EXECUTIVE SUMMARY

Introduction

The knowledge-based economy, powered by information and communications technology (infocomm), has become a driver for economic development. Facing the transition towards an information and knowledge economy, the possession of the infocomm skills are becoming more essential and vital. By harnessing the power and the potential of infocomm, Singapore will be able to magnify the abilities and talents of its human resources.

Objective

The 2000 Infocomm Literacy Survey is one of the world's first ever studies on national infocomm literacy level conducted by the Infocomm Development Authority of Singapore (IDA). The objective of the study is to examine the population's level of infocomm literacy, infocomm savviness and e-business savviness in the usage of infocomm applications and services.

Survey Methodology

The survey was conducted by Research International Asia on behalf of IDA. The survey was launched in November 2000 and covered a representative sample of 2,000 Singaporeans and Permanent Residents, aged 15 to 69 years, stratified by employment status, gender, age group and ethnicity.

Highlights of Findings

- The results indicated that age, education level, language, level of affluence and occupation are important factors with relation to infocomm literacy level.

- The non-infocomm literate group accounts for 53% of the residential population. They are generally older, are married, have minimal education and less affluent. They are also found to be not attending any infocomm courses.

- Of the 47% of residential population who are at least infocomm literate, about 9% of them are infocomm literate only. They are likely to be having N/O levels qualifications, are married and in the workforce. Lack of time is the most commonly reason cited for not attending infocomm courses.

- Making up 32% of the residential population, the infocomm savvy group is a testimony to Singapore's drive towards building a knowledge-based economy in a wired and intelligent island. While competent in the use of infocomm appliances, they lack the skills and knowledge in more complex infocomm applications. However, their general willingness to try out new technology has exposed them to many new internet activities such as Internet Banking and Internet Shopping.

- The e-business savvy group has the best knowledge of infocomm appliance and applications, but they comprise only 6% of the residential population. Across the 4 levels of infocomm literacy, this group demonstrates the highest usage of infocomm appliances, internet activities, general office applications and industry-specific activities. Their familiarity with e-commerce issues is also unsurpassed by the other groups. Between the age of 30 to 39 years old, this group would likely be the ones to carry Singapore into the digital age.

1. INTRODUCTION

1.1 Background

Singapore aims at harnessing infocomm technologies for national competitiveness and improving our quality of life. The Infocomm Development Authority of Singapore (IDA) endeavours to develop a pool of infocomm literate population to drive Singapore's competitive edge in the international arena.

To meet this aim, there is a need to understand the current infocomm literacy level of Singapore's population to enable the formulation of essential manpower development policies to drive Singapore forward in building an infocomm savvy society to reap the benefits of an e-lifestyle and workforce competitiveness.

1.2 Objective

The objective of the survey is:

- To determine the Singapore's residential population's level of
  - non-infocomm literacy,
  - infocomm literacy,
  - infocomm savviness, and
  - e-business savviness.

2. SURVEY FRAMEWORK

2.1 Definitions

At present, there has not been any comprehensive study on infocomm literacy conducted by any country in the world. This study is thus one of the world's first studies on national infocomm literacy level.

The following predetermined definitions were adopted for the survey:

- Infocomm Literacy refers to the adoption of infocomm applications and services, specifically the ability to perform online transactions such as e-learning; e-transactions (e.g. Internet shopping, Internet banking) and e-entertainment (e.g. downloading entertainment software) as part of an e-lifestyle
- Infocomm Literate (L1) is defined as knowing how to use and be competent in at least one online transaction (e.g. e-filing and internet shopping) as part of an e-lifestyle.
- Infocomm Savvy (L2) is defined as both being "infocomm literate" and knowing how to use and be competent in at least four general office applications (e.g. productivity tools, workgroup computing and e-commerce) to increase productivity.
- E-business Savvy (L3) is defined as both being "infocomm savvy" and knowing how to use and be competent in at least one industry specific application (e.g. ERP and CAD) and have sufficient general knowledge (in at least 3 areas) of general knowledge of e-business development and management for business competitiveness.
- Non-infocomm Literate (Ln) refers to those who do not fall into any of the above groups (e.g. those who do not know how to use, or who know how to use but not using infocomm applications and services).

2.2 Sampling Methodology

A random sampling of the residential population in Singapore, both Singaporeans and Permanent Residents, aged between 15 to 69 years, was used in the survey. The total sample size of the survey was 2000. Households were randomly selected from the Singapore Telephone Directory, after which a respondent was chosen based on "last birthday" selection. The resident in the household who most recently celebrated his/her birthday was selected to respond to the telephone survey.

The sample was further stratified by employment status, gender, age groups and ethnicity to ensure that it is reflective of the profile of the residential population in Singapore. Booster sampling was conducted for occupations in the teaching, health, legal and government officials to ensure a statistically sound base for analysis.

2.3 Data Collected

The following information was collected to enable qualification of the respondents into the predetermined levels of infocomm literacy:

- Awareness, usage and competency of infocomm appliances.
- Awareness, usage and competency of internet activities.
- Awareness, usage and competency of general office applications.
- Awareness, usage and competency of industry-specific applications.
- Familiarity and involvement in e-business development and management.
- Infocomm course attendance.
- Respondent demographics.

3. THE SINGAPORE RESIDENTIAL POPULATION

3.1 Overview

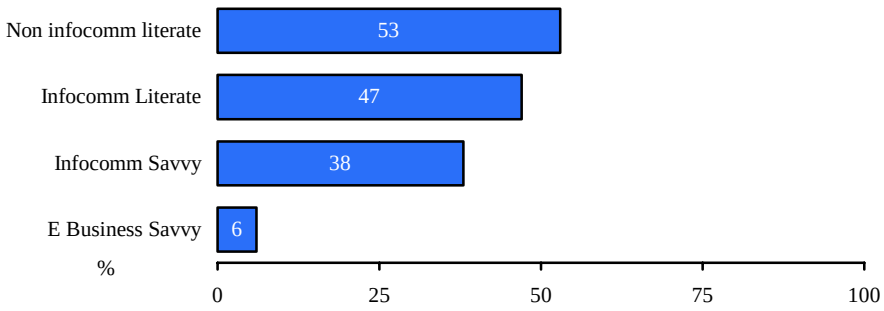


Figure 3.1 Infocomm Literacy Level

Close to half of the residential population (47%) of Singapore are at least infocomm literate. The portion of the non-infocomm literate population is about 53%, slightly more than half of the residential population.

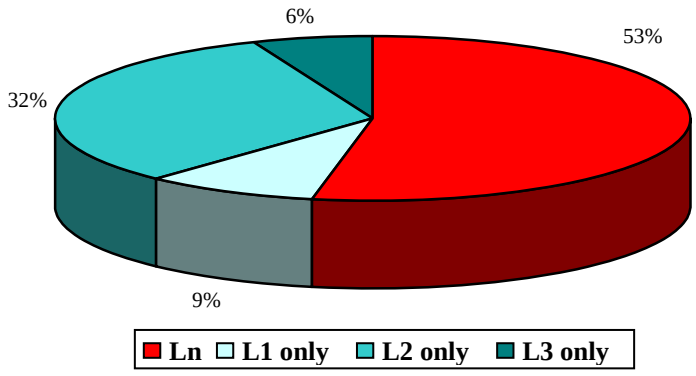


Figure 3.2 Infocomm Literacy Breakdown

For the purpose of the study, the breakdown of infocomm literacy by non-infocomm literate (Ln), infocomm literate (L1) only, infocomm savvy (L2) only and e-business savvy (L3) only [that is, L1 (47%) as illustrated in Figure 3.1 is the sum of L1 only (9%), L2 only (32%) and L3 only (6%) in Figure 3.2] will be used throughout the report.

3.2 Demographics

The study found that younger and higher educated adults are more likely to be infocomm literate. Also, those who are fluent in English are more likely to be infocomm literate[1]. Literacy level generally improves as the type of dwelling improves.

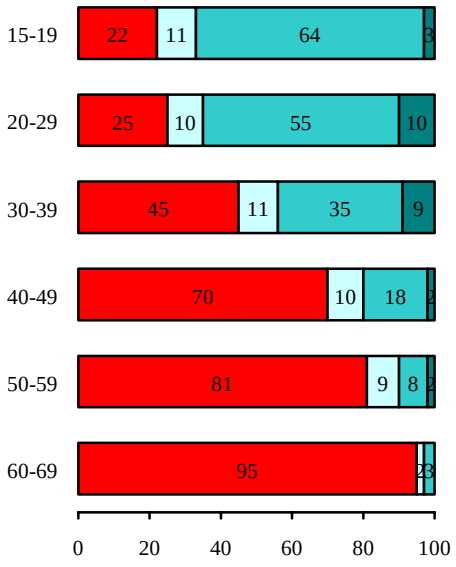


Figure 3.3 Infocomm Literacy by Age

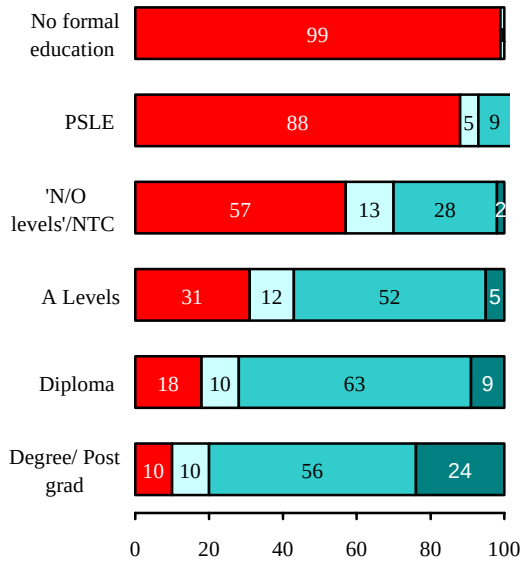


Figure 3.4 Infocomm Literacy by Education

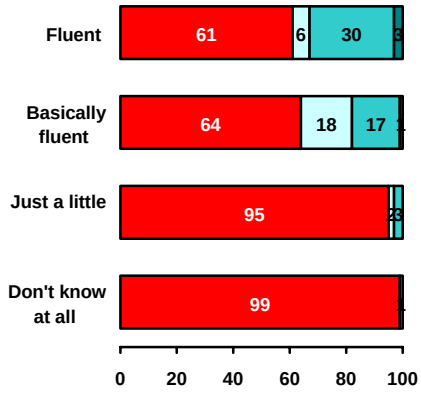


Figure 3.5 Infocomm Literacy by Fluency of English

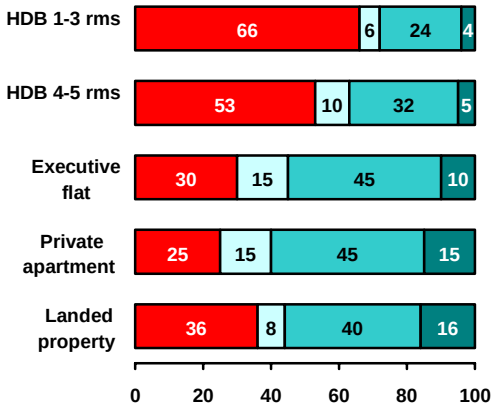
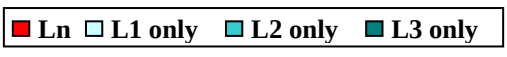


Figure 3.6 Infocomm Literacy by Types of Dwelling



[1] About a third of the respondents completed the survey in a language other than English (i.e. conducted either in Mandarin, Malay or Tamil), and they were required to indicate their fluency in English.

Working adults are more likely to be infocomm literate as compared to non-working adults. The study also shows that the higher the personal monthly income, the higher will be the infocomm literacy.

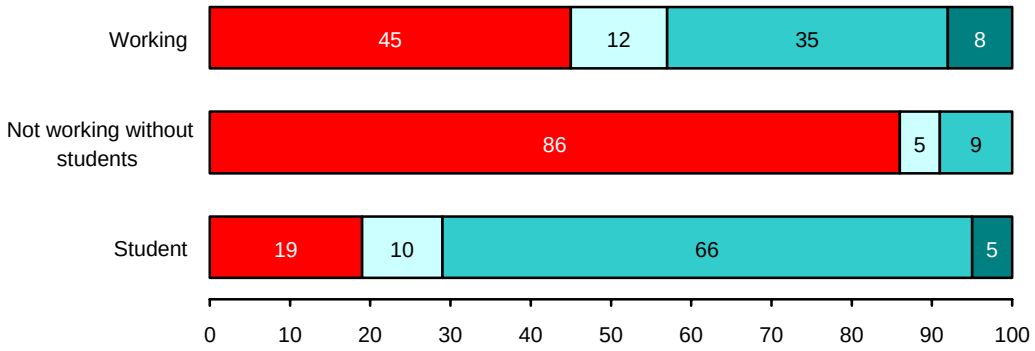


Figure 3.7 Infocomm Literacy by Working Status

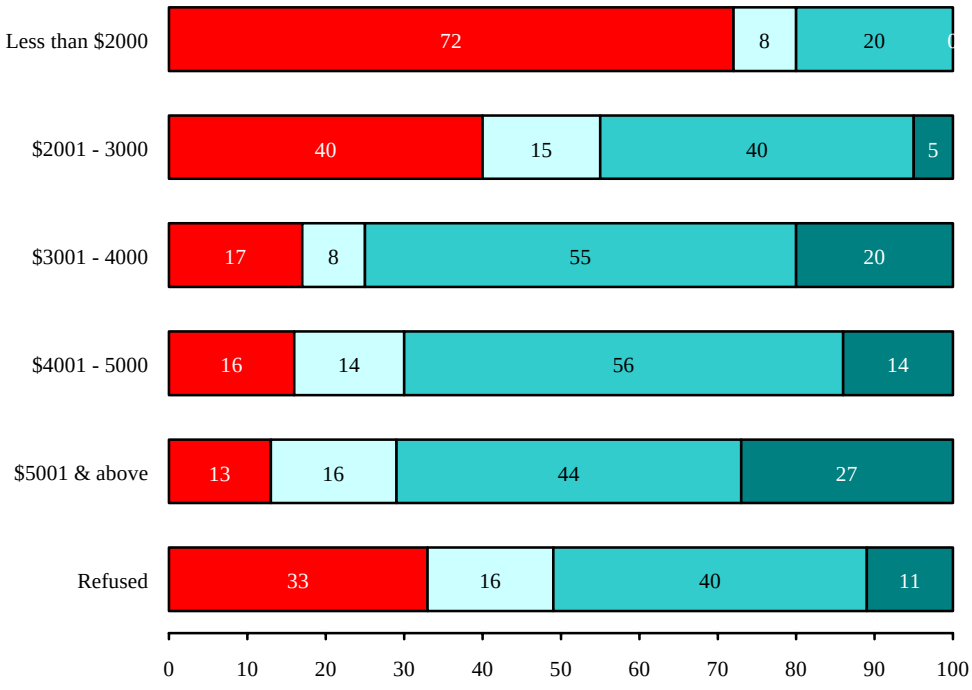
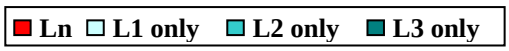


Figure 3.8 Infocomm Literacy by Personal Monthly Income



3.3 Industry Sectors and Occupations

The industry sector with the highest infocomm literacy is the Financial Intermediaries, with 93% found to be at least infocomm literate. Conversely, 78% in the Hotels and Restaurants tend to be non-infocomm literate.

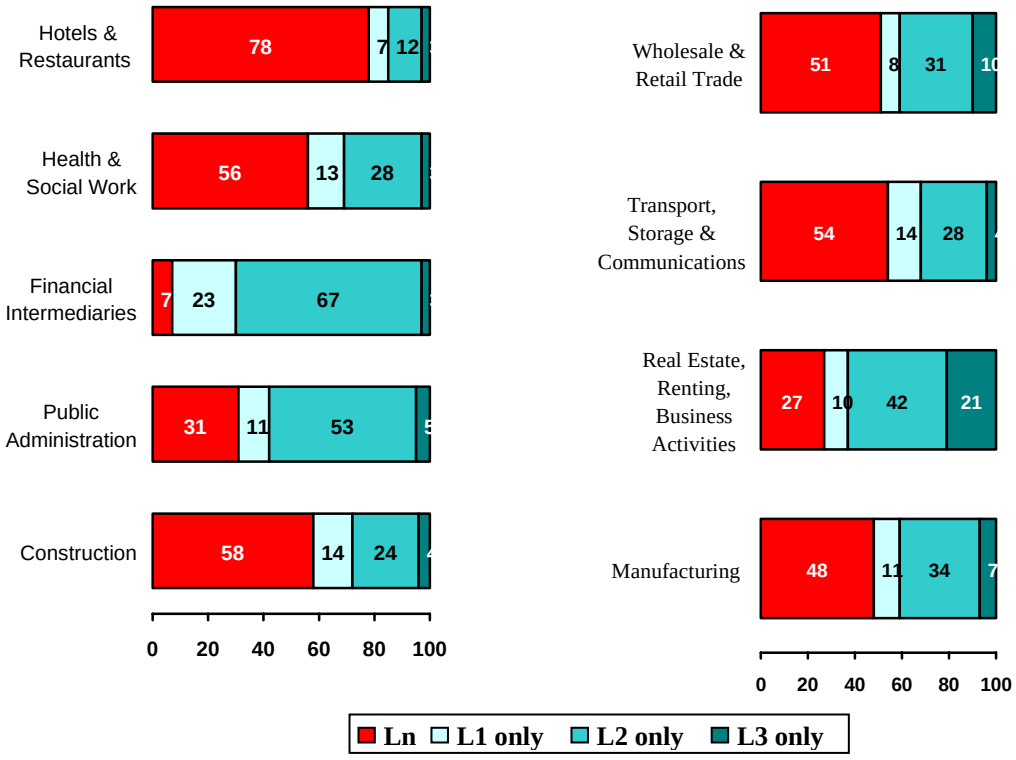


Figure 3.9 Infocomm Literacy by Industry Sectors

IT professionals (51%) and Managers/Directors (21%) are likely to be e-business savvy. Conversely, labourers (89%) and workers (79%) tend to be non-infocomm literate.

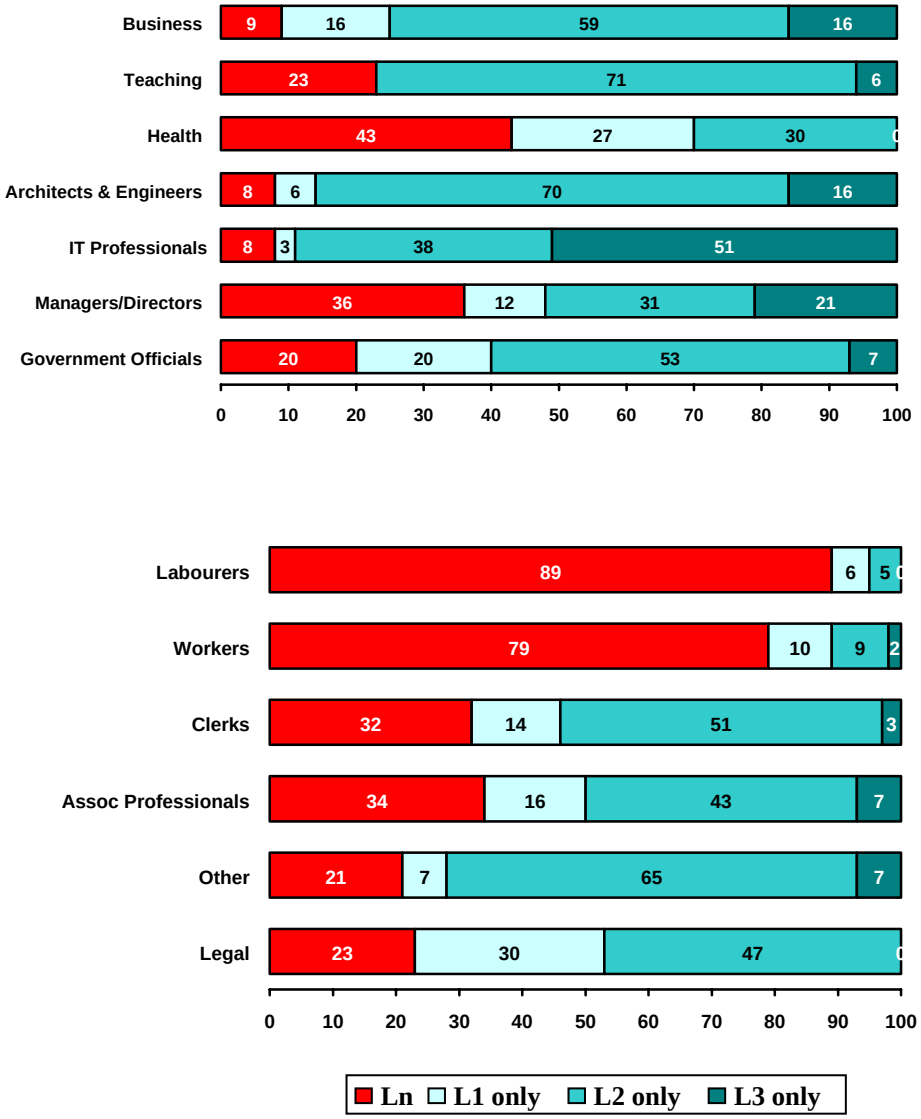


Figure 3.10 Infocomm Literacy by Occupations

3.4 Infocomm Course Attendance

The non-infocomm literate group comprises of only 21% of those who attended infocomm courses. Many of them could be learning infocomm skills to keep up with market demand and to sustain their employability. Yet, it is not surprising that the non-infocomm literate group makes up of 62% of those who did not attend any infocomm courses.

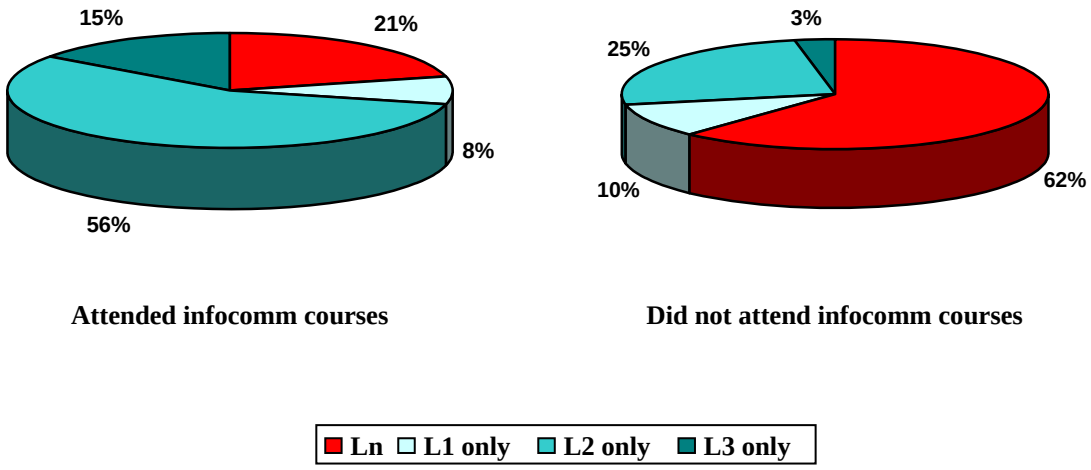


Figure 3.11 Infocomm Literacy by Attendance of Infocomm Courses

3.5 Usage of Infocomm Appliances/Internet Activities

Of the 4 appliances, the usage of Personal Computer (PC) is the highest among the total residential population. The usage rates for the rest [Personal Digital Assistant (PDA), Wireless Application Protocol (WAP) Phone and Web TV] are low (10% or less).

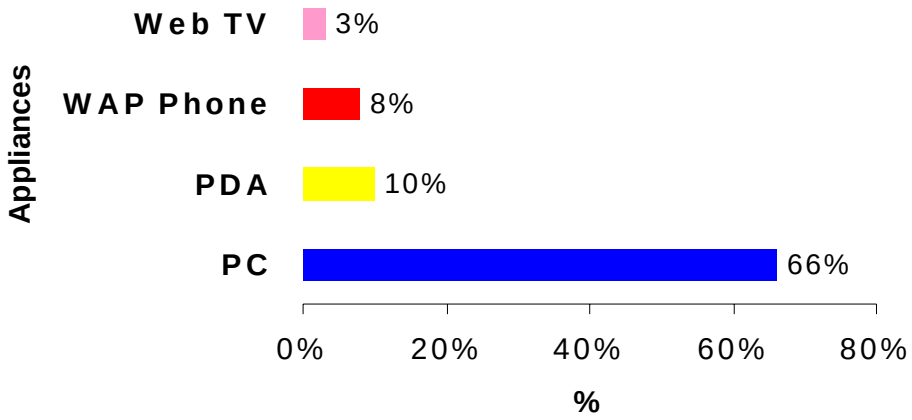


Figure 3.12 Usage of Infocomm Appliances

Emailing is the most commonly used internet activity among the total residential population. The next 2 activities that are most frequently used are information retrieval and online news/ entertainment.

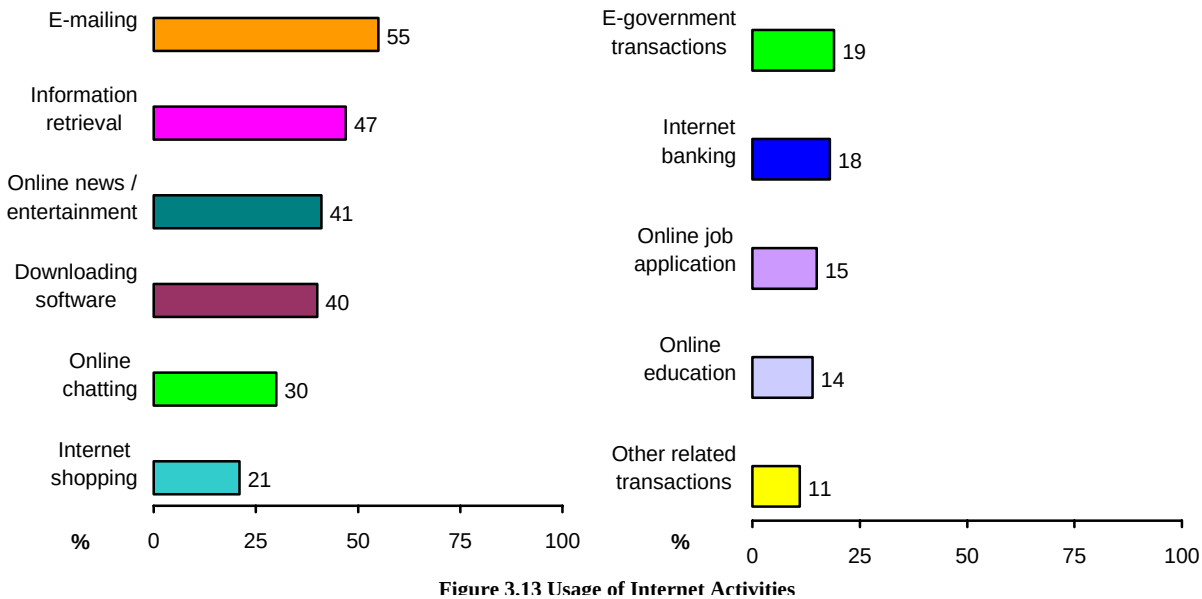


Figure 3.13 Usage of Internet Activities

4. PROFILE BY INFOCOMM LITERACY LEVELS

Each level of infocomm literacy demonstrates some interesting characteristics.

4.1 Non-Infocomm Literate

- About 53% of Singapore's residential population are non-infocomm literate.
- Those aged 50 and above made up 33% of the non-infocomm literate.
- Majority of them are married (76%), and of these, 91% have kids.
- They tend to have lower level of education (49%).
- They are less affluent, living in HDB 1-3 rooms (36%).
- About 46% of them are not working.
- 92% of the non-infocomm literate group are currently not attending courses.
- Only 37% of the non-infocomm literate use PC.
- Generally low usage of the Internet was characterised.

4.2 Infocomm Literate Only

- About 9% of Singapore's residential population are infocomm literate only.
- The average infocomm literate person tends to hold N/O levels qualification or NTC (49%), married (70%) and in the work force (76%).
- About 81% of them are currently not attending any infocomm courses. The key reason cited being the lack of time (41%).
- Almost all of them use PC, and more than half do emailing (88%), information retrieval (67%), software downloading (62%) and online news entertainment (54%).
- The usage of general office applications vary among the infocomm literate group, with 97% performing e-transactions, 77% using word processing and 50% using spreadsheets.

4.3 Infocomm Savvy Only

- About 32% of Singapore's residential population are infocomm savvy only.
- About 82% of the infocomm savvy are Chinese.
- They tend to be younger, under 29 years old (54%).
- 23% are at least diploma holders.
- Working people make up 70% of the infocomm savvy group.
- Majority of the infocomm savvy people are single (55%).
- This group accounts for 56% of those who are attending infocomm courses.
- All of them use PC, while 21% use PDA.
- Usage of internet activities among this group is high, with emailing constituting 97%, information retrieval 88%, software downloading 87% and online news and entertainment 80%.
- More than 90% of them are able to perform e-transactions and use word processing, spreadsheets and presentation software. Slightly more than half of them are able to use database software and graphic tools.

4.4 E-business Savvy

- About 6% of Singapore's residential population are e-business savvy only.
- Males (79%) dominate the e-business savvy group.
- Those aged 30 to 39 made up 43% of the e-business savvy group.
- About 87% of the e-business savvy group are working.
- Education wise, they are likely to be highly educated, having first degree or more (64%).
- They tend to be either a professional (44%) or holding senior positions within a company (23%).
- They are likely to be more affluent with personal income of at least $3000 a month (79%) and live in landed property (11%).
- 58% of them have attended infocomm courses in the past year.

- All e-business savvy group use PC. Only half of them used PDA. Overall, they represent the highest usage of infocomm appliances across the 4 levels of literacy.
- Usage of internet activities is generally very high, with more than 70% of them used emailing, information retrieval, software downloading, online news/entertainment, internet shopping and e-government transactions.
- As compared, low usage rates were found in voice recognition (34%), knowledge management (38%), customer relationship management (40%) and e-scheduling (43%).
- Among the e-business savvy group, usage of Computer Aided Design (CAD) is about 56% and usage of inventory control applications is about 50%.

5. CONCLUSION

The survey findings show that close to half of Singapore's residential population are infocomm literate. The survey also highlights that infocomm literacy is directly related to age, education level, language, level of affluence and occupation of the Singaporean adults.

The survey findings will serve as a significant benchmark for IDA to drive Singapore forward in building an infocomm savvy society where everyone can reap the benefits of an e-lifestyle. Having mapped out the population's infocomm literacy levels, IDA will be able to better address the specific needs of each target group and provide more opportunities to improve infocomm competency.