 62 percent of home computers are branded computers, whereas 23 percent are locally assembled. Nearly 15 percent of the respondents owning home computers did not know whether their home computer was a branded product.

The percentage share of locally assembled computers is supported by, and indicative of, the emergence of many successful local assemblers who cater to the Lebanese and the regional markets. Among the foreign brands, Compaq ranks as the most popular brand among owners of home computers with over 19 percent share of the home market.

Break-up of Home Computers by Brand

- Locally Assembled
- Don't Know
- Compaq
- IBM
- HP
- Dell
- Acer
- Toshiba
- Mercury
- Crystal

Doesn't Know 15%

Locally Assembled 23 %

Branded 62 %

Similar patterns of brand penetration hold for computers used outside the home. Although a considerable number of respondents did not know which brand of computers they used when they used computers outside the home, those who knew indicated Compaq as the brand they used. Nearly 47 percent of these users reported use of branded computers, whereas 10 percent of users used locally assembled computers.

Nearly 39 percent of home computers are reported to be running on Pentium 4 processors. In addition, over 43 percent are running on Pentium 3 processors, leaving a smaller percentage of computers in Lebanese households operating on earlier processors at slower processing speeds. Nearly 42 percent of all Windows-compatible computers used by home users are reported to have Windows XP operating system. An additional 35 percent of home computers operate on Windows 2000 operating system. Nearly 22 percent of home computers in Lebanon still operate on Windows 98 operating system software.

The survey also asked the participants questions on their use of computer accessories. Printers are the most widely used hardware accessories used by home computer users. Over three-quarters of all home computer users reported the use of printers with their computers. Scanners (39 percent) and digital cameras (28 percent) ranked as the second and third most commonly used computer accessories by home users.

Adoption and Use of the Internet

As indicated by a majority of respondents in this national survey, over 79 percent of computer users in Lebanon use the Internet to some degree. At this rate, Lebanon ranks highly among developing countries and especially among its peers in the Middle East and North Africa region. Whereas the rate of adoption of the Internet is higher than the national rate of PC penetration, interesting patterns of use, similar to those observed in the case of use of computers, emerge when responses are aggregated by region, level of education, age group and level of income of respondents.

Percentage of Computer Users Using the Internet

79% 21%

□ Yes   ■ No
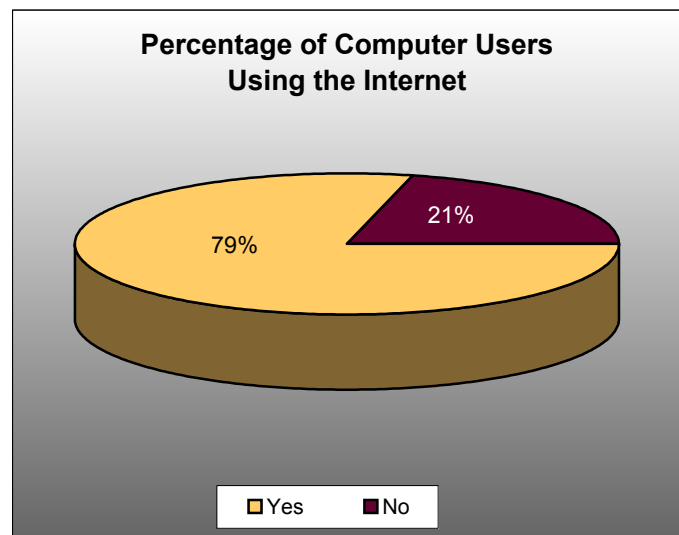
Disparities in the use of the Internet observed across *mohafazas* are less severe than disparities observed in the use of computers. However, Nabatieh, which ranks at the top in terms of computer use, notably lags all *mohafazas* other

Use of the Internet by Region
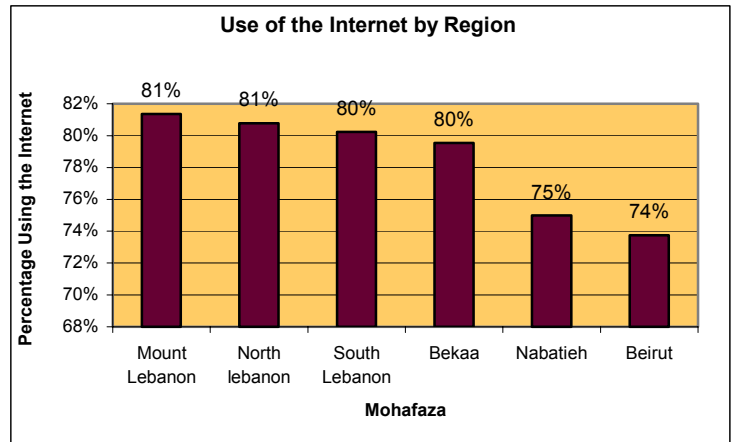
than Beirut. On the other hand, North Lebanon, with the least penetration of computers, scores very high in terms of use of the Internet. Mount Lebanon, North Lebanon, South Lebanon and Bekaa have similar levels of Internet adoption.

Use of the Internet by Age Group
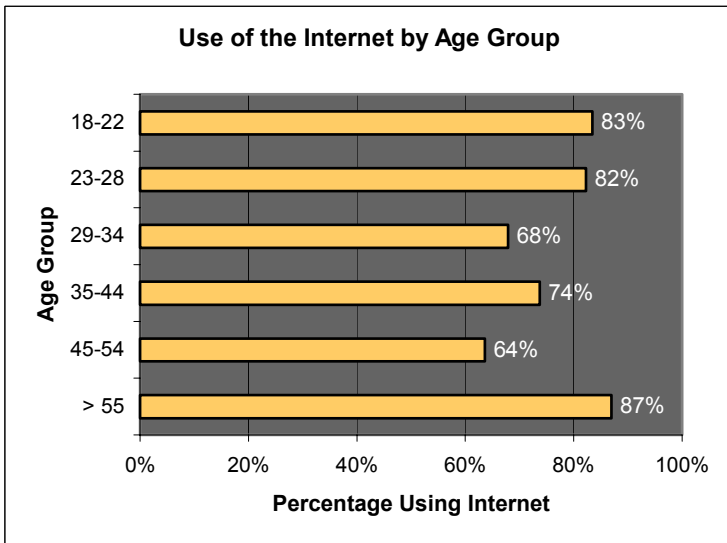
Another interesting observation is that computer users of age 55 and above have the highest level of use of the Internet when measured in simple terms of percentage using the technology. The youth in the age

groups 18-22 years and 23-28 years also have a very high degree of use of the Internet.

Similar to the use of computers, the use of the Internet is clearly differentiated by the level of education. Those computer users with no or elementary education are the lowest adopters of the

Use of the Internet by Level of Education
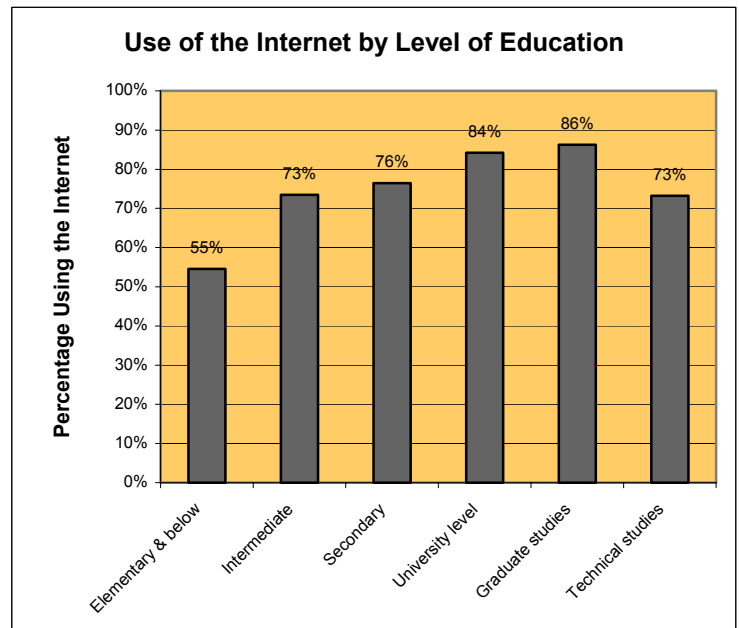
Internet. Only 55 percent of the respondents with elementary education and some computer usage, use the Internet. As indicated in this chart, the percentage share of Internet users increases gradually with the level of education, with those with graduate education positioned at the top (86 percent).
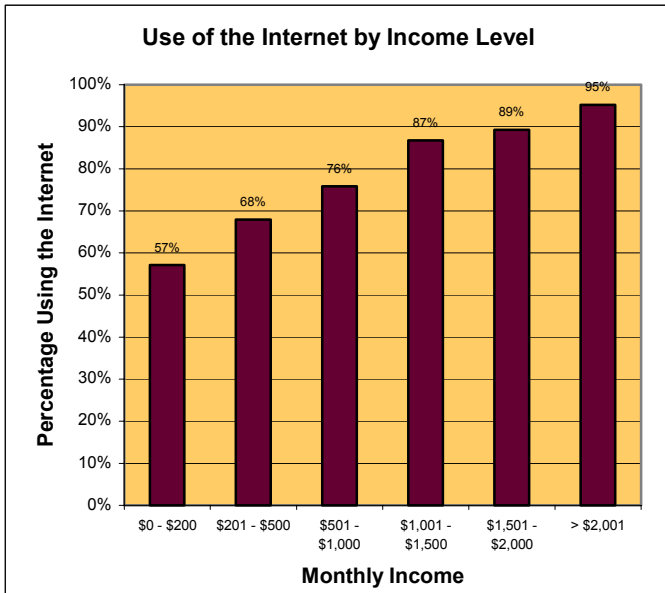
Use of the Internet by Income Level

Level of income also appears to be an obvious differentiator of Internet use. When respondents reporting some use of computers are grouped by their monthly income, those at the lowest rungs of income, i.e. $0-200 per month, show the lowest exposure to the Internet. The percentage of respondents using the Internet increases gradually with the increase in income. Approximately 95 percent of respondents earning over $2,000 a month and using the computer report some level of use of the Internet.

The Internet is clearly in the "take-off" stage in Lebanon, with nearly one-quarter of all Internet users getting their exposure to the technology in the last one year alone. Despite some users with over six years of exposure to the Internet, a vast majority of the Lebanese population reports late adoption of the technology.

Span of Internet Use
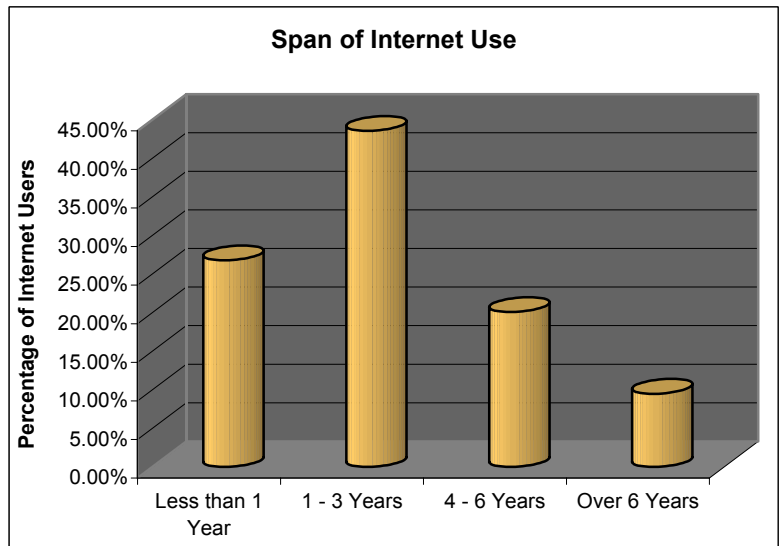
Aggregation of demand and facilitation of retailing of technologies is a typical approach to new technology adoption in developing countries. Telephone booths and cyber cafes are examples of this approach wherein technologies are made available to a larger number of users at a lower per-user cost. With over 55 percent of responses, Internet Cafes are the most preferred location of use of the Internet in Lebanon. At the same time, home use of the Internet appears to be catching up with individual users logging on to the Internet from their own homes or from the homes of their friends and families.

Location of Internet Use

Percentage of Users vs **Location**

- Internet Cafes: ~56%
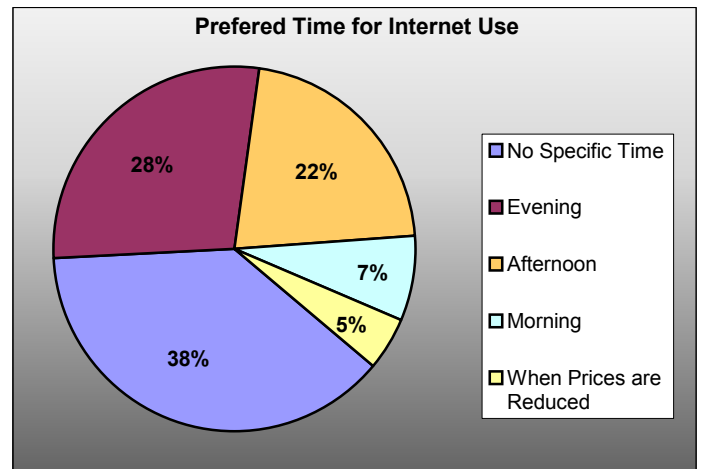- Home: ~46%
- Workplace: ~20%
- School/University: ~13%
- Friends/Relatives: ~10%
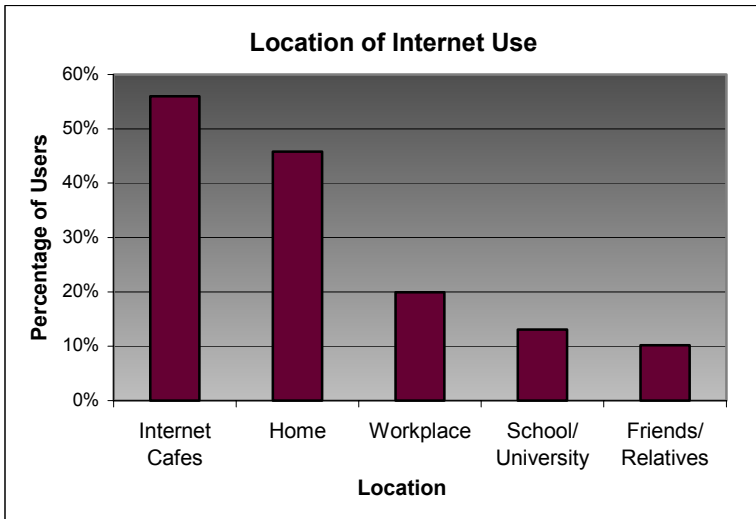
When asked about their preferred time for Internet use, a sizeable number of respondents using the Internet indicated that they did not have any specific preferred time for logging on to the Internet. Nearly 28 percent indicated evening to be their preferred time for Internet use while only 5 percent looked for

Prefered Time for Internet Use

- No Specific Time: 38%
- Evening: 28%
- Afternoon: 22%
- Morning: 7%
- When Prices are Reduced: 5%

time slots when rates for use were reduced.

Over half of Internet users log on to the Internet at least once a day, with close to a quarter of all Internet users logging on several times a day. The next big group of Internet users, accounting for nearly 38 percent, uses the Internet several times a week.

Frequency of Internet Use

Percentage of Users

- Once a Month: 2%
- Several Times a Month: 1%
- Once a Week: 7%
- Several Times a Week: 38%
- Once a Day: 28%
- Several Times a Day: 24%
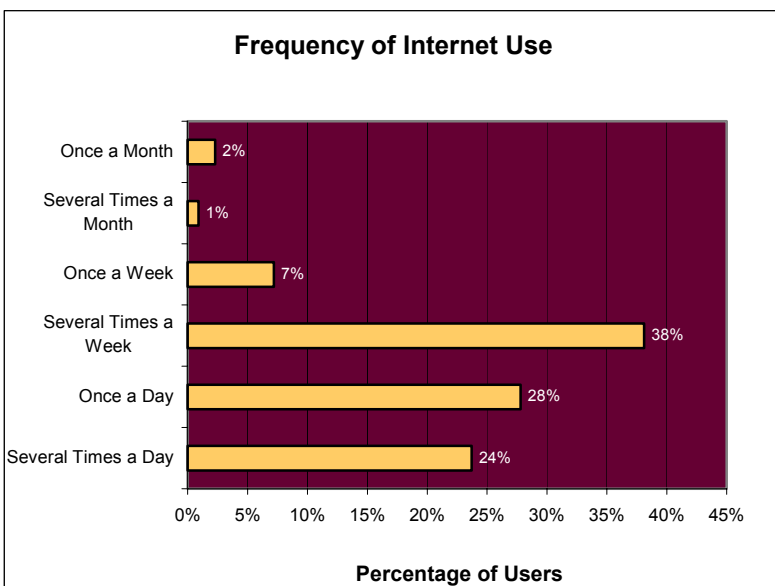
The estimated weekly exposure to the Internet varies from as little as 1 hour to over 20 hours. Approximately 42 percent of Internet users have weekly Internet exposure for anywhere between 5 to 9 hours. A small percentage of Internet users, just over seven percent, have over 20 hours of weekly use of the Internet.

Weekly Exposure to the Internet

The following chart presents the various purposes of use of the Internet. Email, with about 65 percent of responses, ranks as the most commonly cited reason behind the use of the Internet. Entertainment and real-time communications such as online chat are also frequently cited reasons. An important function and capability of the Internet is the search and retrieval of information. Over 36 percent of Internet users in Lebanon reported the use of the Internet for gathering information for academic research, whereas nearly 25 percent reported the use of the Internet to search and collect information for personal use.
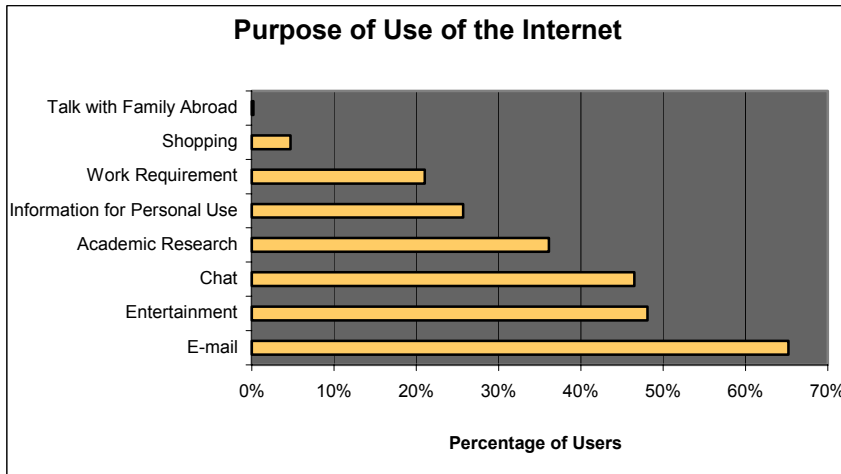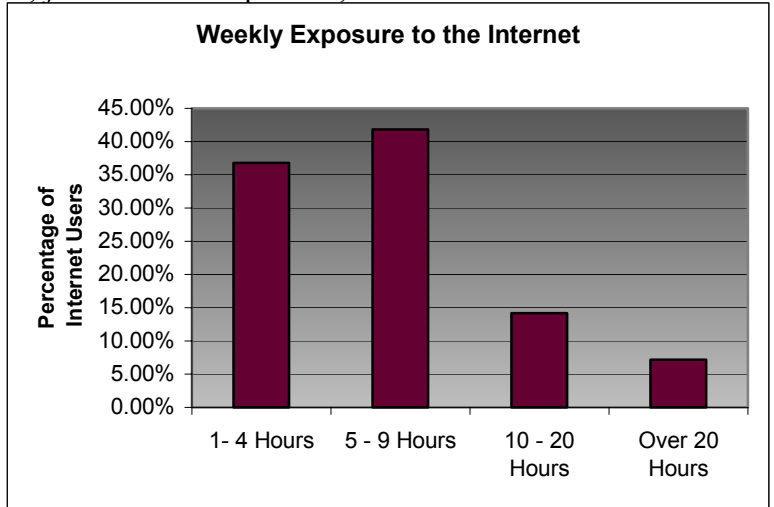
Purpose of Use of the Internet

Internet to search and collect information for personal use.

Diffusion of E-commerce

Despite high levels of computer penetration and reasonable degree of adoption and use of the Internet, e-commerce is yet to gain ground in Lebanon. By the summer of 2004, only nine percent of all Lebanese Internet users shopped online. Shopping through the Internet was sparse all over Lebanon, with no particular region or age group standing out. There was no significant variation in the diffusion of e-commerce even by level of education. These findings indicate the presence of some systemic obstacles that hinder economic transactions using this new medium across user groups.

Percentage of Internet Users Shopping through the Internet
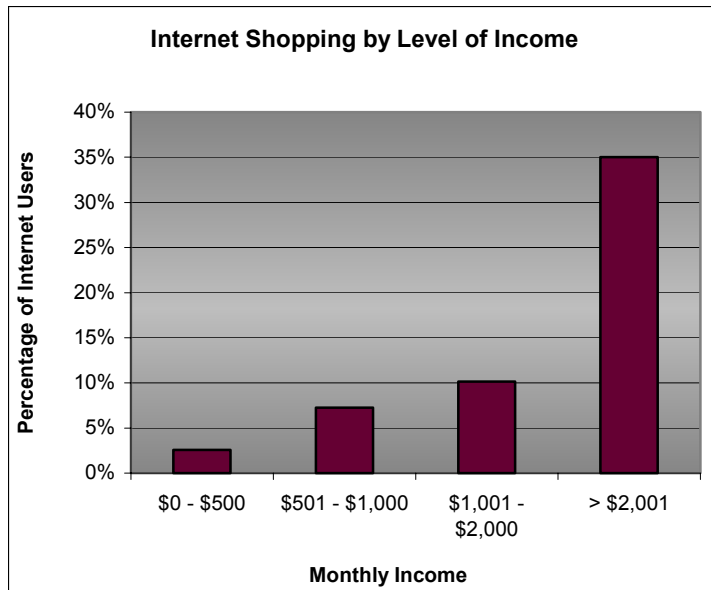
9%

91%

■ Yes ☐ No
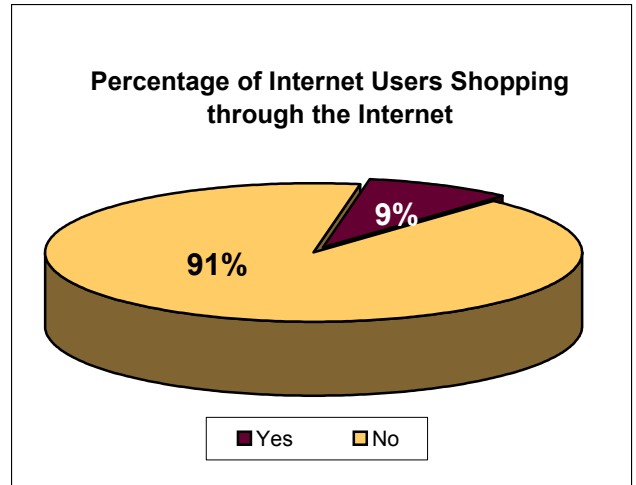
A further examination of the diffusion of e-commerce, however, points to the fact that within the small response base that engaged in shopping through the Internet, the high-income individuals were the most active adopters. Over one-third of Internet users with income over $2,000 per month had shopped online, whereas for all other income groups, less than 10 percent of Internet users shopped online.

Internet Shopping by Level of Income

Percentage of Internet Users

40%
35%
30%
25%
20%
15%
10%
5%
0%

$0 - $500 $501 - $1,000 $1,001 - $2,000   > $2,001

Monthly Income

Books are the most popular products purchased online by Lebanese Internet shoppers. In addition, the limited number of Lebanese Internet users who shop online, also purchase clothes, electronic products and CDs more frequently than cosmetics, software and home appliances.

Goods and Services Purchased on the Internet

Category	
Books	~35%
Clothes	~30%
Electronics	~27%
CDs	~27%
Home Appliances	~7%
Cosmetics	~7%
Airline Tickets	~5%
Web services	~2%
Software	~2%

Percentage of Internet Users

Mode of Payment for Internet Shopping

| Mode	Percentage of Internet Shoppers
Credit Card	~75%
Internet Card	~17%
El Mazad	~5%
Cash On Delivery	~2%
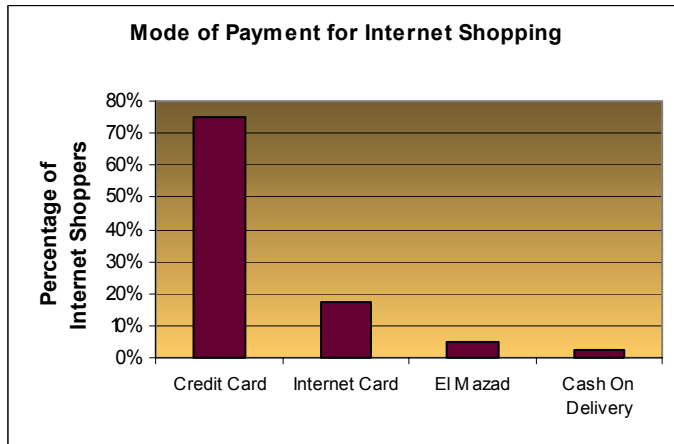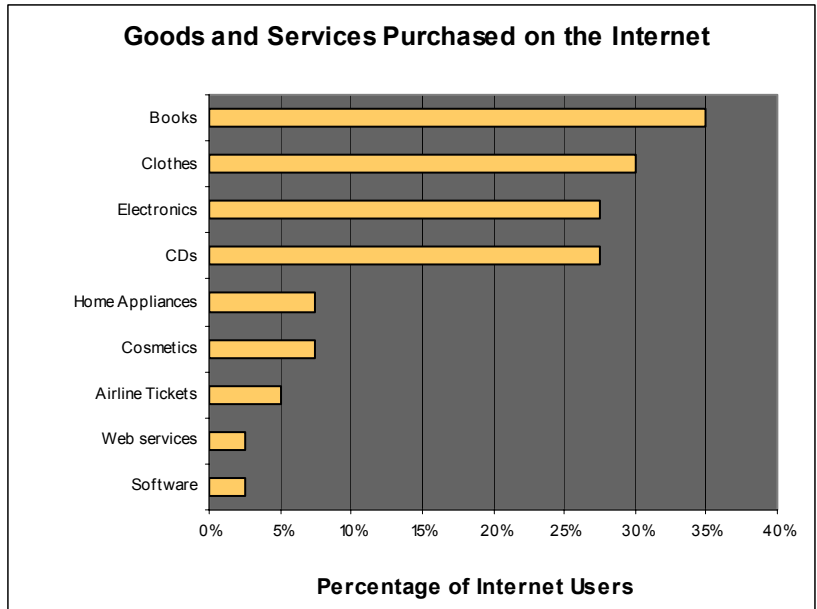
The Internet shoppers use a variety of means for payment of goods and services purchased online. Credit cards, used by 75 percent of Internet shoppers, are the dominant means for payment. Internet cards are a distant second in terms of use by number of shoppers.

Barriers to the Diffusion of ICTs

Developing countries continue to face serious challenges to the diffusion of information and communications technologies. This survey of individual and corporate consumers of ICTs identified common perception of barriers to diffusion of these technologies in Lebanon. The survey collected vital information on four critical aspects: barriers to the use of computers, barriers to the adoption of the Internet, barriers to the diffusion of e-commerce and piracy. Findings point to important observations regarding the reasons for slow adoption and diffusion of ICTs. While a

detailed analysis of these issues is beyond the scope of this report, it is hoped that these observations will be used to inform policy discourse in Lebanon in the future.

First, the survey asked the individual participants who did not use the computer, their reasons for not using it. A majority of non-users of computer (nearly half of all non-users) indicated that they did not know how to use the computer. Lack of knowledge is followed by lack of resources as the second most common reason for not using the computer. Over a quarter of the non-users who responded to this survey did not own or did not have resources to access a computer.

Barriers to the Use of Computer
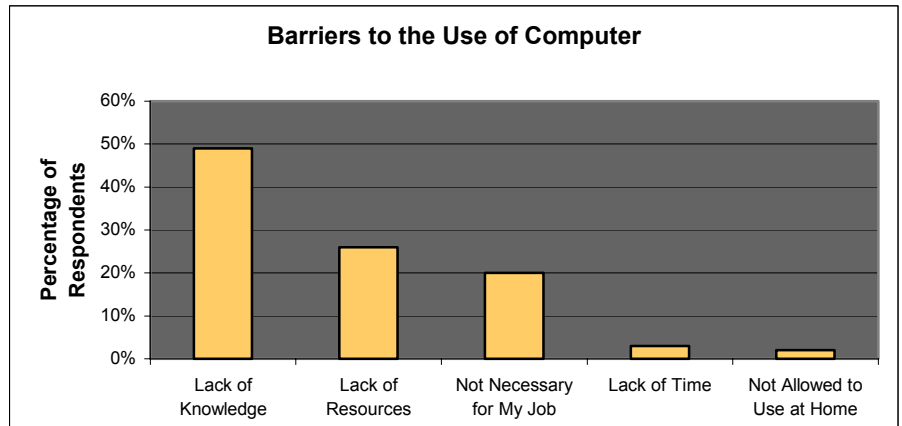
Second, the survey asked the computer users who also used the Internet, their perception of the cost of using the Internet. Over 47 percent of Internet users felt the cost of using the Internet as "high," compared to only four percent who viewed the cost as "low." Nearly 43 percent of users consider charges for using the Internet to be "fair." These perceptions hold across user groups, with notable variation by location from where the Internet is accessed. For example, among users who access the Internet at work, 58 percent perceive the cost of using the Internet is high. Similarly, over 57 percent of users who access the Internet from home perceive the cost to be high. On the other hand, only 37
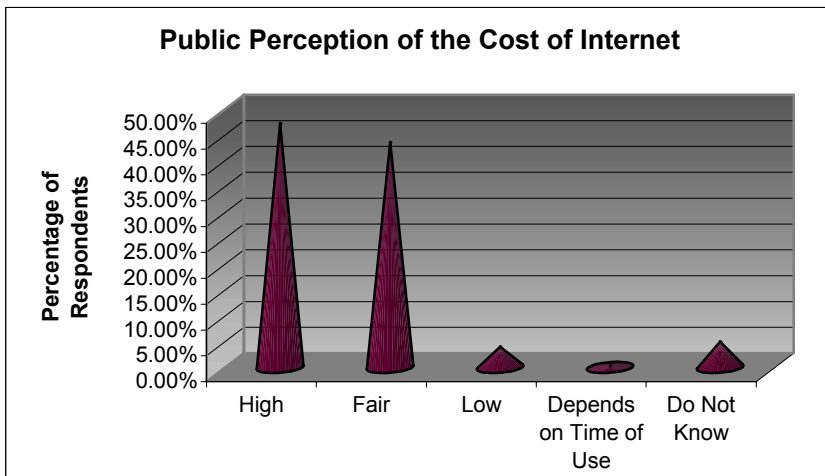
Public Perception of the Cost of Internet

percent of users accessing the Internet from Internet Cafes perceive the costs to be high. It is observed that half of all users accessing the Internet from Inter Cafes feel that Internet access is fairly priced.
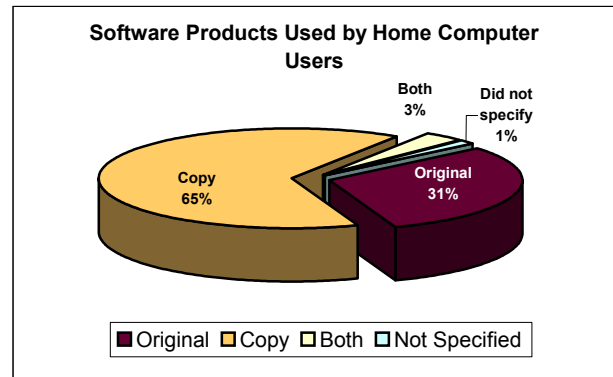
Third, the survey asked the Internet users who shop online, about their concerns of invasion of privacy while engaging in e-commerce. A vast majority (72 percent) of those respondents indicated that they were worried about the theft and misuse of their personal information including details of their credit cards.

Percentage of Internet Shoppers Worried About Invasion of Privacy

72% 28%

■ Yes □ No
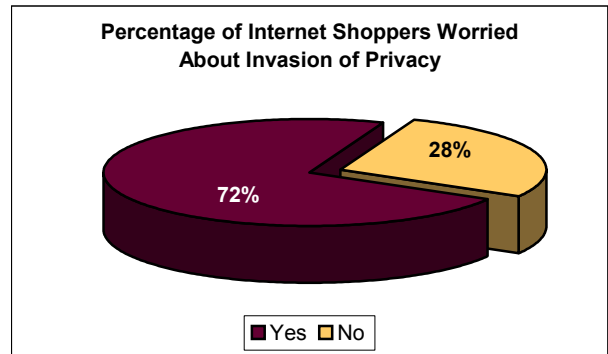
And finally, the survey asked all home users of computer about their use of pirated software. A majority of respondents (65 percent) indicated they acquired and used pirated products whereas only 31 percent indicated the use of original products. About three percent use a mix of original and copies of software.

Software Products Used by Home Computer Users

Both 3%   Did not specify 1%

Copy 65%   Original 31%

■ Original □ Copy □ Both □ Not Specified

Key Findings of the Corporate User Survey

Use of Software

In order to understand the patterns of use of ICTs in businesses, the survey asked detailed questions on use of specific products and brands. For example, a company's use of certain operating system software may depend on its core business functions as well as on any additional, peripheral functions the firm engages in. Firms often choose different software and hardware for these functions because ICT products vary in terms of technical features and cost-efficiency trade-offs.

The survey finds that Windows 2000 is the most popular operating system in Lebanon for core business functions, followed by Windows XP, and Windows NT. Linux ranks number four preferred operating system for core functions. A similar trend is also observed for operating systems used in peripheral business functions, although with percentage of responses in favor of each product varying from those observed in case of core functions.

Top 10 Operating Systems Used By Companies
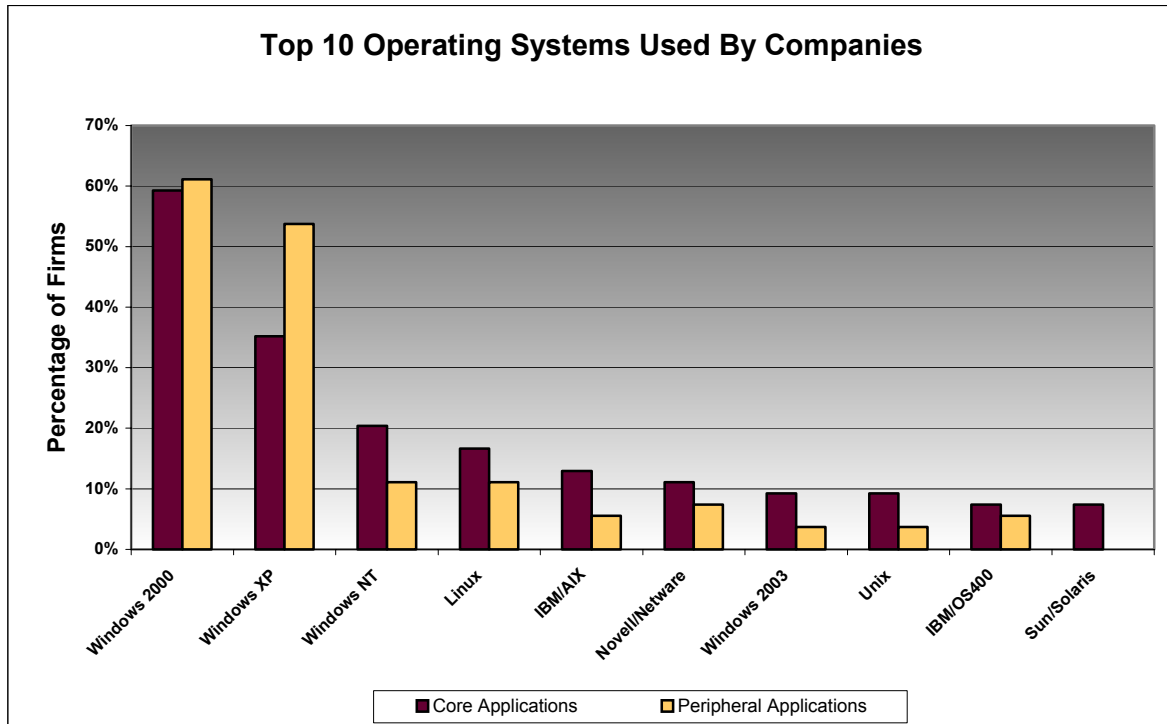
An almost identical pattern is observed with regard to server software used by Lebanese companies. Windows 2000 leads the pack with 63 percent of responses, followed by Windows NT (20 percent), Windows XP (19 percent) and Linux (13 percent).

Among office application software, Microsoft Office ranks very high with 94 percent of respondents indicating use. The top products used by businesses are presented in the following chart.
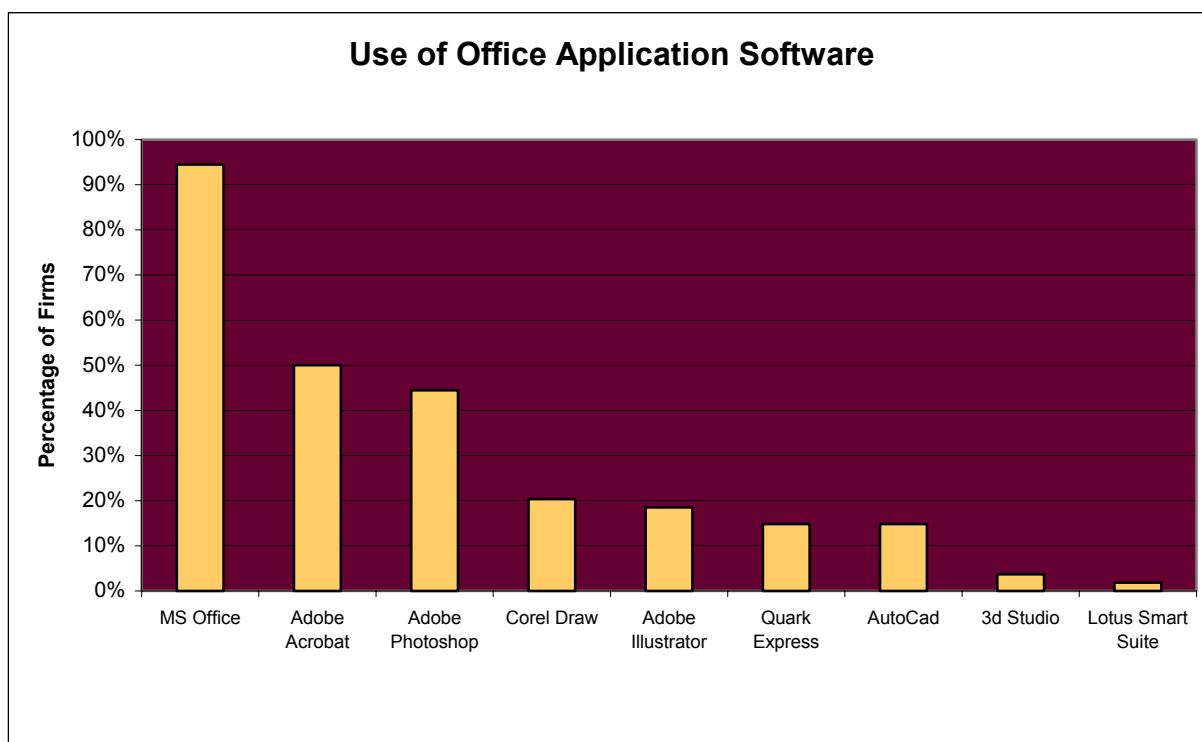
Use of Office Application Software

Percentage of Firms

Software	
MS Office	~95%
Adobe Acrobat	~50%
Adobe Photoshop	~44%
Corel Draw	~20%
Adobe Illustrator	~18%
Quark Express	~15%
AutoCad	~15%
3d Studio	~3%
Lotus Smart Suite	~2%

Approximately 83 percent of participating firms reported use of some database application along with core ICT applications. Microsoft SQL Server was the most widely used database software (40 percent), followed by MS Access (37 percent) and Oracle products (19 percent). For peripheral applications, nearly 46 percent reported use of MS Access, followed by 39 percent using MS SQL Server.

The survey asked respondents about their use of various security software products. While all respondents reported their companies used anti-virus software, over 72 percent reported use of Symantec anti-virus products. Network Associates (nine percent) and Trend Micro (seven percent) were the other two leading suppliers of anti-virus software. With regard to network security, nearly 60 percent of respondents reported the use of some network security software. Cisco's network security software products were the most popular, followed by products from 3Com (11 percent) and Network Associates (8 percent). Nearly 30 percent of respondents reported the use of some transaction security software.

Verisign (11 percent), GlobalSign (seven percent) and RSA (four percent) were reported to be the three leading suppliers.

Only about 30 percent of Lebanese companies report use of help desk software. These companies use a variety of help desk software and no particular product is reported to have clear market leadership.

A quarter of firms surveyed use network management software. Network Associates (11 percent) and HP Openview (7 percent) are the two leading products in this area. Approximately 38 percent of respondents reported use of storage management software. HP (13 percent), Computer Associates (9 percent), Veritas (9 percent) and Tivoli (four percent) are the leading storage management products.

The survey asked participants about their use of e-mail management software, both at the client side and the server side. While respondents reported at least ten products, Mdaemon (15 percent), Sun Netscape (4 percent) and Lotus Domino (4 percent) were the most popular. On the client side, MS Outlook was the most widely used (72 percent), followed by Netscape (11 percent).

Among packaged software applications, human resource management software (25 percent), archiving and document management software (19 percent), customer relationship management software (seven percent), and enterprise resource planning packages (seven percent) were popular applications.
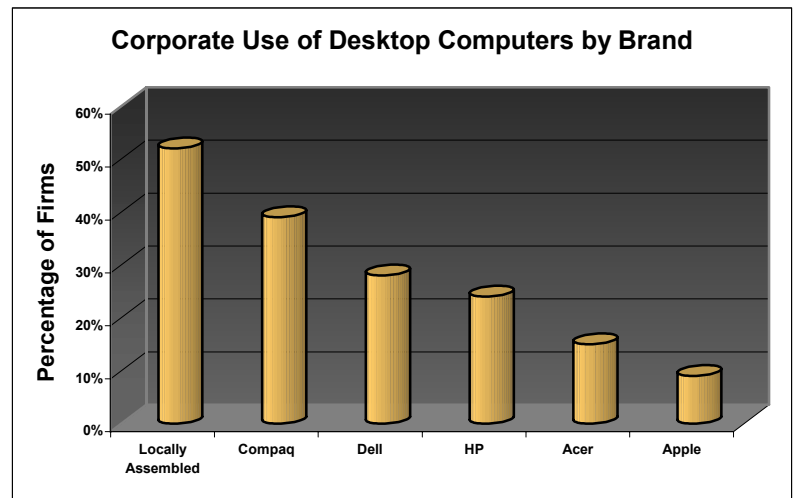
Corporate IT systems use applications in at least three major languages. English is the most commonly used language (96 percent). In

Languages Used by Corporate ICT Users
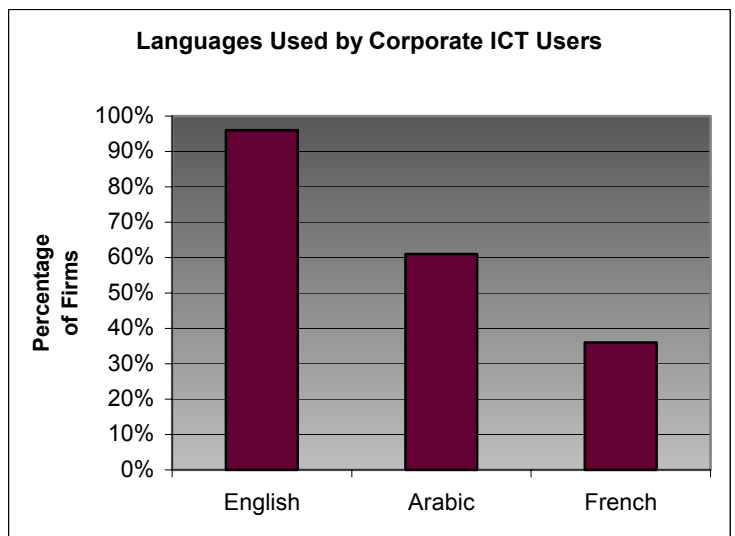
addition, over 60 percent of respondents reported use of some applications in Arabic, and 36 percent reported applications in French.

Use of Hardware

Participating firms reported a wide range in terms of number of computers used by their organization. The minimum number of computers reported was four, and the maximum number reported was 1,042. In the absence of a wider sample and detailed data in each industry sector, it is difficult to estimate the size of the corporate demand for computers or market share of each brand. However, most respondents reported that

Corporate Use of Desktop Computers by Brand

Percentage of Firms (y-axis): 0%, 10%, 20%, 30%, 40%, 50%, 60%

Brands (x-axis): Locally Assembled, Compaq, Dell, HP, Acer, Apple

their organization owned desktop and laptop computers of various competing brands.

In addition to a wide range of desktop computers, all respondents reported the ownership of laptop computers (in the range of one to 54). Over half of participating firms use locally assembled computers. Among branded computers, Compaq, Dell and HP are the three major brands in simple terms of ownership by number of firms.

With regard to laptop computers, most respondents report the ownership of branded computers. With over 39 percent respondents reporting ownership, Toshiba emerges as the top brand for corporate ICT users. Dell (31 percent), and Compaq (28 percent) rank as second and third top brands in laptop computers.

Corporate Use of Laptop Computers by Brand
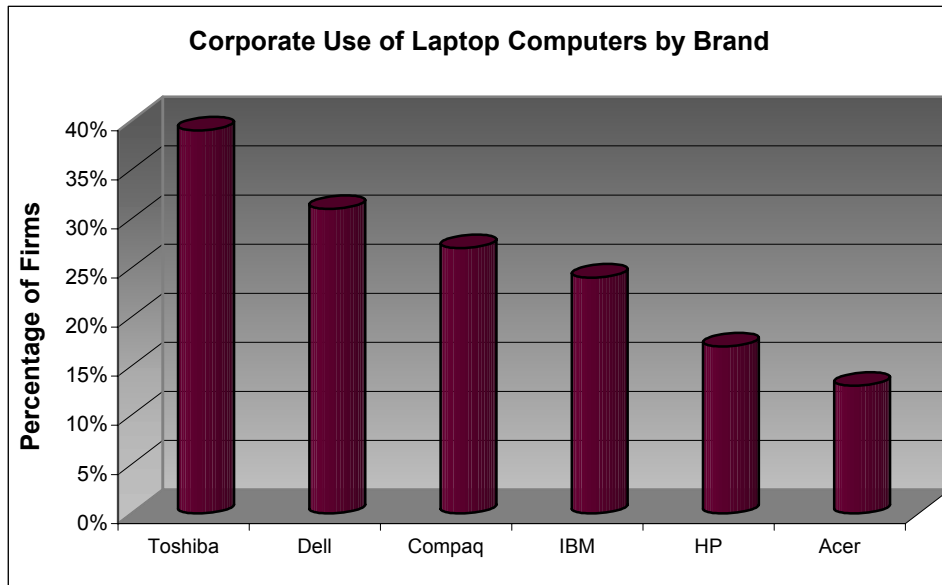
Nearly 78 percent of firms have servers. With the exception of just four percent of responses, all servers are reported as branded products. Based on these responses, IBM, Compaq and Dell lead the computer server market.

In the printer market for corporate users, HP is a clear leader (60 percent of respondents), followed by Epson and Canon. However, in the scanner segment, HP, Canon and AGFA are the leading brands.

Adoption and Use of the Internet

Based on the aggregate response to this pilot survey, Lebanese companies seem to have good web presence, when measured simply by the number of corporate websites. A majority (over 80 percent) of the companies surveyed have a website, 10 percent are planning to have a website soon, while the rest, comprising a small percentage of companies, do not have any plans for creating a website. However, most of the websites are reported to have basic information about the company and have not developed into advanced mechanisms for e-commerce. This chart presents the distribution of firms with a website by the intended purpose of the website.

Purpose of Company's Website
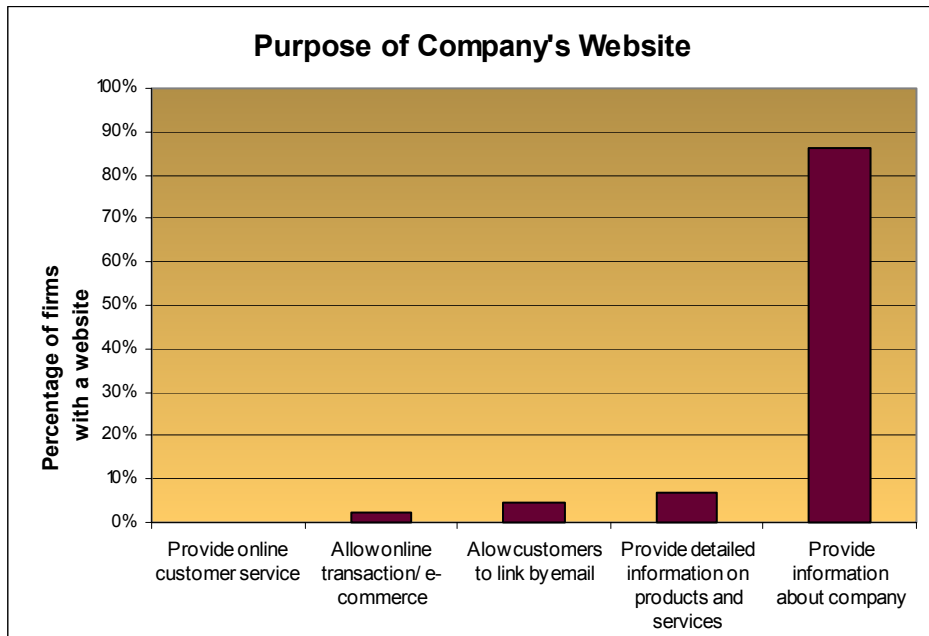
Many of the firms surveyed have a liberal Internet usage policy for their employees. Over 44 percent of participating firms provide access to the Internet to all of their employees, while an additional 43 percent provide Internet access to some employees. Only about 11 percent of firms do not allow Internet access at work. Most of the firms that do not provide Internet access cite "work does not require Internet usage" as the reason for this restriction. Among the firms that provide Internet access to either all or some employees, nearly 60 percent allow unrestricted access to any site for any length of time. Approximately 23 percent of firms provide access that is limited to certain sites, whereas six percent of those firms restrict the access by number of hours.

Access to the Internet at Work
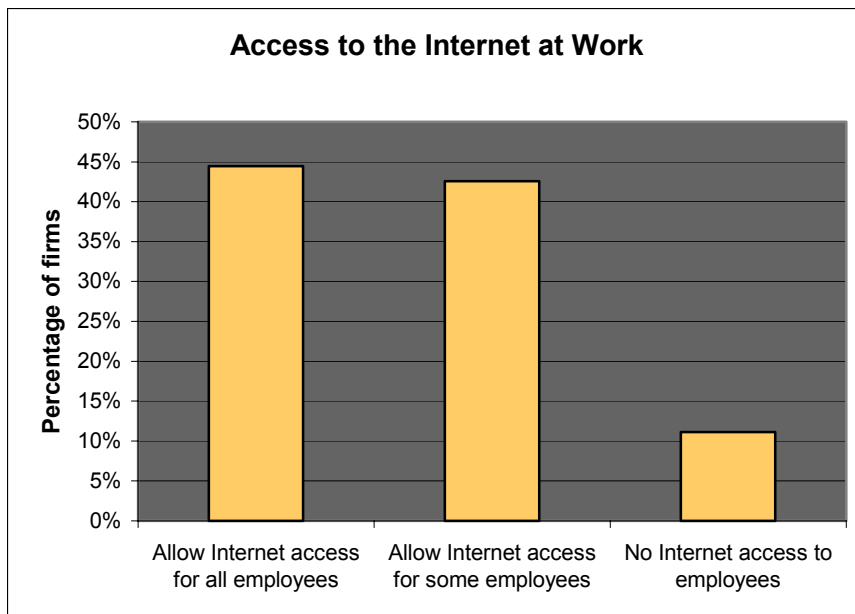
Leased line is the most preferred mode of enterprise-wide access to the Internet. While 47 percent of respondents indicate the use of leased lines, dial-up ranks as the second most popular means with almost 42 percent of response. Retail broadband, used by only 11 percent of participating firms is not a popular means of Internet access for companies. Based on the responses of participating managers, IDM is the most popular provider

Mode of Internet Access

of Internet services (47 percent), followed by Sodetel (21 percent), Cyberia (15 percent), and Terranet (9 percent).

Wireless-Enabled IT Infrastructure

No 73%

Yes 27%
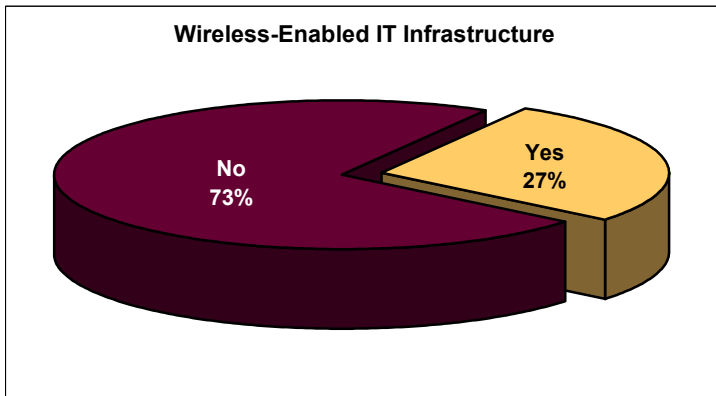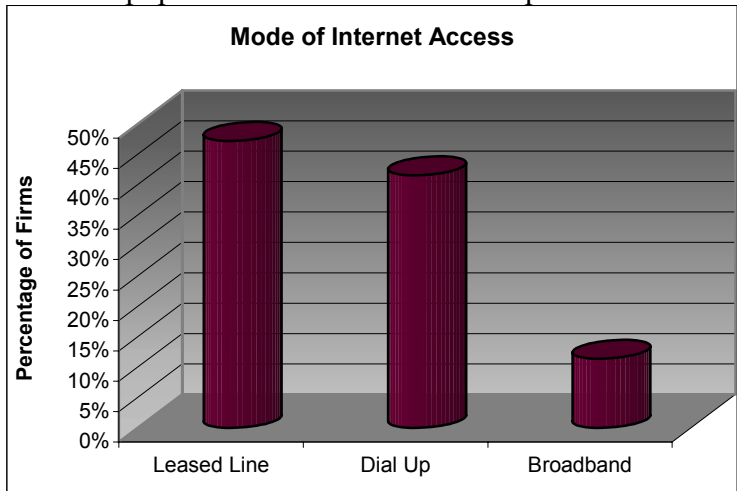
Only about 19 percent of the respondents said their company allows their employees, remote access to their IT system. Nearly 14 percent indicated they are planning to provide remote access in the future, whereas approx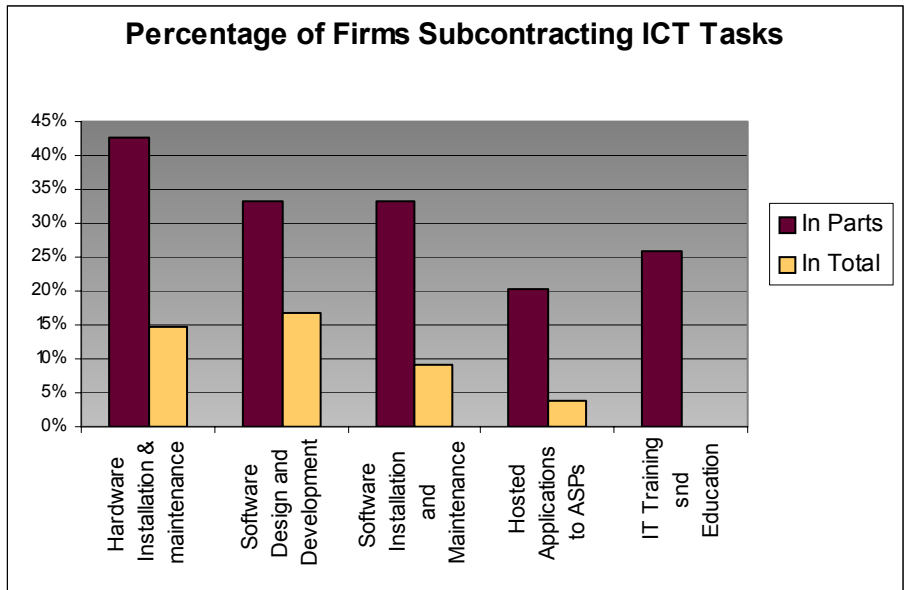imately 60 percent indicated no plans for remote access to employees at the time of this survey. In response to the question of wireless infrastructure, only 27 percent of the surveyed companies indicated that their IT systems are wireless-enabled.

## Organizational Structure and ICT Decision Making

A majority of respondents (74 percent) reported the existence of an IT department in their company. The size of the IT department varied from one person to 40 persons, depending on the overall size of the firm and the core business they operated in. Dealing with ICT vendors to select and procure software and hardware, installation and upgrade of system software and application software for other employees were the most frequently cited activity of the IT department.

Percentage of Firms Subcontracting ICT Tasks

Over 63 percent of participating firms reported subcontracting of IT systems design, development or maintenance work to specialized, third party service providers. Hardware installation and maintenance tasks are the most commonly subcontracted activities (57 percent of respondents), followed by software design and development (50 percent), and software installation and maintenance (43 percent). However, a closer look at the responses reveals different intensity of activities with regard to subcontracting of total systems versus partial systems. The following chart presents these differences for each category of ICT activities.

**Companies Having Annual ICT Budget**

No 66%
Yes 34%
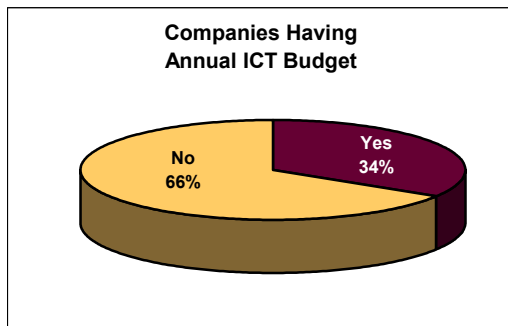
In relation to the subject of investment in ICTs, only 34 percent of the responding managers indicated that they have annual budgets for ICT activities. For most companies in Lebanon, ICT-related procurement decisions are taken on an "as and when needed" basis.

Given that a majority of the respondents (66 percent) do not have an annual investment plan and a larger percentage of firms (74 percent)

reported procuring ICTs as and when needed, ICTs do not seem to be a priority item on Lebanon's corporate strategy yet.

Frequency of ICT Procurement
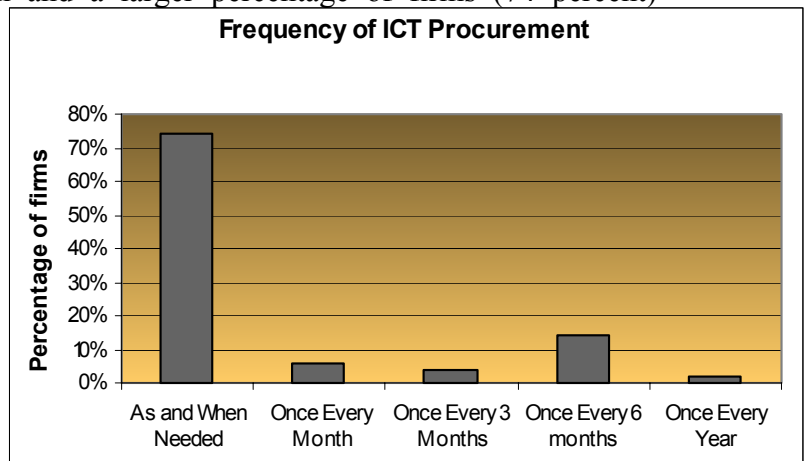
Use of pirated products by businesses is often reported to be rampant in developing economies. This survey asked the participating managers to indicate their firm's use of pirated products. Nearly 26 percent of the responding firms indicated that they purchased
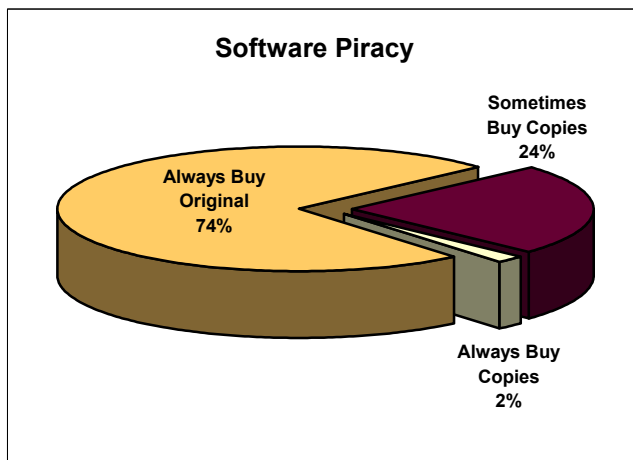
pirated software for their firms. Of those who purchased original software, 24 percent indicated that the actual number of users exceeded the allowed numbers under the license. As compared to piracy rates reported by individual consumers (68 percent), piracy reported by corporate users in this study is low. These numbers differ from other estimates published by research and advocacy organizations

recently[4]. The reason may be a combination of the small sample size and lower response rate observed in this pilot study, and any improvement in Lebanon's business environment in the recent period.

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[4] The Global Piracy Study conducted in 2003 by IDC and published by the Business Software Alliance estimated the overall piracy rate in Lebanon at 74 percent and the value of pirated software at $22.2 million. This study did not present piracy rates for organizations and individual ICT users separately.

APPENDICES

A - Distribution of Individual Respondents

B - Sector-wise Distribution of Companies

C - Occupational Distribution of Respondents

APPENDIX – A

Distribution of Individual Respondents by *cazas*

Caza	Number of Questionnaires Administered	Caza	Number of Questionnaires Administered
North Lebanon	193	South Lebanon	188
Akkar	64	Tyre	69
Tripoli	50	Saida	66
Zghorta	33		
Koura	17	Bekaa	139
Batroun	29	Baalbeck	85
Mount Lebanon	220	Zable	54
Jbeil	24	Beirut	125
Keserwan	31	District 1	40
Metn	57	District'2	41
Baabda	53	District 3	44
Chouf	55	Nabatieh	53
Total Number of Questionnaires Administered			**865**

APPENDIX - B

Sector-wise Distribution of Companies in the Corporate User Survey Sample and Response Base

Sector	Number of Companies in the Survey Sample	Number of Responding Companies
Banking	15	6
Consulting Services (Financial, Insurance, Legal, Marketing)	15	13
Tourism	15	5
Information Technology	10	8
Manufacturing	10	3
Retail and General Trade	10	4
Agriculture	5	1
Communications	5	3
Education	5	5
Healthcare	5	3
Media (Publishing, Printing, Electronic)	5	3

APPENDIX - C

Occupational Distribution of Respondents Reporting Employment

Occupation	Percentage of Respondents Reporting Employment
Managers	4 %
Professionals	8 %
Technical and Mid-level	21 %
Administrative	33 %
Skilled Labor	19%
Unskilled Labor	2 %
Armed Forces	2 %
Self Employment	11 %