Identification of the components and factors affecting on electronic customer relationship management performance (case study: Iran telecommunications industry)

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Abstract
Today, the electronic customer relationship management (E-CRM) performance has very important results for business such as repeat purchase, word of mouth, retention, brand loyalty and customer satisfaction. Therefore, the purpose of this research is to identify the components and factors affecting on electronic customer relationship management performance in Iran telecommunications industry. In this research, the most important factors affecting on E-CRM are ease of use, usefulness, enjoyment, usability and e-service quality. A questionnaire was used to collect data. Data gathered with questionnaire from students of Bushehr universities. Finally, 303 questionnaires were returned and analyzed. For test the hypothesis, we use Pearson correlation and multi regression. Results showed that e-service quality and usability have a statistically positive effect on E-CRM performance and ease of use, usefulness and enjoyment have not a statistically effect on it.

Keywords: E-CRM performance, mobile service, communication industry.
1) Introduction

Development of information and communication technology, human social and economic life has changed a great deal and had a great impact on the way organizations manage (Mohd, Ramayah & Haslindar, 2010). Hence, communications industry plays an important role in all sectors of life business and the role is undeniable. So, any economy can't be effective without the telecommunications industry to achieve an appropriate level of sustainable development (Momani & Mohd, 2009). Mobile phones are one of the tools of information technology, which first emerged in the early 1980s in Great Britain, but it was a great time and expensive. In contrast, new mobile phone is small and easy to use and has become an important part of the lives of many people. Cell phones enable users to establish better communication with family, friends and business partners (Momani & Mohd, 2009). On the other hand, electronic customer relationship management service sectors are able to provide the right products to customer satisfaction. Thereby provides increasing customer loyalty and increase customer profitability (Liao, 2004). Advances in information technology provided opportunities for businesses to deliver more effective customer relationship management functions. Use of the information technology for customer relationship management led to the emergence of electronic customer relationship management and the emergence of specialized software vendors in the market. The new generation customer relationship management products called E-CRM, because uses of the multiple electronic channels to communicate with customers (Lin, 2009). Information technology led to new initiatives in the different disciplines of marketing and business. IT works in different disciplines of marketing and marketing management to emphasize the importance of providing new plan stems that can obtain the benefits of web technology (Anumala, 2007). Customer relationship management increasingly into account as the nuclear business strategies adopted by firms in which investment is huge (Kim & Kim, 2008). ICT plays a key role in business and personal life and social pillars of society. Therefore, it is essential that companies offering electronic services from the perspective of customers look their performance in this area. So the major issue in the field of information and communication technology service provider companies face is that they know what factors have effect on the electronic customer relationship management performance. By identifying these factors, companies can maximize shareholder wealth and thus succeed in satisfying their customers. Therefore, as many researchers including Evangelia& Michalis (2006), Kim & Kim (2008) and Momani & Mohd (2009) have argued about the function of E-CRM, there is little written work and more research is needed to be done in this area.

The purpose of this research is to identify components and factors affecting on electronic customer relationship management performance in Iran communications industry. For this purpose, theoretical foundations, the most important factors affecting on the electronic customer relationship management performance are identified and their impact on the performance of E-CRM will be tested.
2) The theoretical framework

In this article ease of use, usefulness, enjoyment, usability and e-service quality are as prerequisites to the E-CRM performance in Iran communications industry.

2-1) functional electronic customer relationship management

Mobile to introduce new products, new ways to sell products to customers and new learning curve on how are companies to manage interactions with customers (Wright et al, 2002, quoted Kennedy, 2006). Customer relationship management aims to identify, educate, serve and retain profitable customers by seamlessly interact with them through a communication channel (Padmanabhan & Tuzhilin, 2003). On the other hand, many writers believe that does not exist single definition of CRM and E-CRM (Ellatif, 2008 quoted Momani & Mohd, 2009). Therefore, the definition of electronic customer relationship management is still not clear, but most scholars and experts on the subject agree that electronic customer relationship Management is a business strategy using technology to communicate between all of the aspects of business, aimed at creating long-term customer relationship and increase the customer loyalty (Momani & Mohd, 2009).

Kotorov (2002) defines electronic customer relationship management application of ICT to increase the customer service scale and scope. Another definition of the electronic customer relationship management by Jerry et al. (2003) presented to identify indicates that electronic customer relationship management activities, internet marketing tools and techniques (using such technologies as Web and e-mail, data collection, data warehousing and data mining), develop and improve long-term relationship with clients in order to increase the potential of individual refers them (Evangelia, K., B. & Michalis, 2006). Firms also understand that electronic customer relationship management has a lot of potential, but they face the challenge of creating a fast and efficient infrastructure for IT. One of the basic requirements of electronic customer relationship management has been successfully integrating all customer information (Pan & Lee, 2003). Electronic customer relationship management performance measurement in the organization is very important because it helps firms raise their income and increase customer loyalty (Momani & Mohd, 2009).

In literature are known various factors that have effect on electronic customer relationship management performance. The most important case of these factors includes ease of use, usefulness, enjoyment, usability and e-service quality.

2-2) the factors determining the E-CRM performance

In the following, first, defined each of the factors affecting on electronic customer relationship performance and then brought literature for each factor separately.

The ease of use of electronic services

Each system designed for human use should also be easy to use it (Jerry, Nicholas & Tulsa, 2003). Ease of use shows that the individual believes the information system requires little effort.
This concept is one of the classical concepts in information systems research (Davis, Sanders, Manrodt & Venkatesh, 2000 quoted Momani & Mohd, 2009).

Cho & Agrusa found that e-customer satisfaction affects perceived ease of use (Cho & Agrusa, 2006). In addition to, a study by Ramayah & Lo showed that the systems or technologies that are easy to use and readily understood from the perspective of users are most effective (Ramayah & Lu, 2007).

Therefore, we can conclude that the ease of use of electronic services is one of the technology factors that play an important role in E-CRM. Therefore, the investigation ease of use of electronic services examined as one of the factors affecting on E-CRM performance.

The usefulness of using electronic services

Gold and Lewis suggested that any system that designed for human use should be beneficial to use it (Jerry, Nicholas & Tulsa, 2003).

Ramayah & Ignatius expressed ease of use between online services to the customer and the willingness to use online services plays a moderate role (Ramaya and Ignatius, 2010). Samsudin also states that might be perceived ease of use of online services can have a positive impact on the electronic customer relationship management performance (Samsudin, 2009). Shih & Fang found that perceived ease of use and perceived usefulness of the webs significantly affect on the willingness of customers to accept (according to Samsudin, 2009).

Therefore, we can conclude that the usefulness of using of electronic services is one of the technology factors that play an important role on E-CRM. Therefore, the investigation ease of use of electronic services examined as one of the factors affecting on E-CRM performance.

The enjoyment of using electronic services

Each system designed for human use and enjoyable to use it is desirable (Jerry, Nicholas & Tulsa, 2003). In the communications industry can be as enjoyable as the degree to which service activities such as chat, games, and to be understood more fun and enjoyable taken into account (Davis et al, 1989, Venkatesh, 2000 quoted Momani & Mohd, 2009). Wahab, Jusoff, Momani, Mohd & Zahari (2010) showed enjoyment of using electronic services was negatively associated with electronic customer relationship management performance in the mobile communications industry Jordan, but the difference was not statistically significant (Wahab et al., 2010).

Therefore, we can conclude that the enjoyment of using electronic services is one of the technology factors that play an important role on E-CRM. Therefore, the investigation ease of use of electronic services examined as one of the factors affecting on E-CRM performance.

The usability of electronic services

Usability shows that users can do things as efficiently and effectively. Usable system is a system that provides the user's needs (Uehling, 2000). Wahab, Jusoff, Momani, Mohd & Zahari (2010) showed the usability of electronic services have significant and positive impact on electronic
customer relationship management performance in the mobile communications industry in Jordan (Wahab et al., 2010).

Therefore, we can conclude that the Usability of using electronic services is one of the technology factors that play an important role in E-CRM. Therefore, the investigation ease of use of electronic services examined as one of the factors affecting on E-CRM performance.

The electronic service quality

The electronic service quality is a new concept that was introduced by Ziethaml et al in 2002. Quality service can be defined as difference between expectations and perceptions about the performance that they received from service (Momani & Mohd, 2009).

Hamid, Cheng & Akhir speak up should be given to service quality a top priority because it is the first point of contact for customers to evaluate the company's reputation (Hamid, Cheng & Akhir, 2011). The results of Cristobal, Flavian & Guinaliu research in Spain showed that perceived service quality in the electronic environment impact on customer satisfaction and consumer behavior (Cristobal, Flavian & Guinaliu, 2007).

The results of Lai, Hsiao, Yang, Huang & Lee also shows that the electronic service quality have positive significant relationship with electronic customer relationship management performance. Electronic customer relationship management quality also plays the mediator role in this relationship (Lai et al., 2009). Another study results show that service quality in the telecom industry have positive impact on improving customer relationship management (Abdolhosseini et al, 2012).

Survey about the relationship between satisfaction from service quality and E-CRM performance shows that when financial institutions to create E-CRM based on web services for increase in satisfaction with service quality, this leading to improved customer interaction and your investment portfolio and helps organizations to achieve maximize profit (Oglesby & Adams, 2009). Samsudin said that probably perceived quality of online services can have a positive impact on the E-CRM performance (Samsudin, 2009).

Therefore, we can conclude that the electronic service quality is one of the technology factors that play an important role in E-CRM. Therefore, the investigation ease of use of electronic services examined as one of the factors affecting on E-CRM performance.

2-3) conceptual model

Based on the above discussion, in this study the dependent variable is electronic customer relationship management performance. In this study, the independent variables included ease of use, usefulness, enjoyment, usability and e-service quality. It is expected these factors to function well in the communications industry to explain the electronic customer relationship management. According to studies and surveys conducted the research model can be formulated as follows.
Figure 1. Conceptual Model

2-4) Hypothesis

This study consists of five main hypothesis as follows:

First hypothesis: ease of use of electronic services has a positive significant effect on E-CRM performance in the communications industry.

Second hypothesis: usefulness of using electronic services has a positive significant effect on E-CRM performance in the communications industry.

Third hypothesis: enjoyment of using electronic services has a positive significant effect on E-CRM performance in the communications industry.

Fourth hypothesis: usability of electronic services has a positive significant effect on E-CRM performance in the communications industry.

Fifth hypothesis: electronic service quality has a positive significant effect on E-CRM performance in the communications industry.

3) Methodology

This study is an applied research. The type of this study is correlation and survey.

3-1) Popular and sample

Students use more mobile communication services, so more willing to use the various services provided by the operator. However, in this study population is university students in Bushehr province. Sample of university students were randomly and questionnaires were distributed among them. Among distributed questionnaires, 303 questionnaires were usable that entered into SPSS software and then analyzed.
3-2) Operational definition of variables

Previous studies used for operational definition of variables. Several items were used to measure each variable that all the items were adapted from previous studies. 5-point Likert scale is formed of 5 items has strongly disagreed to strongly agree.

To measure the electronic customer relationship management performance use of items introduced by Wang et al (2004), which includes 14 components and Cronbach’s alpha coefficient for this variable in Wang et al studies was equal to 0.92. For measuring the ease of use of electronic services use from structures introduced by Davis (1989), which includes four components and Cronbach’s alpha coefficient for this variable in Davis studies was equal to 0.92. To measure the usefulness of using electronic services performance use from structures introduced by Samsudin (2009), which includes five components and Cronbach's alpha for this variable in Samsudin studies was equal to 0.87. To measure the enjoyment of using electronic services use from structures introduced by Nysveen (2005), which includes four components and Cronbach's alpha for this variable in the study was equal to 0.87. For measuring the electronic services quality use from structures introduced by Yang et al. (2011), which contains 19 components and Cronbach's alpha for this variable in the studies was equal to 0.87. To measure usability of electronic services use from structures introduced by Lewis (1995), which contains 12 components and Cronbach's alpha for this variable component in their study was equal to 0.96.

4) Findings

4-1) Validity and reliability of research

Correctly, assess the validity and reliability can be performed using confirmatory factor analysis. Researchers generally used to assess reliability from Cronbach's alpha coefficient scale. Cronbach’s alpha coefficient index is a scale for internal consistency. Cronbach’s alpha coefficient implies that the value of the items constituting the scale, consistency, and the main structure of the measure. Cronbach’s alpha value is up 70/0 used to reliability of the scale (Danaei Fard, H., Alvani, S. M. & Azar, 2010). Factor analysis (Table 1) and Cronbach’s alpha (Table 2) are as follows for the variables.

Factor analysis for the electronic customer relationship management performance shows that the index of sampling adequacy Kaiser-Meyer-Olkin (KMO) is equal to 0.626 that is more than the amount proposed 0.5 (Hair et al., 1998) and 0.6 (Pallant, 2001) (quoted from Samsudin, W., Azila, M. & Juhary, 2009) and Bartlett’s Test of Sphericity was a lot more significant (significance level is 0.000). All factor loadings are between 0.5 and 0.81, the least variability explained by the extracted factors of 0.5 and maximum variance explained by the extracted factors is equal to 0.81.

Factor analysis for the ease of use of electronic services shows that the index of sampling adequacy Kaiser-Meyer-Olkin (KMO) is 0.731 that it is more than the amount proposed 0.5 (Hair et al., 1998) and 0.6 (Pallant , 2001) (quoted from Samsudin, W., Azila, M. & Juhary, 2009) and Bartlett's Test of Sphericity was a lot more significant (significance level is 0.000). All factor
loadings are between 0.53 and 0.6. The least variability explained by the extracted factors of 0.53 and maximum variance explained by the extracted factors is equal to 0.6.

Factor analysis for the usefulness of using electronic services shows that the index of sampling adequacy Kaiser-Meyer-Olkin (KMO) is 0.734 that it is more than the amount proposed 0.5 (Hair et al., 1998) and 0.6 (Pallant, 2001) (quoted from Samsudin, W., Azila, M. & Juhary, 2009) and Bartlett’s Test of Sphericity was a lot more significant (significant level is 0.000). All factor loadings are between 0.4 and 0.7. The least variability explained by the extracted factors of 0.4 and maximum variance explained by the extracted factors is equal to 0.7.

Factor analysis for the enjoyment of using electronic services shows that the index of sampling adequacy Kaiser-Meyer-Olkin (KMO) is 0.778 that it is more than the amount proposed 0.5 (Hair et al., 1998) and 0.6 (Pallant, 2001) (quoted from Samsudin, W., Azila, M. & Juhary, 2009) and Bartlett’s Test of Sphericity was a lot more significant (significant level is 0.000). All factor loadings are between 0.64 and 0.71. The least variability explained by the extracted factors of 0.64 and maximum variance explained by the extracted factors is equal to 0.71.

Factor analysis for the usability of electronic services shows that the index of sampling adequacy Kaiser-Meyer-Olkin (KMO) is 0.688 that it is more than the amount proposed 0.5 (Hair et al., 1998) and 0.6 (Pallant, 2001) (quoted from Samsudin, W., Azila, M. & Juhary, 2009) and Bartlett’s Test of Sphericity was a lot more significant (significant level is 0.000). All factor loadings are between 0.50 and 0.86. The least variability explained by the extracted factors of 0.50 and maximum variance explained by the extracted factors is equal to 0.86.

Factor analysis for the electronic service quality shows that the index of sampling adequacy Kaiser-Meyer-Olkin (KMO) is 0.787 that it is more than the amount proposed 0.5 (Hair et al., 1998) and 0.6 (Pallant, 2001) (quoted from Samsudin, W., Azila, M. & Juhary, 2009) and Bartlett’s Test of Sphericity was a lot more significant (significant level is 0.000). All factor loadings are between 0.27 and 0.85. The least variability explained by the extracted factors of 0.27 and maximum variance explained by the extracted factors is equal to 0.85.

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Bartlett's Test of Sphericity</th>
<th>the index of sampling adequacy Kaiser-Meyer-Olkin (KMO)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The significance level</td>
<td>Degrees of freedom</td>
</tr>
<tr>
<td>Electronic customer relationship management performance</td>
<td>0.000</td>
<td>91</td>
</tr>
<tr>
<td>Ease of use of electronic</td>
<td>0.000</td>
<td>6</td>
</tr>
</tbody>
</table>
To survey the reliability of the research tools used from Cronbach's alpha. Reliability (Cronbach's alpha) independent variables and the dependent variable show the high reliability of the questionnaire. The correlation of each item with the total items in the questionnaire shows that the removal of any item, does not increase Cronbach's alpha higher than 0.91.

### Table 1: the KMO index and Bartlett's test for variables

<table>
<thead>
<tr>
<th>Variable name</th>
<th>KMO index</th>
<th>Bartlett's test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usefulness of using electronic services</td>
<td>0.000</td>
<td>159.953</td>
<td>0.734</td>
</tr>
<tr>
<td>Enjoyment of using electronic services</td>
<td>0.000</td>
<td>159.716</td>
<td>0.778</td>
</tr>
<tr>
<td>Usability of electronic services</td>
<td>0.000</td>
<td>620.869</td>
<td>0.688</td>
</tr>
<tr>
<td>Electronic service quality</td>
<td>0.000</td>
<td>433.835</td>
<td>0.787</td>
</tr>
</tbody>
</table>

### Table 2: Cronbach's alpha for variables

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Cronbach's alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic customer relationship management performance</td>
<td>0.74</td>
</tr>
<tr>
<td>Ease of use of electronic services</td>
<td>0.75</td>
</tr>
<tr>
<td>Usefulness of using electronic services</td>
<td>0.80</td>
</tr>
<tr>
<td>Enjoyment of using electronic services</td>
<td>0.84</td>
</tr>
<tr>
<td>Usability of electronic services</td>
<td>0.85</td>
</tr>
<tr>
<td>Electronic service quality</td>
<td>0.87</td>
</tr>
<tr>
<td>Entire questionnaire</td>
<td>0.91</td>
</tr>
</tbody>
</table>

4-2) Correlation analysis

To describe the intensity and direction of the relationship between two variables used Pearson correlation coefficient (Pallant, 2001, Samsudin, 2009). The correlation coefficient in table 3 shows that the intensity of the relationship between the dependent variable (E-CRM performance) and each of the independent variables and the relationship between the independent variables together.
<table>
<thead>
<tr>
<th>The relationship between variables</th>
<th>The significance level</th>
<th>The correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic customer relationship management performance and ease of use of electronic services</td>
<td>0.000</td>
<td>0.423**</td>
</tr>
<tr>
<td>Electronic customer relationship management performance and usefulness of using electronic services</td>
<td>0.002</td>
<td>0.344**</td>
</tr>
<tr>
<td>Electronic customer relationship management performance and enjoyment of using electronic services</td>
<td>0.017</td>
<td>0.271*</td>
</tr>
<tr>
<td>Electronic customer relationship management performance and usability of electronic services</td>
<td>0.000</td>
<td>0.593**</td>
</tr>
<tr>
<td>Electronic customer relationship management performance and electronic service quality</td>
<td>0.000</td>
<td>0.533**</td>
</tr>
<tr>
<td>Ease of use of electronic services and usefulness of using electronic services</td>
<td>0.009</td>
<td>0.274**</td>
</tr>
<tr>
<td>Ease of use of electronic services and enjoyment of using electronic services</td>
<td>0.062</td>
<td>0.199</td>
</tr>
<tr>
<td>Ease of use of electronic services and usability of electronic services</td>
<td>0.000</td>
<td>0.407**</td>
</tr>
<tr>
<td>Ease of use of electronic services and electronic service quality</td>
<td>0.012</td>
<td>0.292*</td>
</tr>
<tr>
<td>Usefulness of using electronic services and enjoyment of using electronic services</td>
<td>0.000</td>
<td>0.415**</td>
</tr>
</tbody>
</table>
As table 3 shows the correlation between the E-CRM performance and all of the independent variables, at the 99% confidence level, are positive and significant. Except variable enjoyment of using electronic services, that is significant and positive at a 95 percent confidence level. So, all of the factors identified by the E-CRM statistically have significant and positive correlation between 0.271 to 0.593. The results of the correlation coefficient between the factors affecting on E-CRM performance suggests a positive correlation between variables. Except ease of use of electronic services and enjoyment of using electronic services, usefulness of using electronic services and electronic service quality that have the positive relationship. But this relationship statistically is not significant.

4-3) Multiple regression analysis

To determine the effects of the ease of use, usefulness, enjoyment, usability and e-service quality on the E-CRM performance use from multiple regression analysis.

<table>
<thead>
<tr>
<th>Model</th>
<th>No standardized coefficients</th>
<th>Standardized coefficients</th>
<th>T-statistic</th>
<th>The significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>The standard deviation</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.000</td>
<td>0.383**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.225</td>
<td>0.138</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.003</td>
<td>0.325**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.134</td>
<td>0.169</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.000</td>
<td>0.566**</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4: Multiple regression analysis

Table 4 shows the regression results of independent variables on the E-CRM performance. F-statistic is equal to 8.956 and its significance level is 0.000, which represents the relationship between independent variables and the E-CRM performance. R² is equal to 0.477, which states that almost 48 percent of the variation in the independent variables to explain the function of E-CRM. Among of the five independent variables, two variables usability of electronic services and electronic services quality have a significant effect on the electronic customer relationship management performance. So variables ease of use of e-services, usefulness of using electronic services and enjoyment of using electronic services are excluded from the model and the final model is as follows.

E-CRM performance = 13.914 + 0.347 (usability of electronic services) + 0.264 (electronic service quality)

5) Conclusion

The aim of this study was to identify components and factors affecting on electronic customer relationship management performance in Iran communications industry. Previous researches identified the factors affecting on electronic customer relationship management performance. These factors include: the ease of use, usefulness, enjoyment, usability and e-service quality. The correlation coefficient between the dependent variable and each independent variable represents a significant and positive relationship between independent variables and electronic customer relationship management performance. The results of multiple regression analysis also showed that the ease of use of electronic services has a positive impact on the electronic customer relationship management performance but this effect is not significant. This result does not match with findings of Cho & Argusa (2006) and Ramayah & Lo (2007). The usefulness of using
electronic services has a positive impact on the electronic customer relationship management performance, but this effect is not significant. This result does not match with findings of Samsudin (2009) and Ramayah & Ignatius (2010). Enjoyment of using electronic services has a negative impact on electronic customer relationship management performance, but the effect is not significant. The result is consistent with Wahab et al (2010). Ease of use of electronic services has a positive impact on electronic customer relationship management performance, but this effect is not significant. These results are not consistent with findings of Cho & Argusa (2006) and Ramayah & Lo (2007). Usability of electronic services has a significant and positive impact on the electronic customer relationship management performance. These results are consistent with findings of Wahab et al (2010). Electronic services quality has a significant and positive impact on the electronic customer relationship management performance. These results are consistent with findings of Lai et al (2005), Cristobal et al (2007), Oglesby & Adams (2009), Samsudin (2009) and Abdolhosseini et al (2012).

According to the study results, are recommended to the electronic service providers and telecommunication operators to consider the factors affecting on customer relationship management performance. In particular, pay more attention to usability of electronic services and electronic services quality.
References