



ICT usage in Kingdom of Bahrain: Today and the Future Trends

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ABSTRACT

Arab Open University conducted an online survey to determine the degree of adoption of information and communications technologies (ICTs) in Kingdom of Bahrain. The primary objective of this survey is 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 research presents the key findings of this survey, arguing that some suggested metrics have been used oriented to computer, Internet & Smartphone usage in Bahrain, these metrics are related to the individuals whilst others to the national organizations. A number of implications can be drawn from the findings of the survey. However, the scope of this research is not limited to presenting the aggregate response rather than drawing implications for a future strategic action.

Keywords: *ICT adoption and evaluation, ICT management and monitoring, diffusion and barriers of ICT*

I. INTRODUCTION

An ICT system is a set-up consisting of hardware, software, data and the people who use them. It commonly includes communications technology, such as the Internet. ICT consists of computers, mobile phones and software (operating system and applications programs) as shown in Figure (1). Computers are the hardware that is often part of an ICT system. This is why our ICT is not just about computers but about how, why and when people use them. It is the power of computers and communications that has allowed ICT systems to become so important. Like any piece of equipment, the important thing about it is what it lets us do. ICT Systems are used in a number of environments, such as: education, banking, offices, shops, factories, organizations, hospitals as well as in transportations [1][2].

The importance of ICT systems in kingdom of Bahrain that organizations are become more productive by implementing ICT in (innovation, integration, information and automation) as shown in Figure (2), we can complete a greater number of tasks in the same time at reduced cost by using computers than we could prior to their invention able to deal with vast amounts of information and process it quickly able to transmit and receive information rapidly [3][6]. The applications of ICT systems used in Bahrain are: Information Systems, this type of ICT system is focused on managing data and Information, control systems such as in oil industry, these ICT systems mainly control machines and finally as communications systems such as Smartphone, where the output of these ICT systems is the successful transport of data from one place to another as techno-social system.

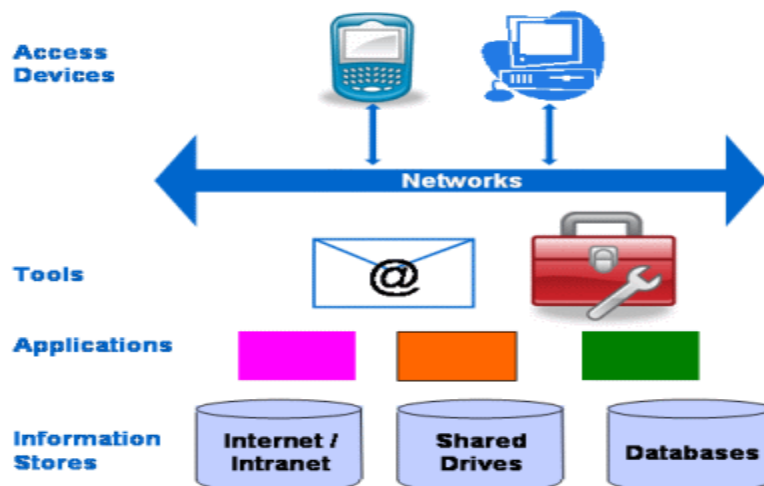


Figure-1: ICT Usage by Individuals in Bahrain

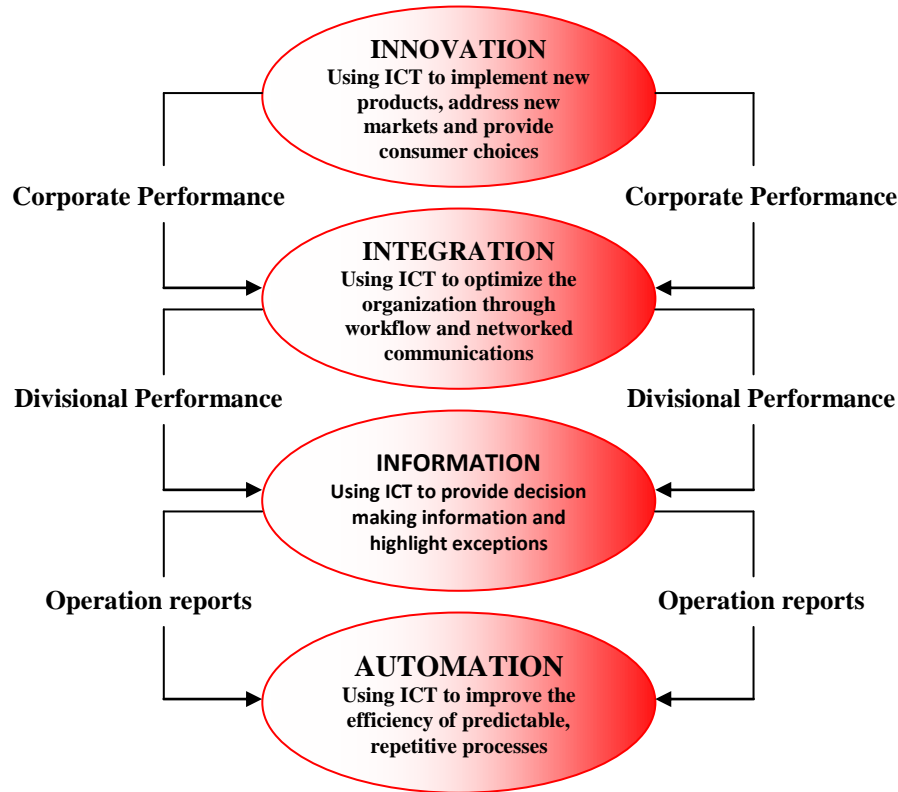


Figure-2: ICT Usage by Organizations in Kingdom of Bahrain

II. METHODOLOGY

This article examines degree and patterns of use of information and communications technologies (ICTs) by Individuals and organizations in Kingdom of Bahrain. Our task is to design and create a general framework about ICT usage in Kingdom of Bahrain according to following metrics oriented to computers, Internet and Smartphone usage, where some questions have been asked using online survey system their answers have been used to evaluate ICT usage based on the response of individuals & organizations in education, banking, oil industry and other private sectors [4][5].

Computers Usages Metrics

- How often usage, where usage, how many owned & brand of computers.
- Types of used operating systems
- Types of implemented applications programs

- Used hardware (printer, removable hard disk).

Internet Usages Metrics

- How often usage, where usage, how long, cost, purpose, speed & type of Internet connections.
- Internet service providers & preferred time to use Internet
- Online shopping

Smart-Phones Usages Metrics

- Internet Access, service provider, How often, how long, cost, purpose, speed & used applications.
- Download through Smartphone.
- Need of ICT training

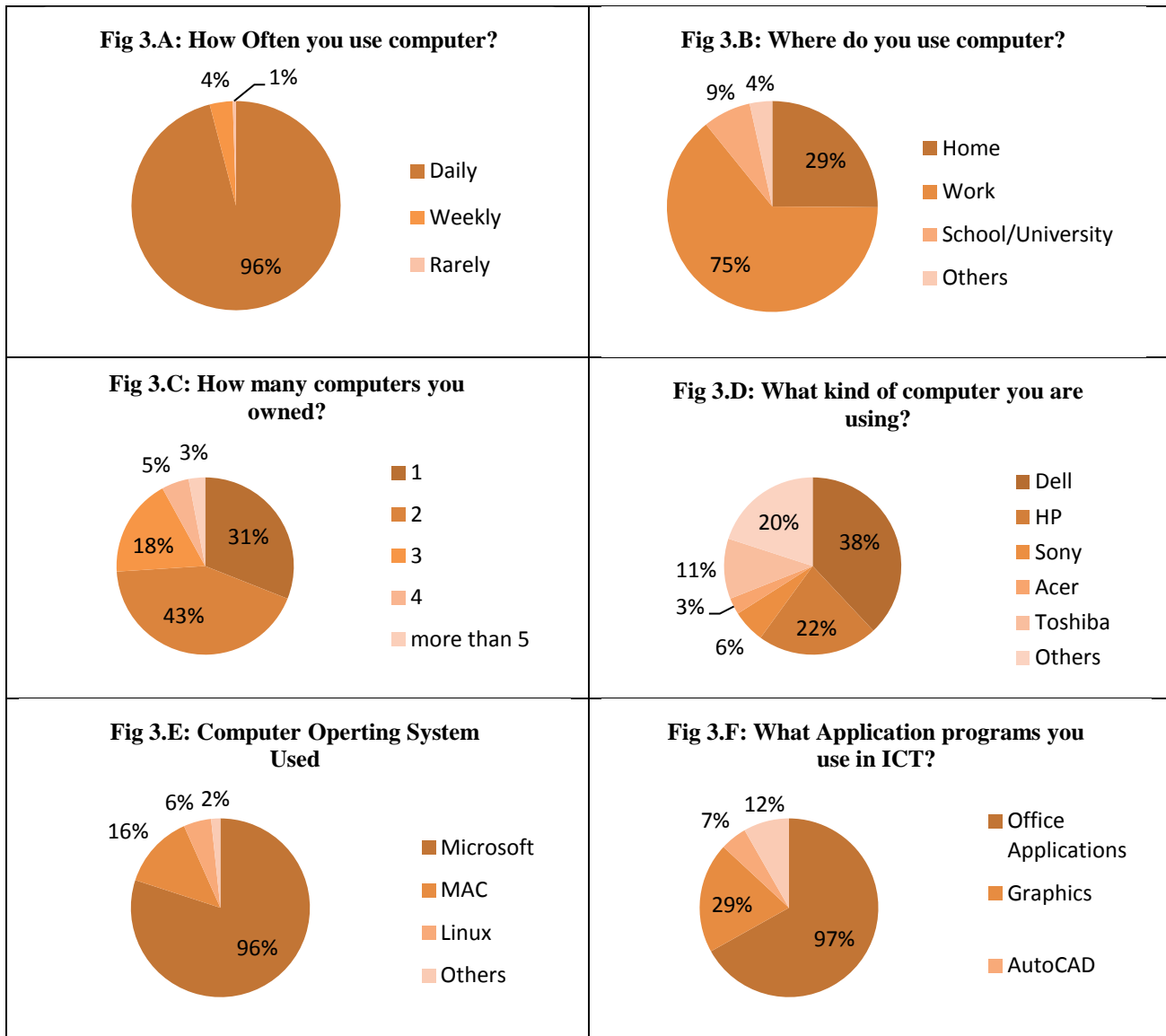


III. DATA ANALYSIS

Analysis of Computers Usages Metrics

The results in Figure (3-A-H) show the different metrics profile of computers usage in kingdom of Bahrain, where the survey showed a high level of daily access to computers, 96% of total respondents, access from workplace is

75%, and over 43% of respondents own two computers, survey shows that 95% of computers operating system are Microsoft window, and over 38% are Dell branded computers. Approximately 97% of application programs are office; while 80% of users are using HP brand printers as hardware accessories, and finally followed by 43% of respondents are using Kingston removable hard disks respectively.



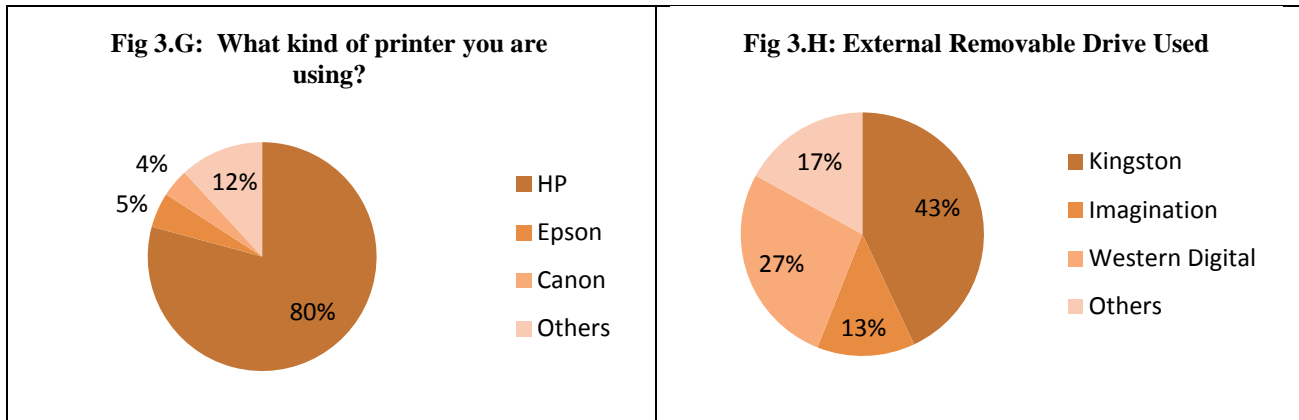
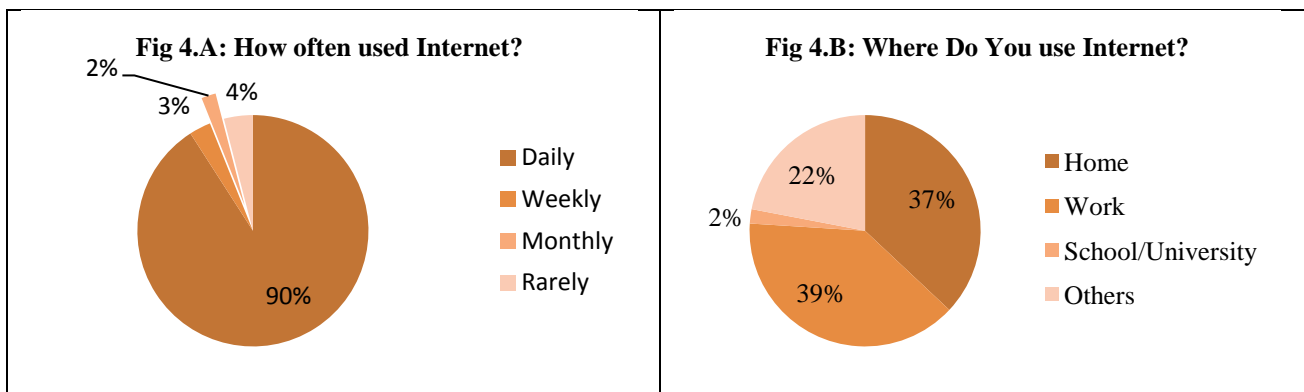


Figure-3: Different Metrics Profile of Computers Usage in Kingdom of Bahrain (A-H)

Analysis of Internet Usages Metrics

As a second indicator Figure (4- A-J) shows the outcomes of different metrics profile of Internet usage in kingdom of Bahrain, where the daily access to internet is 90% of total respondents, internet access from workplace is 39%, over 90 % of all computer users use the Internet more than 6 years, while 49% of respondents think that Internet cost is high compared to GCC countries, the survey shows that 89% of internet users aim is to check email followed by entertainment, 36% of total respondents are using internet connection with 5-10MB high speed, while the most common means of access is broadband with 72%, the survey shows that 51% of users are

subscribing with Batelco as internet service provider, 51% agree that they have no specific time to use internet, and finally 67% of respondents are shopping online respectively. Despite the generally positive views described above, there are two barriers to ICT diffusion where some people are not interested in getting online. The number of people in the sample who did not use the Internet was relatively small, but nevertheless their answers offer some useful insights into why they do not use it. The main reasons given were: perceived affordability of the Internet for some groups It costs too much and second issue is digital literacy.



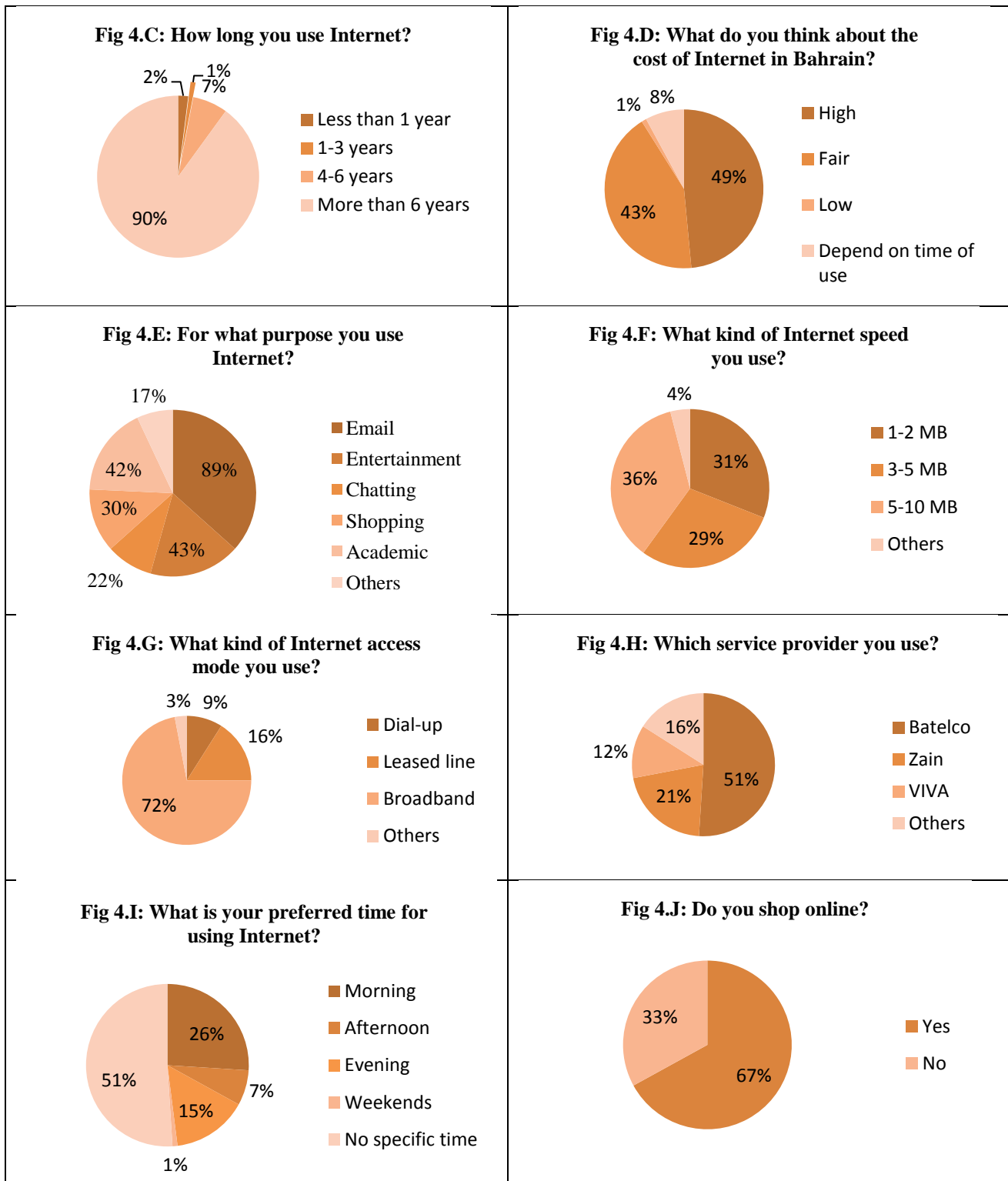


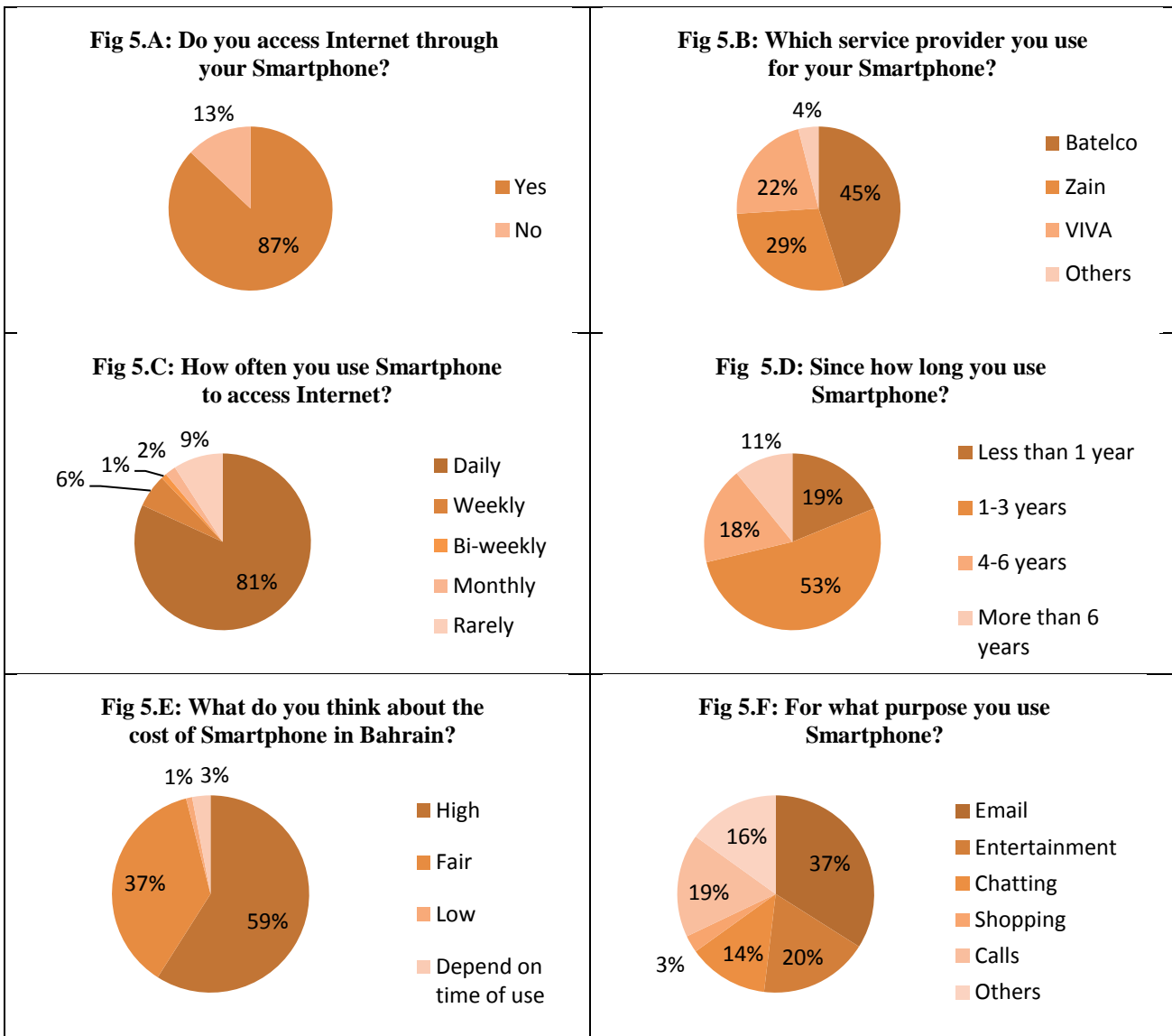
Figure-4: Different Metrics Profile of Internet Usage in Kingdom of Bahrain (A-J)



Analysis of Smartphone Usages Metrics

As a third indicator, Figure (5- A-J) shows the different metrics profile of Smartphone usage in kingdom of Bahrain (A-J). Among Smartphone users, 87% have a mobile broadband subscription, of these, 45% are subscribing with Batelco as internet service provider, the daily internet access from Smartphone is 81%, over 53% of all computer users use the Smartphone from 1-3 years, while 59% of respondents think

that Internet cost from Smartphone is high, the survey shows that 37% of Smartphone users purpose is to check email followed by entertainment, almost 40% of total respondents are using internet connection with 1-2MB speed, approximately 73% of applications are internet browsing followed by Camera and messaging, 65% of download through the Smartphone dominated by video clips, finally the survey revealed that 75 % of respondents need for ICT training.



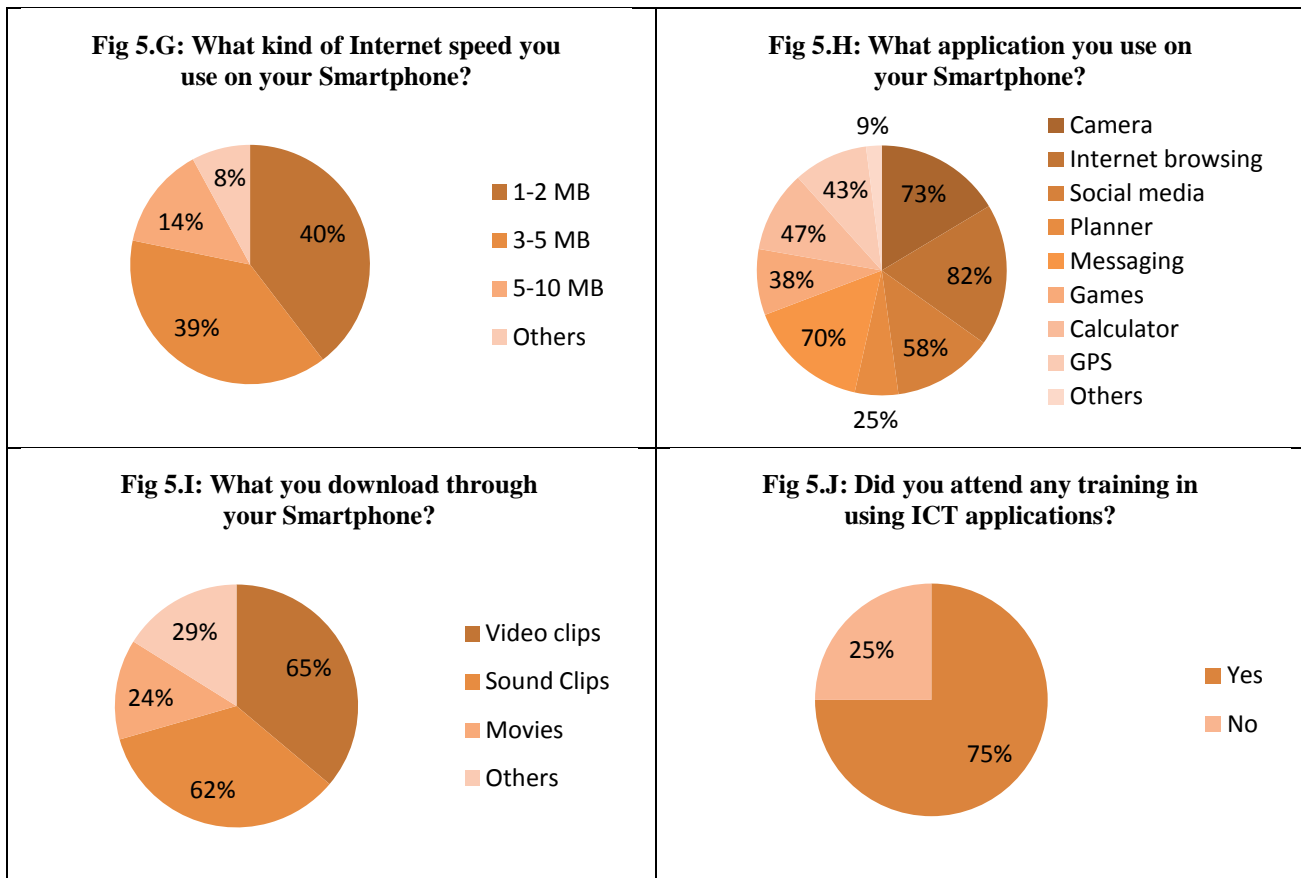


Figure-5: Different Metrics Profile of Smartphone Usage in Kingdom of Bahrain (A-J)

VI. CONCLUSIONS

Based on the response of individuals, 95% of Bahraini’s urban population has some level of use of computers. Noticeable disparities exist in the use of computers among various regions within Kingdom of Bahrain central province is reported to be the leading in terms of percentage of users reporting some level of computer use. Nearly 75 % of computer users report use from workplace. Of those reporting home use of computers, 43% own two computers. Computer usage at home is not restricted by individual ownership. In 85% of the cases, home computers are shared by at least two 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 other applications software also find reasonable use on home computers. English is the primary language for use of computers, with some users using Arabic and Urdu language applications. Internet Cafes are the most preferred location for use of the Internet in Kingdom of Bahrain. 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. Our findings can be grouped along three broad themes:

- Description of the pattern of access to information and communication technologies across Kingdom of Bahrain, as evident from data on spending on and imports of ICT-related equipments
- Estimates of the growth contribution of capital deepening that can be attributed to falling prices of IT-related equipments, outcomes of study show that the



digital divide in Bahrain is low and individuals have high-income so ICT purchasing capabilities also high.

- Analysis of access to communication services, as measured by the number of subscriptions to mainline and cellular phone services, including a discussion of the role of the structure of the telecommunications market which has a bright future.

One barrier is the perceived affordability of the Internet for some groups in the population. Suppliers of broadband (fixed and mobile) services may be able to give some thought as to whether or not their business models can incorporate additional tariff structures to accommodate potential customers, either those with low incomes or those that remain unconvinced about the value they would get from being online. Innovative pricing models have emerged in many developing countries to deliver affordability to very low-income customers in those cases [10].

A second issue is digital literacy. Some people, especially those who are in older age groups, or who live in remote areas, still have a fear of using new technologies. Digital literacy is also an important tool enabling users to overcome their own legitimate concerns about privacy, security, or protecting their children. It also contributes to building relevant skills among the population. Enhancing people's understanding of both the benefits of the online world and the potential risks is an important role for government agencies and educational authorities in ICT training [9]. Both universal access and world-class, superfast broadband are important policy issues, for reasons of both social impacts and economic growth. Smartphone were more common among the young [13]. Wi-Fi access via a laptop is highest, 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. Regardless of income group, almost everyone (98%) had a mobile connection, with no significant variation between social and demographic groups. The split between Smartphone and basic phones was 55:45, with younger people significantly more likely to have a Smartphone.

The survey revealed a relatively high level of confidence in digital activities, but nevertheless the government's actions will be decisive in ensuring Internet users in kingdom of Bahrain are confident in their online safety and security [12].

A key role for the government in terms of future strategic action enhancing access will be enabling investment in infrastructure; Bahrain realized early on the importance of ICT as a promising for the government's interest in improving ICT and proactively supports the Kingdom of Bahrain's Economic Development through, finally we suggest following further strategic actions:

- Smart investments in key ICT infrastructures.
- Improve citizen and residence experience with Kingdom of Bahrain e-Government program for efficient dynamic ICT usage.
- Develop employee ICT skills by a system of on-going training programs.
- Develop high standard ICT industry and research centers in cooperate with ICT education sectors to encourage international organizations to invest inside kingdom of Bahrain.

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