An empirical study on different factors influencing information technology adoption for auditing purposes: A case study of a banking organization

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CHRONICLE	ABSTRACT
	In this survey, we have investigated whether an easy and comprehensive information technology (IT) infrastructure could contribute on auditing system in Iranian business society. The survey designs and distributes a questionnaire based on technology adoption method (TAM) among employees of bank Melli Iran who participated in our survey in Likert scale and using t-student and Kruskal-Wallis test examined different hypotheses. The results of our survey have indicated that there was a relationship between a good perception in usefulness of IT implementation and accepting recent advances of IT and auditors with good perception on IT are able to take advantage of recent advances of IT in their auditing skills. In addition, our survey has concluded that ease of IT implementation could create motivation among auditors to automate their traditional skills. While educational background played an important role on our survey, age and job experience did not have any impact on our survey.

1. Introduction

During the past few years, there have been growing interests in adopting information technology (IT) as well as technology adoption method (TAM) in different business models such as auditing systems. However, there are always some concerns on investigating the impact of various factors on IT adaptation (Ajzen & Fishbein, 1972; Ajzen, 1991; Agarwal & Prasad, 1999; Agarwal et al., 2000; Carter, 2001; Mathieson et al., 2001). Bandura (2002), for instance, investigated growing primacy of human agency in adopting of electronic advances. Burton-Jones and Hubona (2005) studied individual differences and usage behavior and emphasized that people's reaction is important for technology adoption.

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Many people believe that e-government is the one of the most effective ways for reducing fraud in governmental agencies (Hassan et al., 1998; Carter & Belanger, 2003). Carter and Belanger (2003) investigated the utilization of e-governmental services by studying citizen trust, innovation and acceptance factors. Tung and Rieck (2005) examined adoption of electronic government services among business organizations in Singapore. The ease of use of IT applications is also believed to be a main factor for adoption of IT infrastructures in business models (Davis, 1989; Gefen & Straub, 2000; Gefen et al., 2003). Training plays an essential role in implementation of IT in new industries (Gist et al., 1989) and Web based applications could contribute on IT implementation, significantly (Glassberg, 2000). A good design perspective for computer integrated facilities could improve productivity and efficiency (Hendrick & Brown, 1984). Digital libraries, for instance, are examples of the best adaptation of advances of IT technology for accessing knowledge. Hong et al. (2002), for example, determined user acceptance of digital libraries in an empirical and examinational of individual differences and system characterizes. Lee et al. (2003) reviewed some relative literature on ease of use for ease of acceptance in technology development. Karahanna and Straub (1999) performed an empirical investigation on the psychological origins of perceived usefulness and ease of use and Lai and Li (2005) examined technology acceptance model for internet banking using an invariance analysis and described that ease of use plays an important for the acceptance of internet banking.

One of the important features in online banking is the ease of use through mobile banking (Ndubisi, 2005; McCormick & Martinko, 2004). Luarn and Lin (2005) explained the relative importance of online banking and explained how important is to understand the behavioral intention to use mobile banking. Pikkarainen et al. (2004) examined various factors, which could motivate customers for online banking. Wang et al. (2003) in other survey examined different factors influencing online banking.

2. The proposed study

In this paper, we use technology adoption method (TAM) to examine the effect of different factors on adoption of information technology in banking sector. The proposed study of this paper has been implemented for Bank Melli Iran. The proposed study of this paper designs and distributes a questionnaire in terms of Likert scale in seven different scales from completely disagree to completely agree. There are three hypotheses associated with the proposed study of this paper as follows,

1. There is a meaningful relationship between a good perception in usefulness of using information technology and accepting recent advances of information technology for internal auditing.

To answer this question we consider the two questions where the first one looks to find out how much IT implementation could increase employees' performance and the second question investigates how much it is useful for employees.

2. There is a meaningful relationship between accepting IT and ease of IT implementation.

To examine this hypothesis, again, the study considers two questions where the first one examines whether it is easy learn IT and the second question studies whether it is easy to implement IT, practically.

3. There is a meaningful relationship between accepting IT for internal auditing and confidence that IT features could completely address auditors' needs.

Finally, to verify this hypothesis, we look for two questions of whether characteristics specified for IT implementation are sufficient and whether it covers auditors' needs in their jobs. Fig. 2 demonstrates the results of our survey for the first questions of the first hypothesis.

The first part of this research is associated with 68 people's personal characteristics who filled all questionnaires, properly.
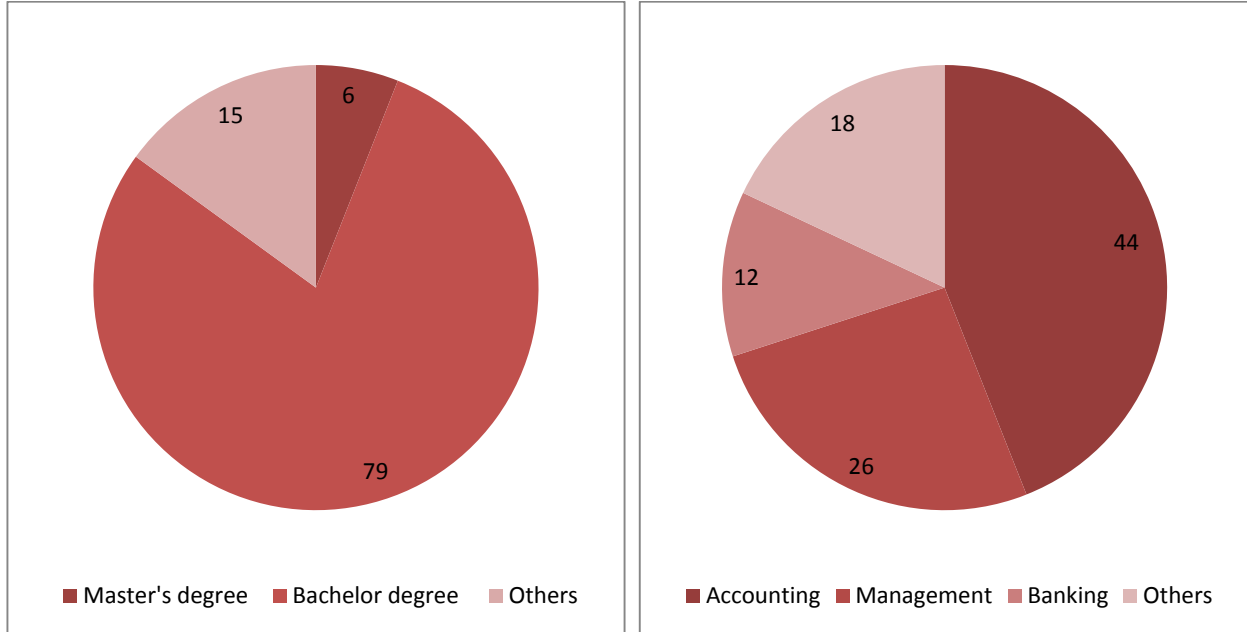

Fig. 1.(a) Educational background
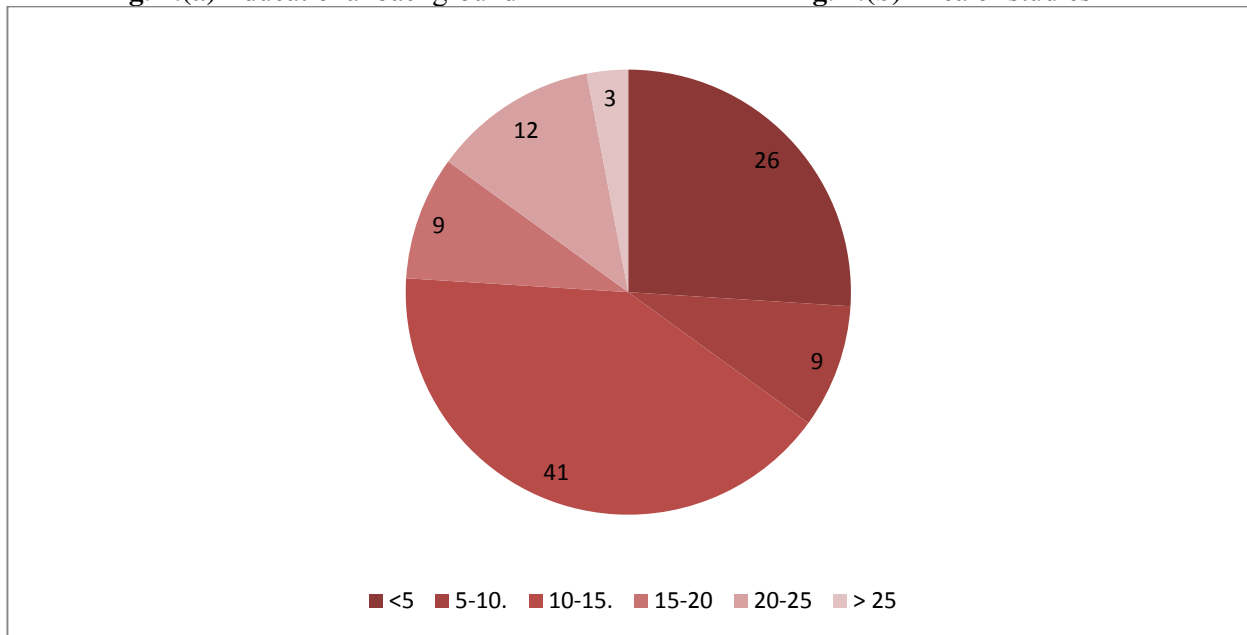

Fig. 1.(b) Area of studies

Fig. 1.(c) Years of job experience
Fig. 1. Personal characteristics of participants

In our survey, 21% of the participant aged 30-40 and the remaining 79% were 40 to 50 years old. In terms of educational background, more participants hold university degrees and they were enrolled in related subject areas.
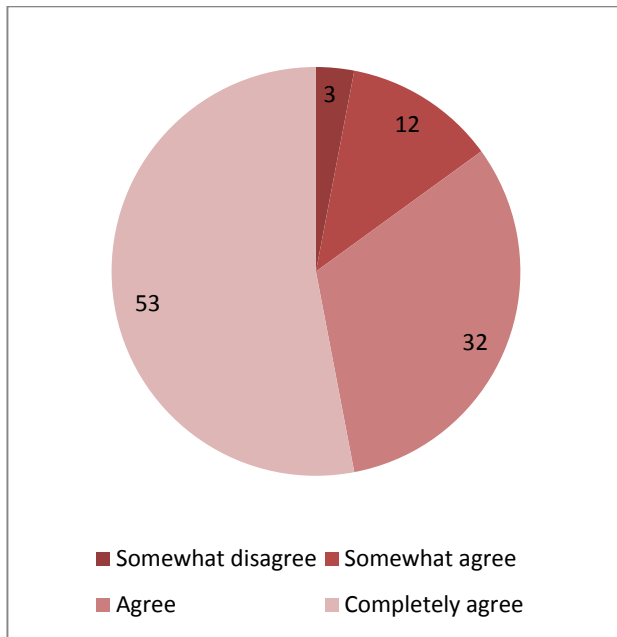
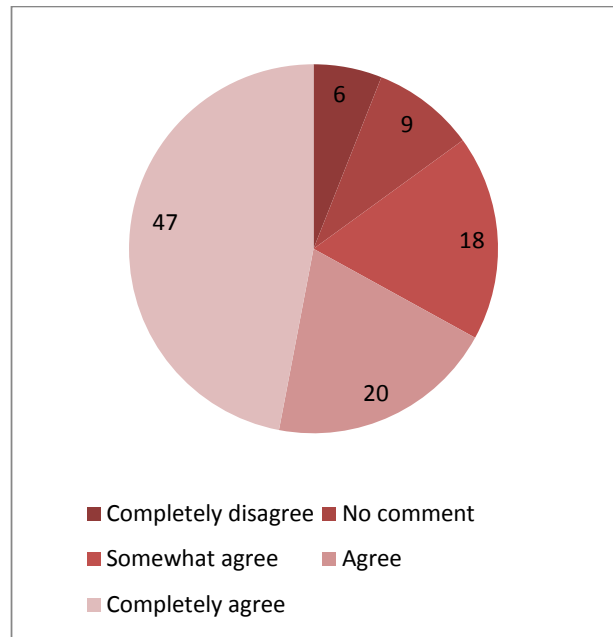**Fig. 2.(a)** How IT has increased auditors' performance

Fig. 2.(b) How IT is useful for auditors

Fig. 2. Frequency of the responses for the first hypothesis

In terms of the frequencies of the responses on questions of the first hypothesis, we can observe that 53% of the participants completely agreed that IT could increase their performance and 87% of the participants were positive that IT implementation could increase their performance. In terms of the frequencies of the effect of IT usefulness for auditors, most of them were positive about IT on increasing auditors' capabilities.
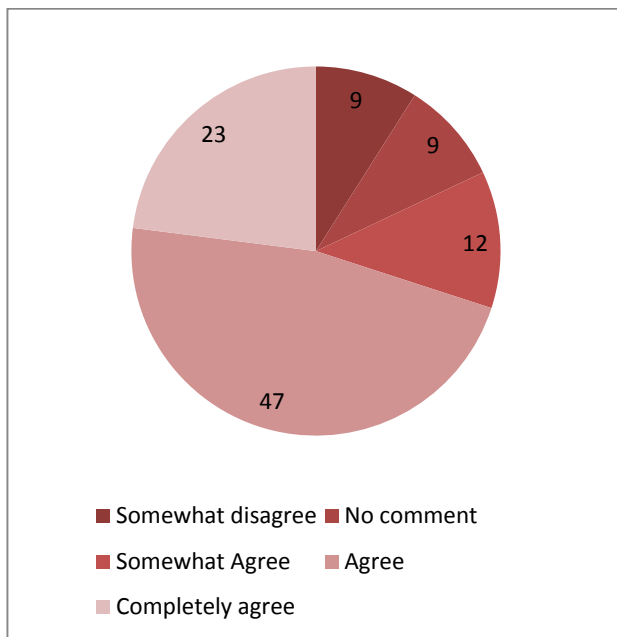

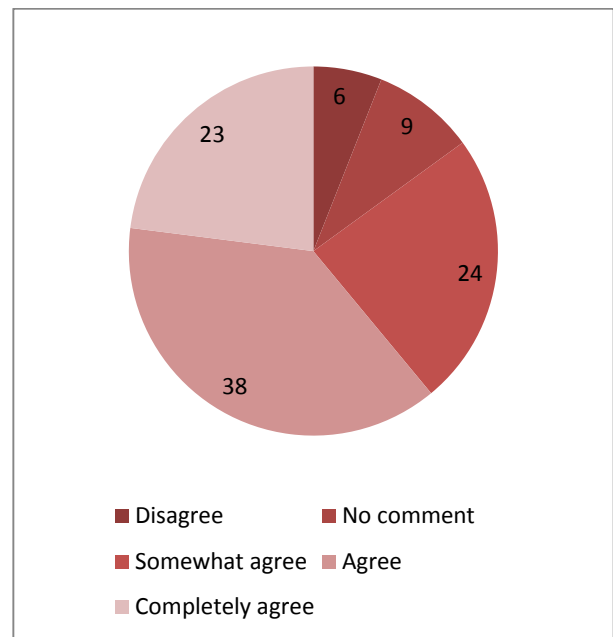**Fig. 3.(a)** Learning IT is easy for auditors

Fig. 3.(b) Implementing IT is easy for auditors

Fig. 3. Frequency of the responses for the second hypothesis

In our survey, 70% of the participants believed that learning IT was easy for auditors and 61% of the participants stated that IT could be implemented in auditing systems, very easily.
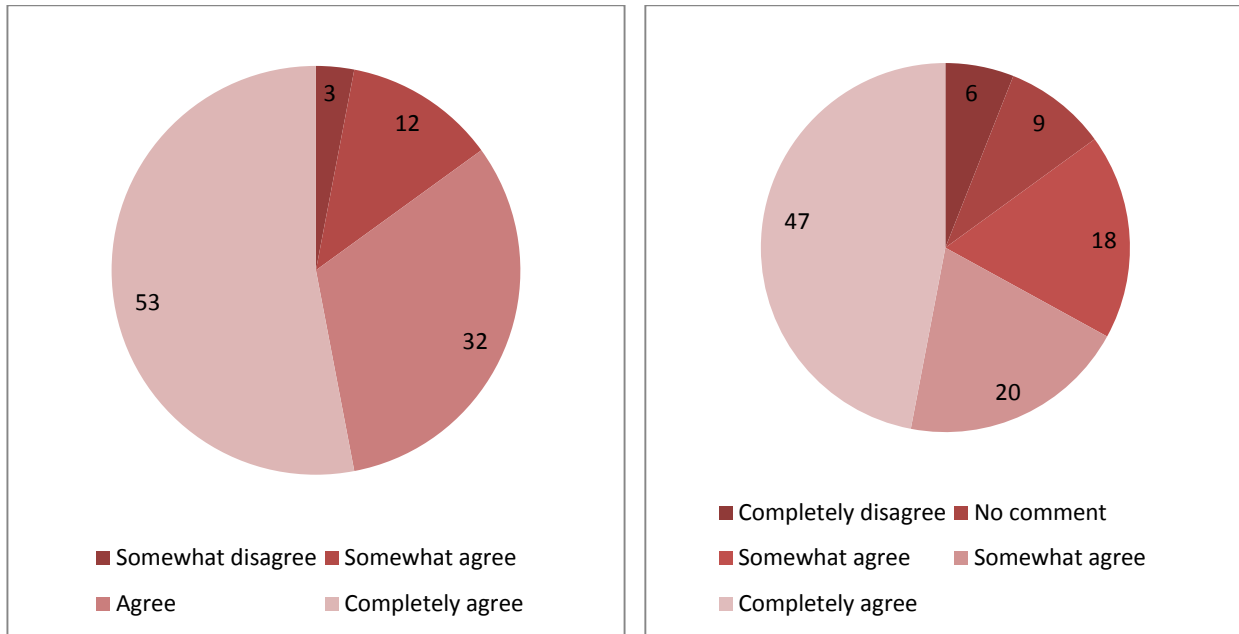

Fig. 4.(a) IT characteristics are sufficient for auditors

Fig. 4.(b) IT characteristics cover auditors' needs

Fig. 4. Frequency of the responses for the third hypothesis

Finally, in terms of basic statistics, 85% of the surveyed people stated that IT maintains sufficient characteristics to be implemented and 67% of them agreed that IT could fulfill their needs.

3. The results

To examine three main hypotheses of this survey, we have used t-student tests. We first assign a value for each seven components, i.e. Completely disagree = 1, Somewhat disagree = 2, …, Completely agree = 7 and measure the average of each responses. Next, we consider null hypothesis as follows,

H_0: $\mu \leq 4$

H_1: $\mu > 4$

3.1. The first hypothesis: Relationship between a good perception in usefulness of IT implementation and accepting recent advances of IT

The first considers whether there is any relationship between a good perception in usefulness of using IT and accepting recent advances of IT. The null hypothesis considers that such relationship does not exit and the alternative hypothesis specifies that this relationship exists. The results of t-student test is equal to 14.994 and p-value=0.000. Since t-student is well above the critical value, 2.074, we can reject the null hypothesis and conclude that there is, indeed, a relationship between a good perception in usefulness of IT implementation and accepting recent advances of IT and auditors with good perception on IT are able to take advantage of recent advances of IT in their auditing skills.

3.2. The second hypothesis: Relationship between accepting IT and ease of IT implementation

The second hypothesis considers whether there is any relationship between accepting IT and ease of IT implementation. The null hypothesis considers that such relationship does not exit and the

alternative hypothesis specifies that this relationship exists. The results of t-student test is equal to 12.868 and p-value=0.000. Since t-student is well above the critical value, 1.632, we can reject the null hypothesis and conclude that ease of IT implementation could create motivation among auditors to automate their traditional skills.

3.3. The third hypothesis: Relationship between accepting IT for internal auditing and confidence that IT features could completely address auditors' needs

The third hypothesis examines whether there is any relationship between accepting IT for internal auditing and confidence that IT features could completely address auditors' needs. The null hypothesis considers that such relationship does not exit and the alternative hypothesis specifies that this relationship exists. The results of t-student test is equal to 0.267 and p-value=0.791. Therefore, we cannot reject the null hypothesis and conclude that people may be unsure on whether IT features could help them accomplish their tasks but still take advantage of recent advances of IT for auditing programs.

3.4. The impact of personal characteristics on responses

We have also performed Kruskal-Wallis test to find the effects of educational background, age and job experience on this questionnaire. The null hypothesis was that there was no meaningful relationship between these issues and their responses to our questionnaire. Table 1 shows details of our survey on the effect of educational background.

Table 1
The results of Kruskal-Wallis test for the effect of educational background

Background	Number	Mean	Kruskal-Wallis test	
Bachelor	54	30.17	Chi-Square	13.056
Masters	4	46.00	Degree of freedom	2
Others	10	53.30	P-Value	0.001
Total	68			

As we can observe from the results of Table 1, Chi-square value is equal to 13.056 with P-value=0.001 and this means that we can reject the null hypothesis and educational background plays an important role on our survey.

Similarly, we have investigated the impact of age on our survey and Table 2 demonstrates the results of our survey on the effect of age.

Table 2
The results of Kruskal-Wallis test for the effect of age

Background	Number	Mean	Kruskal-Wallis test	
Between 30-40	14	41.21	Chi-Square	2.044
Between 40-50	54	32.76	Degree of freedom	1
Total	68		P-Value	0.153

As we can observe from the results of Table 2, Chi-square value is equal to 2.044 with P-value=0.153 and this means that we cannot reject the null hypothesis and age does not play any impact on our survey.

Finally, we have investigated the impact of job experience on our survey and Table 3 presents the results of our survey on the impact of job experience. As we can observe from the results of Table 3, Chi-square value is equal to 2.569 with P-value=0.766 and this means that we cannot reject the null hypothesis and job experience does not influence on our survey.

Table 3
The results of Kruskal-Wallis test for the impact of job experience

Background	Number	Mean	Kruskal-Wallis test	
Less than 5 years	6	29.83	Chi-Square	2.569
Between 5-10 years	18	38.83	Degree of freedom	5
Between 10-15 years	28	33.71		
Between 15-20 years	6	38.83		
Between 20-25 years	8	30.75		
More than 25 years	2	22.50		
Total	68		P-Value	0.766

4. Conclusion

In this survey, we have investigated whether an easy and comprehensive IT infrastructure could contribute on auditing system in Iranian banking sector. The results of our survey have indicated that there was a relationship between a good perception in usefulness of IT implementation and accepting recent advances of IT and auditors with good perception on IT are able to take advantage of recent advances of IT in their auditing skills. In addition, our survey has concluded that ease of IT implementation could create motivation among auditors to automate their traditional skills. While educational background played an important role on our survey, age and job experience did not have any impact on our survey.

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