An Investigation Concerning the Correlation between User Satisfaction and ICT's Development in Social Networks

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Abstract- The objectives of this research are to determine the correlation of social networks with Information and Communication Technology (ICT) and the rate of user satisfaction and loyalty in social networks, An Investigation concerning the effects of Information Technology (IT) in this field will lead to development in services that all social networks prepare for users and eventually cause to enhance rate of user friendliness in social networks. For this purpose we explore relations between effects of ICT on social networks and customer satisfaction with the use of interview with different users in terms of age, literacy, nationality and gender. This paper attempts to show that ICT and IT created great evolution in social network, moreover innovation and creativity play significant role to provide appropriate services for users. Findings show that impact of ICT and rate of user satisfaction is very direct in social networking websites.

Index Terms- Information-Technology, User Satisfaction, user friendly, ICT, Social Network Websites, Innovation.

I. INTRODUCTION

Recent developments in IT have heightened the peoples' demands. In this article, at the first some basic fundamental of requirement social net work, and also all the available facilities at present that need social networks are described. Initiation social networks on the internet were WWW.Classmates.com in 1995, WWW.Sixdegrees.com in1997 and then WWW.Myspace.com in2004, transformed from a virtual storage space to a social network website. But now we have three dominant social networks mainly, Google+, Twitter and Facebook, which are very popular in the world.

Some of the activities in social network sites consist of, discussion about all of the current issues, exchange of information flow and transfer of ideas and recommendations, notification, trade and services. Nowadays, social networks are not only for exchange information, but also they are one of best places for advertisements and transactions. So a company can distribute all products through the social networks, while also using the internet to build and maintain customer relationship. Also, performing money collection as part of transactions can be done online and through social networks where, leads can be generated through short trial periods, before long-term signings. These networks can also serve as an avenue for collecting direct responses. However, these rapid changes in ICT and IT are having a serious effect on social networks.

E-Commerce is a dynamic set of technologies, applications, and business processes that link enterprises, consumers, and communities through electronic transactions and the electronic exchange of goods, services, and information. Social network web sites are one of the latest innovations in technology, that now days are so popular, in these sites, the users can upload their concept and favorites. In fact social networks let them to spread and share their perspectives in minimum of time. However, in recent decade, regarding to revolution in IT industry, speed of information transaction are developed as much as it reached that human can think about impossible things are incredible. In this investigation is strived to show correlation between users and social networks is based on satisfaction and it will not achieve unless social networks use of the newest developments in Information and Communication Technology (ICT) and Information Technology (IT).

II. LITERATURE REVIEW

There is a large volume of published studies describing the role of ICT in social networks. In 2001, Rodie and Martin, published a paper in which they described, Developments in Information and Communication Technology (ICT) especially the rapid advances in the usage of internet, improved production capabilities, demanding customers and accelerated flow of capital across political boundaries creating business opportunities and fueling competition as well. And consequently, the advances in ICT have intensified the international competition, thus, making it difficult or even impossible for firms to satisfy customers (Kim, M. K., Park, M. C., & Jeong, D. H, 2004).

All these developments are a result of the fact that today's customer is better educated and better informed, and has more choices than ever before. A customer with internet access can browse an internet bookstore such as Amazon.com, twenty-four hours a day, and order the book of his choice at a discount with one click. ICT is the modern way of handling information electronically which involves its access, Storage, processing, transferring and delivery (Wolf, S. ,2001).

Evidence from surveys Of managers and case study literature shows that the most important reasons for investing in ICT are product quality improvements, especially customer service, timeliness, and convenience (Ryymin, E., Palonen, T., & Hakkarainen, K. ,2008)

The key is to match customer expectations with company performance. Smart companies aim to delight customers by promising only what they can deliver, then delivering more than they can promise. (Kotler, 2006)

Whilst this situation is likely to evolve over time, effective and successful use of ICT to gather feedback from service users is unlikely to be a clear-cut task. (Eupan, 2007)

E-Marketing is often performed through websites, which makes the availability of websites and usage of these in relation to marketing a good indicator of the extent to which a bank is using e-marketing. (European Commission, DG Enterprise & Industry, 2008)

This view is supported by Gatautis, R. (2008) wrote: The payment information is automatically updated into the customer database. E-application system provides facility for registered property developer to register application of electricity supply for new domestic connection.

The impact of ICT on economic entities activities remains an important scientific problem theoretically, practically and politically. The assessment of results of ICT development and implementation is important in many aspects, i.e. local, regional, national, European and global. ICT development accelerates integration and conditions many processes such as e-business, e-commerce, e-health, e-learning, e-government, e-inclusion, etc. In this article, Several ICT innovations are discussed in relations to providing good customer services by both types of organizations: brick and mortar as well as online businesses. In addition several causes, issues and solutions faced by organizations in attaining customer satisfaction are identified.(Gu, W., & Surendra, G. ,2009).

Social networks attempt to motivate users to contact each other, and comprise set of groups in variety activities that especially, between younger people are enhanced their popularity in the world. However, each social network site supports its special group target and schedule to find new segment of people in society. (Pfeil*, et al.*, 2009).643-654

Unfortunately, in some social networks is underestimated power of Information and communications technologies (ICT) to increase to service offering to users, so there were no appropriate programs to handle and set up fundamental ICT needs.

However, the majority of users believe ICT can improve current communication between world people and resolve other society needs. (Youtie*, et al.*, 2007).347-358. According to these definitions, Impact of ICT in the networks service caused to invention based on users and employees communication, which means, it can be infrastructure ICT framework in novel approaches and theories that lead to development in this division. (Henten, 2012).3-3

Actually, variety groups of people that are familiar in social networks regardless of any discrimination help each other and they are sharing knowledge without any expectancy. (Marouf, 2007).110-125.

There are number of fundamentals for social networks in terms of features. Such as approach based on interaction, approach based on relation criteria, approach based on affection and eventually, approach based on exchange. (Shu and Chuang, 2011).26-45

All researches show, one of the significant factors in social networks development is lake of the used of ICT as widespread, and its affect on services that presents to users in internet world. Despite all the attempts have been made to investigate on whole of impact on the social networks, So far, however, there has been little discussion about the rate of user satisfaction. This research intends to fill this mentioned gap, which how many percent of users satisfy on the social networks, and as well as, how can improve satisfaction with the used of ICT.

III. METHODOLOGY

In this research it was decided that the best method to adopt for this investigation, is the use of questionnaire, because of obtaining to a wide range of users' opinion.

The initial sample consisted of 213 interviewees as random, of whom 13 people did not complete all of the interviews. All questionnaires distributed between variety people in terms of nationality, education level, gender and occupation, moreover, target groups were wide range, which means, and their ages are selected between 17 and 45 years old. for example, just over half of the samples were female. 69% of all of interviewees were postgraduate students. In this research, is measured some information about social network facilities, such as how is rate of secure in social network (especially Twitter and Facebook), and also what information they have posted in their accounts and other question similar to these. Above of all, also is asked about how many of the respondents were satisfied from social networks.

Current research is used of two pieces of soft ware, Microsoft Excel and SPSS. In fact, in this study is obtained, with Excel, the percentage of satisfaction in users, rate of usage of social networks in some categories, according to there were dependent and independent variables in this investigation, so it needed to used the SPSS software to calculate value of correlation between percentages of usage and rate of satisfaction among users, and analyzed the relation between those results and impact of ICT's development carefully.

In this paper, Regression analysis was used to predict the rate of correlation user satisfaction and ICT's development. At last, it is explained in the figure, Normal P-P Plot of Regression Standardized Residual, as well as, the tables Model summary and coefficient. In additional, there is some other presented in the appendix.

IV. FINDINGS & DISCUSSION

Most of the findings show that investment in information and communications technology (ICT) is making an important contribution to customer satisfaction. Moreover IT influences the general services, and quality leading to creating features that dominantly affect customers' trends, which in turn have positive impact on user satisfaction.

On the other hand, satisfaction is evaluated between users based on their experience in receiving services from social

networks, so user's needs, demands and trends are identified during the use of social network websites' services.

In fact, satisfaction will gained in social networks when users can perform all of their activities in their account through IT development. Also growing use of ICT in social networks caused most ICT initiatives to be concerned about service delivery, therefore, there is in social networks that gathers feedback from users and promote their services according to users' their needs.

To assess the rate of satisfaction, and the amount use of social network usage, in this session, some analyzing the results analysis is conducted about ICT and social network, and customer satisfaction on the ICT facilities.

Since they are the most popular social networks, we assessed Facebook and Twitter for the purpose of our research.

Firstly, the result about how long the users spend in social networks are analyzed, The results of this study indicate that 25% of Social networks' female users do not visit it every day, 21% check it less than 30 minutes, and mostly use it less than 2 hours, 30% spend their time less than 2 hours and 24% present use it more than 2 hours, so 75% users visit their social network. But the situation in males is completely different, just 5% do not visit their social networks every day.

The second question is the rate of people's trust towards social networks security. Does it need to more secure or is the security sufficient? The results of this part show that 61% of females trust social network and 39% do not have trust in social networks.

In contrast, there was more trust among men compared to women. Around 80% said yes, they have trust those networks. Overall, current research showed that 70% of social networks' users have trust in them.

Another important finding was that which social network is more popular, the results are as follows: Facebook 70%, Twitter 8%, Google + 16%, others just 6%. But evidences show that this result is flexible, and will change in the future.
Rate of satisfaction in women is almost 74% and the rest of them are dissatisfied because of some of the reasons that were already discussed. Also rate of satisfaction in men is almost 81% and the rest of them, which means, 19% are dissatisfied.

In total, 81% of the participants are satisfied and they will continue to use of their social networks, and therefore, impacts of development in ICT and IT systems can help to enhance all of the facilities and also increase the rate of satisfaction. Technology is one of the other factors that lead to innovation, and as result, leads to convenience among all users.
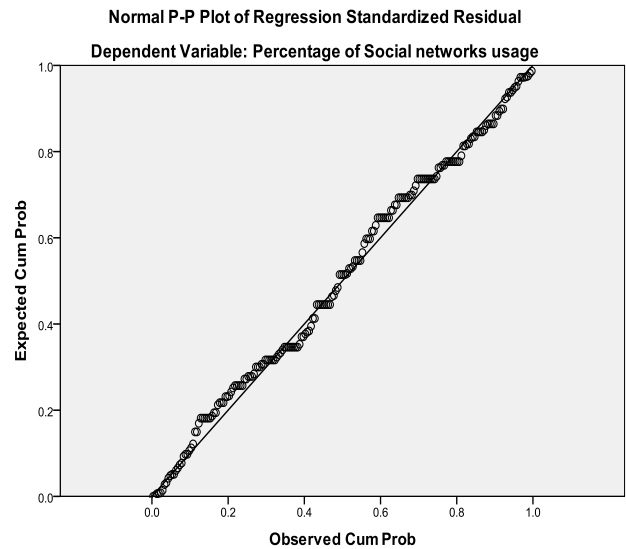
Fig. 1: Normal P-P Plot of Regression Standardized Residual.

This graph shows that, the strong fitness of the correlation. This is because of value of the variables are significantly concentrated around the line, meaning, the data are significant, and accordingly there is a strong positive relationship between percentage of social network usage, rate of user satisfaction and ICT's development.

Table 1: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df 2	Sig. F Change	
1	.804[a]	.647	.643	7.78080	.647	180.148	2	197	.000	1.868

a. Predictors: (Constant), Are you satisfied with social networks? Does ICT's development have an effect on user satisfaction?

b. Dependent Variable: Percentage of Social networks usage

The Model Summary part of the output is most useful when you are performing multiple regressions. The value R is the multiple correlation coefficient that tells us how strongly the multiple independent variables are related to the dependent variable. In the simple bivariate case (what we are doing) R = | r |

(multiple correlation equals the absolute value of the bivariate correlation).

The results, as shown in Table 1, if we now turn to R value in table 1, R is the square root of R-Squared and is the correlation between the observed and predicted values of dependent variable.

Here we can see the amount of R is very close to 1, which means, a positive and strong correlation was found between the rate of satisfaction users and the impacts of ICT's development on user satisfaction.

Table 2: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	46.404	3.875		11.977	.000
X1:Does ICT's development have an effect on user satisfaction?	10.363	.726	.661	14.282	.000
X2: Are you satisfied with social networks?	-8.778	1.549	-.262	-5.667	.000

a. Dependent Variable: Percentage of Social networks usage

The Coefficients part of the output gives us the values that we need in order to write the regression equation.
The regression equation will take the form:

Predicted variable (dependent variable) =
  slope * independent variable + intercept   (1)

The results as shown in table 2, are the following:
The coefficient for X1 (10.363) is significantly different from 0 because its p-value is 0.000, which is smaller than 0.05.
The coefficient for X2 (-8.778) is significantly different from 0 because its p-value is 0.000, which is smaller than 0.05.
Comparing the two results, it can be seen that there was a strong correlation, which means, if ICT's services improve, it leads to an increase in the rate of user satisfaction, and as result, enhancing the number of users in social networks.

V.   CONCLUSION & RECOMMENDATION

The most obvious findings to emerge from this study is that social networks are useful in communication, exchanging information, trade, advertisement, and etc. nowadays, we cannot ignore, all impacts of ICT technology. This means, ICT's effects helped in enhancing customer satisfaction and loyalty. In fact, ICT are playing a key role in the growth of customer relations management (CRM) practices, so it replacement with some other communication technologies. For instance, Facebook usage has been widespread in the world as one of the most important social networks. Some people and companies use it as means of corresponding instead of email and other ways of communication. This reality shows that the rate of satisfaction in social network is enhancing, and thus all social networks must prepare a higher level of convenience for their users, because of them being their main capital. On the other hand, there are competitors in this field, and if they are not developed in this regard, because of not providing more facilities, then surely, their rivals will be replacing them. This research has revealed many questions in need of further investigation.

The evidence from this study suggests that all social networks must follow R&D, and they should query their users, and get their feedback. Moreover, social network can give some of extra services for some of their users, which will lead to motivation for all users. At last, it can be said, that the only key for success is, to increase the rate of customer satisfaction among users.

Appendix

A

Dependent Variable: Percentage of Social networks usage

Mean = -5.13E-16
Std. Dev. = 0.995
N = 200
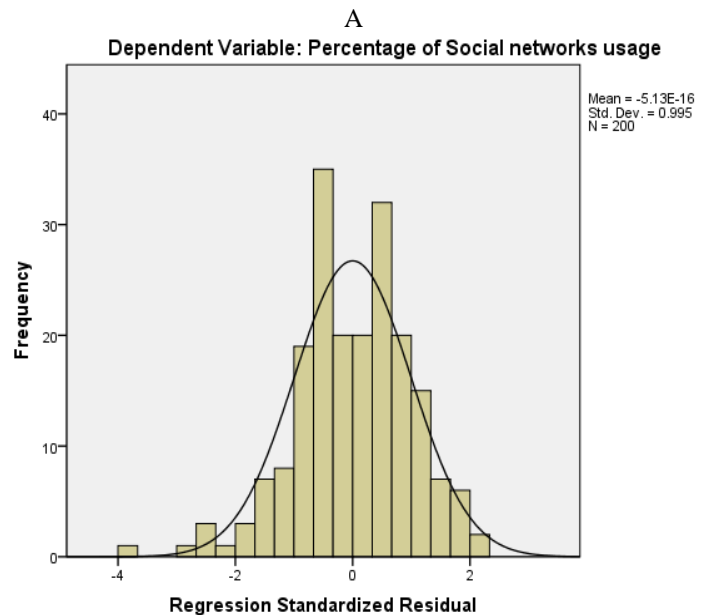
B
Correlations

		Percentage of Social networks usage	Does ICT's development have an effect on user satisfaction?	Are you satisfied with social networks?
Pearson Correlation	Percentage of Social networks usage	1.000	.767	-.530
	Does ICT's development have an effect on user satisfaction?	.767	1.000	-.404
	Are you satisfied with social networks?	-.530	-.404	1.000
Sig. (1-tailed)	Percentage of Social networks usage	.	.000	.000
	Does ICT's development have an effect on user satisfaction?	.000	.	.000
	Are you satisfied with social networks?	.000	.000	.
N	Percentage of Social networks usage	200	200	200
	Does ICT's development have an effect on user satisfaction?	200	200	200
	Are you satisfied with social networks?	200	200	200

C
ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21812.659	2	10906.329	180.148	.000[a]
	Residual	11926.536	197	60.541		
	Total	33739.195	199			

a. Predictors: (Constant), Are you satisfied with social networks?, Does ICT's development have an effect on user satisfaction?
b. Dependent Variable: Percentage of Social networks usage

D
Descriptive Statistics

	Mean	Std. Deviation	N
Percentage of Social networks usage	74.6550	13.02089	200
Does ICT's development have an effect on user satisfaction?	3.7300	.83100	200
Are you satisfied with social networks?	1.1850	.38927	200

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