Investigating and Evaluating Internet Usage in Kurdistan Region of Iraq

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Abstract

Internet usage has witnessed a dramatic increase in Kurdistan region of Iraq and has become an essential part of everyday life with tens of ISPs available and number of users constantly increasing. In this paper, we study the purposes of using the internet amongst different level of educations, an evaluation of available ISPs, the characteristics of internet service in terms of speed, quality, cost and upload, download quota as well as the satisfaction ratio of internet users. We also study users' preferences on frequently used devices to connect the Internet, the preferred Internet access time, the Internet usage frequency, and the average daily time spent by internet users. To investigate and evaluate the research objectives, a quantitative research method was used and the survey was taken into the Google website (Google Forms). The results of the online questionnaire completed by the 331 participants who use the Internet in Kurdistan region of Iraq. The results revealed that social networking was the main purpose of using the internet. The users identified speed to be the most important factor when evaluating internet service and the average satisfaction of users is satisfied and neutral. Nonetheless, the results shows that Smart-phones are the most popular type of device used by internet users, and the average time spent by users online is 5.1 hours with more than three quarters of the respondents use internet on a daily basis. Finally, the highest traffic on internet is (from 6 PM to 12 AM)

Keywords: Internet usage, ISP (Internet service provider), Quality of Internet. Customer Satisfaction

1. Introduction

The Internet is a worldwide computer network that links millions of individuals and organizations. It is also the world's largest Wide Area Network (WAN), which allows users at different geological locations to share information and work together. According to [1] "Internet User" is defined as an "individual who can access the Internet, via computer or mobile device, within the home where the individual lives". Today more than 3 billion users connect to the Internet that are linked by communication technologies including Cable internet service, DSL (Digital Subscriber Line), Fiber Optic service, WiMAX, Satellite broadband network, Mobile broadband network (3G or 4G) and other technologies [2]. Information technologies is widely used and rapidly becoming a common asset of modern socio-economic life in this new world of globalization. These technologies are opening opportunities and new avenues for all. Nonetheless, Internet in the age of technology does not only play a vital role in progressing the communications field , but it is also used for the exchange of information, social networking, online shopping, educational purposes, entertainment, business and more.

During the last 10 years, Internet broadband in Iraqi Kurdistan has been rapidly growing and developing. This has been achieved by the strategic planning of the Kurdistan government in the field of Internet industry. Today, there are several Internet Service Providers in Kurdistan region. Consequently, the high competition amongst the ISPs and the increasing demand of the customers, the ISPs have been forced to invest in many services to develop its Internet networks in order to meet the customer's needs. Although few of ISPs use DSL, most of the ISP companies provide the Wireless Internet, which affects the increasing of Internet usage in Kurdistan region. Nowadays, the high demands of using the internet and providing the better internet services has led to further improvements in making the technology easier and cheaper for users, and even faster.

2. Internet service background in Kurdistan region of Iraq (KRI)

According to the Internet Live Stats website, approximately 40% of the world population has an internet connection today compared with 1995 which is less than 1%. The below bar chart shows that the number of internet users in the world has increased dramatically from 1999 to 2014, and it also shows the annual growth in the number of internet users since 1993.

According to the [3], in the last few years the Kurdistan Region has benefited from considerable development in many areas especially in the Internet

service Industry. The below line chart outlines the expected results compared with the current situation for increasing Internet service in Kurdistan region annually. The line chart shows increasing Internet service beneficiary by 10% annually.
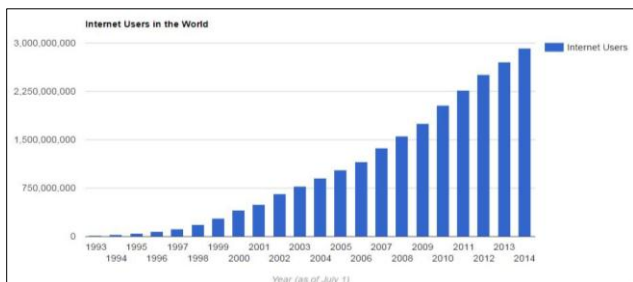

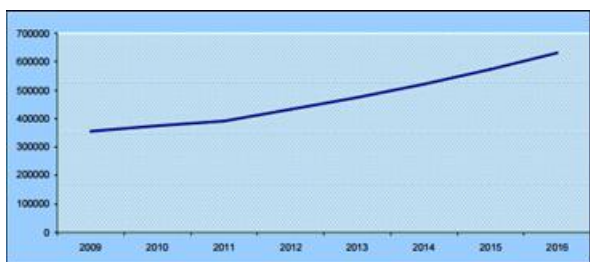**Chart -1:** Increasing Internet Users in the World

Chart 2 Annual expected of the increasing internet service

In Kurdistan Region of Iraq (KRI), currently there are four communication sectors which are Landline, Internet, Mobile and Postal, that has become an important and profitable sector. In addition, Internet is one of the most popular and important communication service used by individuals and organizations [3]. According to (MOC/KRG, 2011), there are about 26 ISPs and 335,740 subscribers in Kurdistan region. This number was increased and reached to 2 million users in 2013. These numbers show that there is a high competition among ISP companies and the continuous and rapid growth of the number of internet users along with their improved demands in terms of speed, cost, capacity and internet quality [4]. The below table shows the number of internet users in Kurdistan region (excluding other parts of Iraq).

Table 1: Number of internet users in Kurdistan region of Iraq

	Population (2015 Est.)	Internet Users in 2010	Internet Users in 2013	Internet Users in 2015
Kurdistan region of Iraq	5,601,227	335,740	reached to 2 million	Unknown

According to the annual report of [3], there is a future trend for improving the quality of Internet services, and expanding the accessibility of internet services in everywhere. Also, they have a plan to reduce the costs to levels suiting citizens' incomes, and making these services

affordable by larger social groups, especially school and college students. The strategic planning of the Kurdistan region government for expanding the Internet service is to support and encourage the private sector companies for the purpose of increasing the number internet users by 5% per year, and to be accessible to 50% of the population within 5 years. (MOP/KRG, 2011).

According to the (Ministry of Transportation and Communication of Kurdistan Region, 2012), the number of the internet service providers in Kurdistan is only 26 companies, which are divided into fixed line operators , satellite ISPs, Wireless internet service. Providers (Mobile and WiMAX), and the companies selling the internet. The below table shows the top ISPs which provide the internet service along with the locations, the used technique services and establishment year.

Table- 2: Top ISP companies in Kurdistan region of Iraq

ISP company	Location	Technique Service	Establishment year
Brusk-Net	Sulaimani	WiMAX	2005
Fast-link	Sulaimani/ Erbil/Dohok	4G LTE	2013
Fast-line	Sulaimani	ADSL via Landline	
Goran-net	Sulaimani	ADSL via Landline	2004
Max-net	Sulaimani	WiMAX	-
Tishk-net	Sulaimani/Erbil	WiMAX	2011
Neworz Telecom (Reber-Quick)	Erbil/ Dohok/ Sulaimani	EVDO (Evolution Data Optimized)	2007
Neworz Telecom (ADSL)	Erbil/ Dohok	ADSL via landline line	2007
Tarinnet	Erbil/ Dohok/ Soran/ Ranya	WiMAX, EION wireless	2005

According to a report from Marcopolist website, there are only two landline companies in Kurdistan which are KurdTel in Sulaimani and Newroz in Erbil and Dohok. Moreover, Goran-net ISP company is responsible to distribute and selling the Internet via KurdTel landline company in Sulaimani city. Newroz telecom is not only a landline company, but it also provides internet service using ADSL technology in Erbil and Dohok city. According to Kurdish Globe, "people in Kurdistan pay for and receive internet services from 20 different local and regional companies, based mostly in either Erbil or Sulaimani. The Erbil-based companies rarely serve Sulaimani and vice versa." According to Rudaw media network, "the price of internet services is not regulated by the Kurdish government, which in turn makes some companies play with the fees based on the promise of better services. But the Ministry of Communication told Rudaw that there are plans to fix the prices in a near future."

3. Research Method

In this research, a quantitative research method was used for the purpose of evaluating and investigating Internet

usage in Kurdistan region of Iraq (KRI), and the data was collected using online survey, based on the Google Forms which is a part of the Google services site (http://www.google.com.iq/forms/about/). The reasons behind using Google Forms is that, it provides a fast way to create an online questionnaire, with responses collected in an online spreadsheet. People answer the questions from almost any web browser - including Laptops, mobile Smartphone, and Tablet browsers. All the questions were designed to serve the objectives of this research and the results of the questionnaire completed by respondents who uses internet in Kurdistan. The survey was made available online on July 2015 and it was distributed in several educational websites, social network like Facebook, and via our university emails' contacts. The sample size of this research was 331 Internet users in Kurdistan region – Iraq.

In order to achieve all the objectives of this research, the designed questionnaire were simple and the questions were written in both Kurdish and English languages to be understood by participants. Nonetheless, the questionnaire would take approximately 5 minutes to complete and it was divided into two sections. The first section is about the personal questions: gender, age, occupation and level of education. The second section consisted of 16 questions and aimed to achieve the objectives of this research.

Research aim: This research mainly aims to investigate and evaluate the Internet usage in Kurdistan region of Iraq (KRI).

Research Objectives: this research mainly focuses on several objectives which can be summarized as follows:

1. To recognize the most frequently used devices to connect to the Internet.
2. To evaluate the customer satisfaction for each (ISP) company in terms of (Speed, Price, Quality, and Capacity) along with overall ISP satisfaction.
3. To study the main purpose of using the internet for all users and classifying by users level of education.
4. To find out the amount of money spent by internet users
5. To determine the preferred Internet access time
6. To find out the Internet usage frequency
7. To find out the average daily time spent online by internet users

4. Findings and Discussions

The results collected from the participants were stored in an EXCEL file by Google forms in order to analyze the collected data we first coded the results to convert them to numerical values so that more efficient data representation can be achieved. For answering more complicated queries such as internet usage purpose by different levels of education we used Microsoft Access which allows more flexibility through utilizing SQL.

Table-1: illustrates the frequency and percentage of each demographic characteristic from 331 participants which were classified into four categories.

Characteristics	Items	Frequency	Percentage (%)
Gender	Male	222	67.10%
	Female	109	32.90%
	Total	331	100.00%
Age Group	17 or under	4	1.21%
	18 - 23	156	47.13%
	24 - 29	93	28.10%
	30 - 35	50	15.11%
	36 - 41	16	4.83%
	42 or above	12	3.63%
	Total	331	100.00%
Occupation	Student	156	47.13%
	Government sector	111	33.53%
	Private sector	22	6.65%
	Self-Employed	13	3.93%
	Unemployed	19	5.74%
	Other	10	3.02%
	Total	331	100.00%
Level of Education	High School	60	18.13%
	Diploma	22	6.65%
	Bachelor degree	159	48.04%
	Master degree	72	21.75%
	Doctoral degree	12	3.63%
	Other	6	1.86%
	Total	331	100.00%

The results of our study in chart (1) shows that Smart phones are the most popular type of device used by internet users in Kurdistan region of Iraq and after that comes laptop usage while desktop has fallen to the last spot.
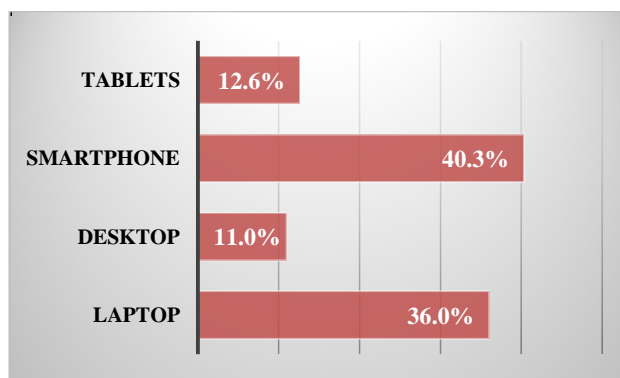

Chart- 1: Frequently usage devices to connect the Internet

The below chart shows that 25% of the respondents in addition to broadband services also use mobile internet of their carriers.
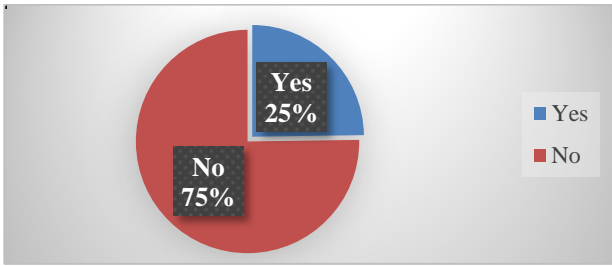

Chart -2: Mobile internet usage

There are tens of ISPs available in KRI and increasing, in order to choose an ISP by internet users, we asked the participants which factor is the most important while choosing an ISP with the following aspects (Speed, Price, Quality, and Capacity). Customers regard speed as the main significant factor to subscribe with an ISP as illustrated in chart (3).
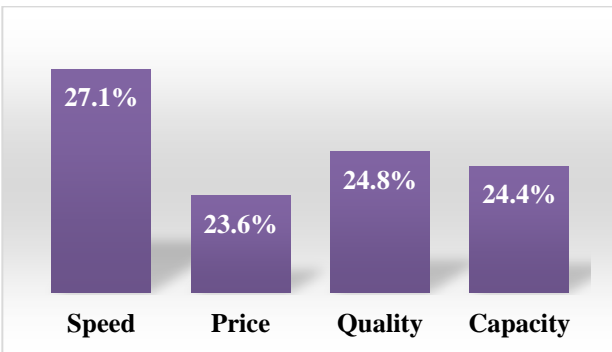
Chart -3: Significance of choosing ISP by internet users.

The overall satisfaction of internet users in Kurdistan regions is illustrated in the chart below, the majority of respondents are satisfied or neither satisfied nor dissatisfied this can be related to availability of a decent number of ISPs where users can choose from based on their needs another reason could be the low expectation of consumers in this area due to a lack of reference characteristics of internet service.
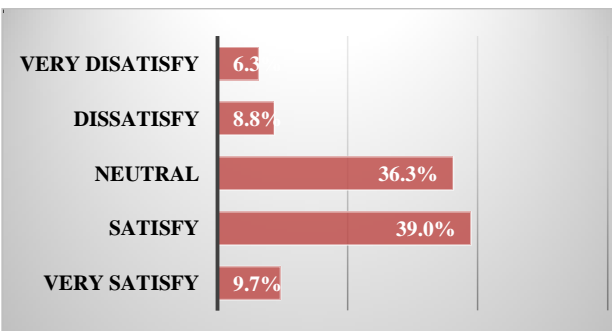

Chart -4: Overall satisfaction of internet users

In order to evaluate an ISP we asked the participants how satisfied they are with the following aspects of their service providers (Speed, Price, Quality, and Capacity). According to chart 4 results, in all aspects (Speed, Price, Quality, and Capacity) for both Goran-net and Fast-line recorded the maximum satisfaction ratio, which means both ISPs provide best internet service for their subscribers compare with other ISPs. Chart 5 results present more information about other ISPs satisfaction ration by their subscribers.
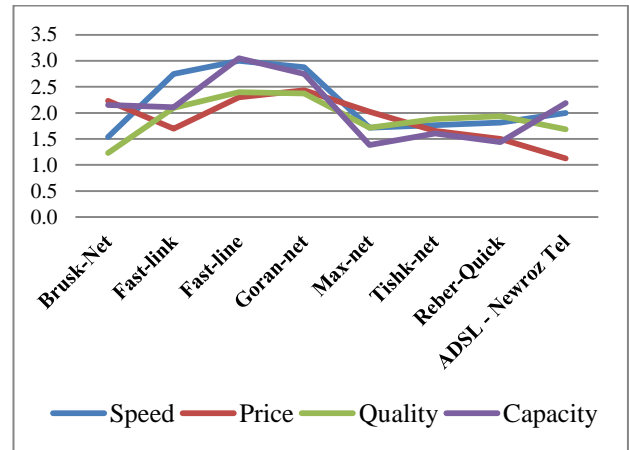

Chart -5: ISPs satisfaction ratio by their subscribers

According to chart 6 results, Goran-net and Fast-line has the maximum satisfaction ratio by their subscribers both use ADSL technology through telephone line. However there is only two landline telephone providers in Kurdistan region Kurd-Tel and Newroz Telecom which provide coverage to only a certain part of Kurdistan region. This has significantly reduced the availability of ADSL companies that depend on fixed line communications.
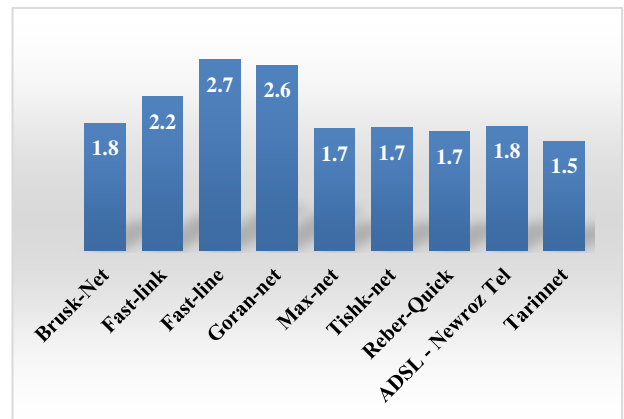

Chart -6: ISPs satisfaction ratio by their subscribers

*Note: 4: strongly satisfy, 3: satisfy, 2: natural, 1: dissatisfy, 0: strongly dissatisfy

The most common purpose of using the internet is for social networking amongst internet users in Kurdistan

then follows education as illustrated in chart (7). However classifying the results according to the participant's level of education gives us different results. One interesting scheme is that whenever the level of education increases the usage of social networks decrease however email and education purposes increase as illustrated in chart (8).
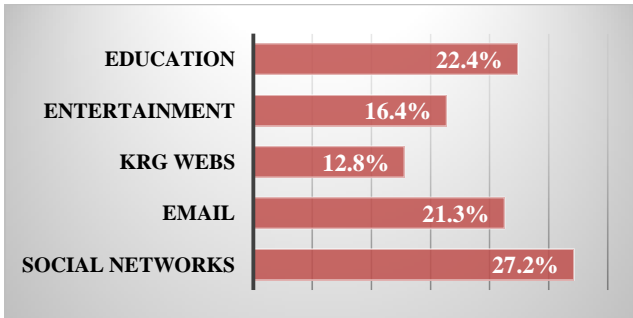

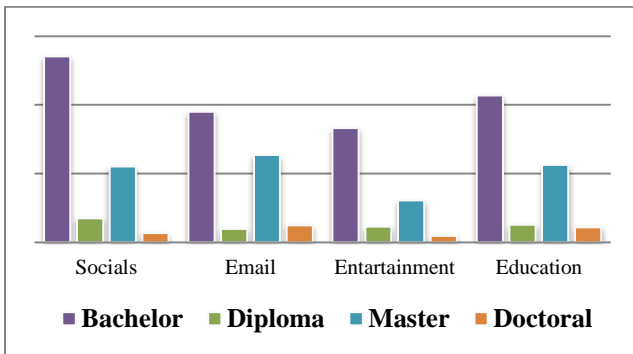**Chart -7:** Purpose of Using Internet

Chart -8: Purposes of using the internet by different participant's level of education

The results in chart (9) show that more than three quarters of the respondents use internet on a daily basis while the other quarter use internet less frequently.

We also asked those who use internet everyday regarding the amount of time spent each day on the internet, the results show that 43.5% use internet between 3 to 5 hours per day however there is a 35% that goes beyond this range as shown in chart (10). The average amount of time spent by internet users in KRI is 5.1 hours however average time spent by world internet users is 6.15 in 2014 [5]
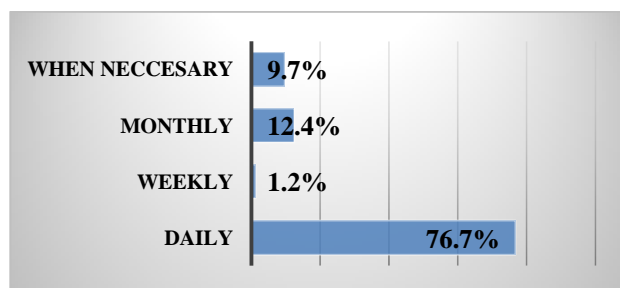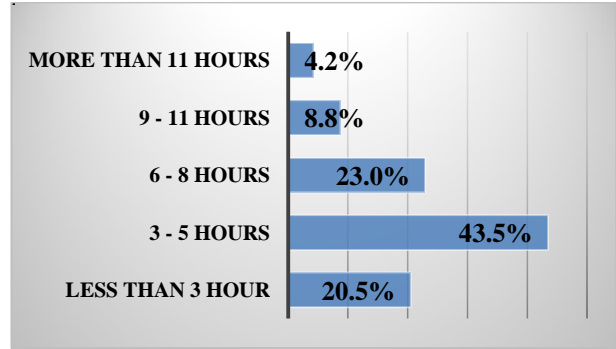

Chart -9: Internet usage frequency

Chart -10: Amount of time spent each day on the internet

The data in Chart (11) shows the highest traffic on internet is (from 6 PM to 12 AM) and the lowest is (from 6 AM to 12 PM), this suggests that internet usage is less likely used for office purposes.
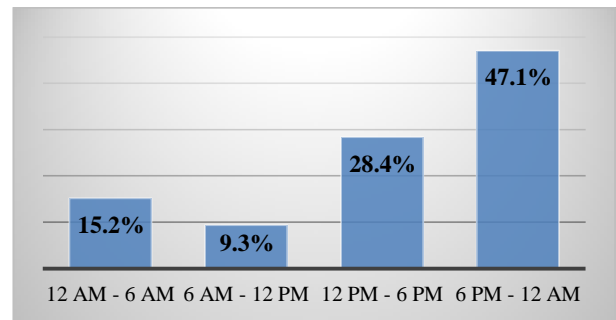

Chart -11: Preferred internet access time during the day

The amount of money spent by internet users is illustrated in the chart below, the values are in Iraqi Dinar (IQD). As the chart shows the majority of users pay between 30k to 44k per month for using internet access the average of this range is 37k which is approximately equal to 30$ per month. Comparing this price with other countries such as UK that pays 37$, France 38$ per month shows that the amount paid is not high, however one should consider the differences in services provided by the ISPs regarding speed, download quotes and quality. [6]
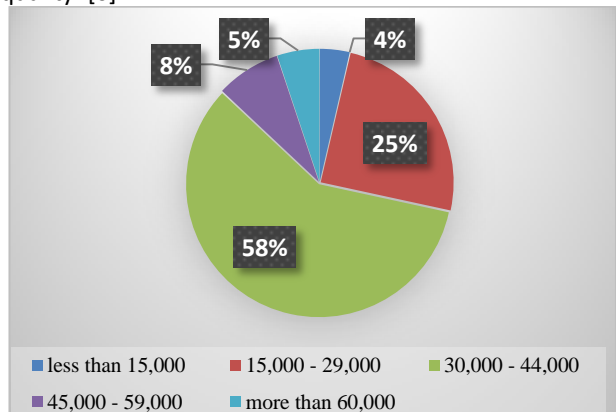

Chart -12: Amount of money spent by internet users

Conclusion

This paper investigated the characteristics of internet users in KRI after reviewing the literature a survey consisting of 13 questions was published online and 331 respondents participated in the survey. The results show that smart phones are the most common device used to access the internet and laptops are second most used device. Most of the respondents spend from 30 to 44 thousand IQD per month for internet access and the average time spent by users online is 5.1 hours. Nonetheless, more than three quarters of the respondents use internet on a daily basis and the highest traffic on internet is (from 6 PM to 12 AM). Our investigation shows that social networking is the most popular purpose of using the internet although levels of education significantly changes the purpose. The overall satisfaction of users is satisfied and neutral, and Goran-net and Fast-line has the maximum satisfaction ratio by their subscribers both use ADSL technology through telephone line. Furthermore, the results collected from the participants show that customers regard speed as the main significant factor to subscribe with an ISP. Finally, this paper provides a decent understanding of the situation and characteristics of internet users in Kurdistan Region of Iraq which can be beneficial for ISPs and governmental agencies in planning future internet trend in this area.

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