The present study aims at investigating the relationship between organizational culture and information security management in Shiraz Saderat Bank branches. 310 people were selected using the Cochran formula. The instrument adopted was the Chang and Lin (2007) questionnaire distributed using the relative stratified method. It was validated by getting feedback from experts and the reliability was tested through Cronbach’s Alpha. The descriptive statistics indexes including mean and SD were calculated for all variables. The variables for male and female respondents were investigated using the t test for independent groups. The relationships among the variables were calculated using the SPSS 17. The findings indicated that the relationship between organizational culture and information security management in the Shiraz branches of Saderat Bank is significant. Also the relationships between the dimensions of organizational culture (cooperation, effectiveness, continuance, and innovation) and information security management are significant. Statistical investigations revealed that the correlation between innovation and information security management is significant and negative. The investigation of the influence of demographic variables on information security management revealed that information security scores are significantly higher in males than females and job tenure and education have significant influences on the staff’s perception of information security.

**KEYWORDS:** Information Security, Saderat Bank, Organizational Culture, Cooperation, Continuance, Effectiveness, Innovation.
INTRODUCTION

Nowadays, the increasing uses of technology make information security management inevitable. Information security is increasingly important especially in business (Kankanhalli, 2003). Recently, organizations, especially monetary ones, have been attempting to create a secure information society. The effective role of information technology has made banks, as important credit and finance institutions, take standardizing information security seriously to perform effectively and survive in the age of information. Obviously, the relationship between profitability and the risks of a financial institution is vital. Therefore, the profit of a financial institution which is gained from constant contacts with customers is highly important for all economic units since customers tend to turn to the financial institutions that assure them of both profitability and information security. Moreover, the quality and quantity of banking services are vital in attracting more customers.

PROBLEM STATEMENT

The studies conducted on information security reveal that system's technical details or information technology should not be the only issues to be focused on since technology and systems changes with time (Sanderson and Forcht, 1996). Information security is a social and organization issue since the systems are to be used by individuals. A security product cannot safeguard the interests of a financial organization by itself and without proper managerial and user policies. Investigations indicate that a large number of information security-related problems stem from human faults. Therefore, it is vital to educate and train those who tend to create problems. With investing, building, and completing computer information security systems in financial institutions, the issues associated with staff commitment and their perception of security-related goals are of special importance.

Deal and Kennedy (1982) state that organizational culture is one of the most important factors that contribute to the success or failure of an organization. It serves as a link between management and organizational behavior. Various organizations have different cultures. Since organizational culture greatly affects the activities of an organization, including information security, managers must seriously consider it as factor in supporting and implementing information security. Security is in fact a managerial issue and has nothing to do with technology; technology is a component of security. However, in the absence of deep changes in organizational culture, which directly affects security implementation, purchasing a security product cannot provide security by itself (Von Solmes, 2004). According to the way the staff feels, acts, and thinks, the culture can be compared to the operational system of an organization. The cultural pattern has a complicated relationship with the actions and roles in the organization (Fifield and Allen, 1996). The existing strategies in applying information security tools or performing business and engineering procedures and making managerial changes in the organization are often problematic since employees are not willing to change what they are accustomed to and they are not motivated as well (Cooper, 1994).
Therefore, the present study seeks to investigate the impact of organizational culture and its components, i.e. cooperation, continuance, and effectiveness, on information security management and answer these questions:

1- Are the organizational culture of the Shiraz Saderat Bank branches staff and information security significantly correlated?

2- Are the cooperation of the Shiraz Saderat Bank branches staff and information security significantly correlated?

3- Are the innovation of the Shiraz Saderat Bank branches staff and information security significantly correlated?

4- Are the continuance of the Shiraz Saderat Bank branches staff and information security significantly correlated?

5- Are the effectiveness of the Shiraz Saderat Bank branches staff and information security significantly correlated?

**METHODODOLOGY**

Regarding data gathering methods, this is descriptive-correlative study. In such studies, the correlations among the variables are analyzed based on the goals of the study. It is applied to investigate the degree of changes in one or a number of factors made by the changes in other factors. In fact, this method is applicable only when the degrees of correlation and relationships among variables are to be investigated. The causal relationships are not investigated; rather, the purpose is to investigate which variable is in relatively positive or negative accordance with another.

**Population**

As the country's largest banking network, Saderat Bank has over 3000 branches all over the country. Out of 200 branches in the Fars Province, 88 are in Shiraz. The population of the study includes all 900 managers and employees of Shiraz branches of Saderat Bank.

**Sampling Method and Sample Size**

Applying the Cochran Formula, the sample size was estimated as 310. Using stratified sampling, the questionnaires were distributed and eventually, 287 questionnaires were retrieved and investigated.

\[
 n = \frac{\frac{t^2pq}{d^2}}{1 + \left(\frac{1}{n}\left[\frac{t^2pq}{d^2} - 1\right]\right)}
\]
\( t^2 = z^2 = 1.96 \)
\( p = 0.5 \)
\( q = 0.5 \)
\( d = 0.05 \)

\[
n = \frac{\frac{1.96^2 \times 0.5 \times 0.5}{0.05^2}}{1 + \left( \frac{1}{900} \left[ \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} - 1 \right] \right)} = 310
\]

**DATA GATHERING TOOLS AND METHODS**

Data was gathered using the 60-item questionnaire developed by Chang and Lin in 2007.

**VALIDITY AND RELIABILITY**

The questionnaire was validated by experts and professors of management.

The common method of investigating reliability is Cronbach's Alpha, which is applied to measure the internal consistency of questionnaires which measure various qualities. In this study, Cronbach's Alpha was applied to measure the reliability of the questionnaire.

Table 4-3

<table>
<thead>
<tr>
<th>Cronbach's alpha</th>
<th>components</th>
<th>variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.82</td>
<td>cooperation</td>
<td><strong>Organizational Culture</strong></td>
</tr>
<tr>
<td>0.83</td>
<td>Innovation</td>
<td></td>
</tr>
<tr>
<td>0.87</td>
<td>Continuance</td>
<td></td>
</tr>
<tr>
<td>0.72</td>
<td>Effectiveness</td>
<td></td>
</tr>
<tr>
<td>0.78</td>
<td>Total organizational culture</td>
<td></td>
</tr>
<tr>
<td>0.76</td>
<td>Confidentiality</td>
<td><strong>Information Security Management</strong></td>
</tr>
<tr>
<td>0.75</td>
<td>Integrity</td>
<td></td>
</tr>
</tbody>
</table>
According to the table, Cronbach's Alphas for all variables are over 72%, which indicates high reliability.

DATA ANALYSIS

The descriptive statistics indexes including mean and SD were calculated for each variable. The correlations among variables were calculated using Pearson's correlation coefficient. The differences between males and females were investigated through t tests for independent groups. The relationships among the variables were quantified using the SPSS 17.

FINDINGS

Findings Related to Hypotheses

The present study assumed these hypotheses, which are analyzed and presented in this section.

General hypothesis: there is a significant correlation between organization culture and information security management in the Shiraz branches of Saderat Bank.

Pearson's Correlation Test

In order to calculate the correlation between the two variables, Pearson's correlation coefficient was applied. This coefficient takes on a value between 1- and 1, depending on the degree of correlation between two variables. For instance, when the variables are directly correlated (one grows as another rises, and vice versa), this value approaches 1; and the more it approaches 1, a closer correlations is indicated. When there is a reverse correlation between the variables (one grows as another falls) the coefficient approaches 1-. When there is no significant correlation, it approaches zero.

Primary hypothesis: there is a significant correlation between organizational culture and information security management in Shiraz branches of Saderat Bank.
H₀: there is no significant correlation between organizational culture and information security management in Shiraz branches of Saderat Bank.

H₁: there is a significant correlation between organizational culture and information security management in Shiraz branches of Saderat Bank.

As demonstrated by Table 4-4, since the significance level is below the error level (α = .05), there is a powerful significant correlation between organizational culture and information security management (P= .001, r = .43). Therefore the null hypothesis is rejected and hypothesis 1 is proved.

Table 4-4: Pearson's Correlation Coefficients for Organizational Culture and Information Security Management

<table>
<thead>
<tr>
<th>Sample Size (n)</th>
<th>Significance Level(p)</th>
<th>Correlation Coefficient (r)</th>
<th>Statistical Index</th>
<th>Predicting Variable</th>
<th>Criterion Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>284</td>
<td>0.000</td>
<td>0.826</td>
<td>Information security management</td>
<td>Organizational culture</td>
<td></td>
</tr>
</tbody>
</table>

Secondary Hypotheses

1st hypothesis: there is a significant correlation between cooperation and information security management in Shiraz Branches of Saderat Bank.

H₀: there is no significant correlation between cooperation and information security management in Shiraz Branches of Saderat Bank.

H₁: there is a significant correlation between cooperation and information security management in Shiraz Branches of Saderat Bank.

As indicated by Table 4-5, cooperation and information security management are positively correlated (r = .339, P = .000); however, the correlation is minor. The null hypothesis is rejected and hypothesis 1 is proved. In other words, cooperation among bank staff contributes to a shared understanding of information security.

Table 4-5: Pearson's Correlation Coefficient for Cooperation and Information Security Management
Second hypothesis: innovation and information security management in Shiraz branches of Saderat Bank are significantly correlated.

H0: innovation and information security management in Shiraz branches of Saderat Bank are not significantly correlated.

H1: innovation and information security management in Shiraz branches of Saderat Bank are significantly correlated.

As indicated by Table 4-6, between innovation and information security management, there is a negative significant correlation ($r = -.58, P = .000$). Therefore, the null hypothesis is rejected and hypothesis 1 is proved. In other words, giving the staff the freedom to innovate could not lead to increased information security.

Table 4-6: Pearson's Correlation Coefficient for Innovation and Information Security Management

<table>
<thead>
<tr>
<th>Sample Size (n)</th>
<th>Significance Level (P)</th>
<th>Pearson's Coefficient (r)</th>
<th>Statistical Index</th>
<th>Predicting Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>280</td>
<td>0.000</td>
<td>0.58</td>
<td>Information Security Management</td>
<td>Innovation</td>
</tr>
</tbody>
</table>

Third hypothesis: there is a significant correlation between continuance and information security management in Shiraz branches of Saderat Bank.

H0: there is no significant correlation between continuance and information security management in Shiraz branches of Saderat Bank.

H1: there is a significant correlation between continuance and information security management in Shiraz branches of Saderat Bank.

As demonstrated by Table 4-7, continuance and information security management are significantly correlated ($r = .618, P = .000$). Therefore, the null hypothesis is rejected and
hypothesis 1 is proved. This implies that continuing activities and values of the organization in information security concerns can lead to more effective information security management.

Table 4-7: Pearson's correlation coefficient for continuance and information security management

<table>
<thead>
<tr>
<th>Sample Size(n)</th>
<th>Significance Level(p)</th>
<th>Correlation Coefficient (r)</th>
<th>Statistical Index Predicting Factor</th>
<th>Criterion variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>279</td>
<td>0.000</td>
<td>0.618</td>
<td>Information Security Management</td>
<td>continuance</td>
</tr>
</tbody>
</table>

4th hypothesis: effectiveness and information security management in Shiraz branches of Saderat Bank are significantly correlated.

H0: effectiveness and information security management in Shiraz branches of Saderat Bank are not significantly correlated.

H1: effectiveness and information security management in Shiraz branches of Saderat Bank are significantly correlated.

As demonstrated by Table 4-8, effectiveness and information security management are significantly correlated (r = .618, P = .000). Therefore, the null hypothesis is rejected. Based on these results, effectively developed information security mechanisms lead to stronger management in terms of information security.

Table 4-8: Pearson's correlation Coefficient for Effectiveness of Organizational Culture and Information Security Management

<table>
<thead>
<tr>
<th>Sample Size(n)</th>
<th>Significance Level (p)</th>
<th>Correlation Coefficient (r)</th>
<th>Statistical Index Predicting Factor</th>
<th>Criterion variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>282</td>
<td>0.000</td>
<td>0.61</td>
<td>Information Security Management</td>
<td>Effectiveness</td>
</tr>
</tbody>
</table>
DISCUSSION AND CONCLUSION

The present study was conducted to investigate the relationship between organizational culture and information security management in Shiraz branches of Saderat Bank. The findings indicated that there is a generally significant correlation between the two. It implies that organizational culture can strengthen or weaken information security management. Since the relationship is positive and linear, it is expected that positive and powerful organizational culture can boost information security in Shiraz branches of Saderat Bank, and vice versa. Since information security is an indispensable part of the banking systems, managers and employees should try to improve organizational culture. In the following sections, each study question is discussed.

1- Is there a correlation between the organizational culture and information security management in Shiraz branches of Saderat Bank?

The findings indicated that organizational culture has a significant influence on information security management in Shiraz branches of Saderat Bank. They are in line with those of Chang and Lin (2007). According to this finding, it is advisable the managers of Saderat Bank consider cultural sensitivities and move the organization in a direction that information is considered as values since the culture of an organization is nothing but the values of that organization (Hofsted, 1980). Given the fact that nowadays, security is considered as a competitive advantage in banking, it is required that the human resources appreciate information security and managers try to Institutionalize such culture.

2- Is there a significant correlation between the innovation and information security management in Shiraz branches of Saderat Bank?

The findings revealed that the two variables are negatively correlated. In other words, by giving the staff the freedom to innovate, information security could not be expected to increase.

The more the organization moves toward flexibility, the more difficult it is to implement information security management since innovation entails providing the staff with freedom, which might lead to personal behaviors regarding information security and create problems for the organization.

Managers should keep in mind that such a flexible culture is not helpful for the development of information security and try to run the organization on a series of comprehensive security rules, regulations, principles, and instructions. Since the population of the study included banking staff, and information security is a key to successful banking service provision in the virtual environment, information security can increase the customers' E-trust and banks try to pioneer in expanding mobile and electronic services since they are comparative advantages for the banks.

3- Is there a significant correlation between the cooperation and information security management in Shiraz branches of Saderat Bank?

The results indicated that there is a significant, but minor, correlation between cooperation and information security. In other words, cooperation among the staff and creating a shared understanding increase information security. This is in line with the findings of Pour Ebrahimi
and Fartash Naeni (2012). This significant correlation also indicates that the managers of Saderat Bank should try to create a cooperative atmosphere together with sharing knowledge in the bank. It seems that when the staff is cooperative, they are more willing to share their knowledge of information security, which leads to increased security.

4- Is there a significant correlation between the continuance and information security management in Shiraz branches of Saderat Bank?

According to the results, there is a significant positive correlation between continuance and information security management; the continuance of the organization's values and activities in information security can lead to a more effective management of information security.

The fact that hypotheses 4 and 5 are proved indicates that control-based organizational cultures are more suitable for implementing information security management. Although the control-based nature leads to successful implementation of information security and its management, excessive control can hamper the willingness of staff toward sharing knowledge and information. As indicated by previous studies, developing an organizational culture which encourages knowledge sharing among the staff is considered as a comparative advantage in the knowledge-based economy (Yeh et al. 2006). Accordingly, when information sharing is required, controlling procedures must be applied carefully and meticulously.

The culture of an organization can be made, developed, or changed by basic elements of the culture such as values, norms, and policies. Regarding the culture of information security management, the leaders of the organization must apply proper approaches to expand the culture of information security in the organization and, at the same time, create an atmosphere in which the staff respects information security in terms of technology and attitudes. Obviously, in such cases, flexible organizational cultures will not work and the leaders have to apply information security both in the documents and the procedures and rules and develop a control-based culture in all four areas of information security, namely integrity, confidentiality, responsibility, and availability. Especially, since the results have indicated that innovation is in negative correlation with information security management, in innovative and flexible organizational cultures, essential actions must be taken regarding confidentiality so that it has positive consequences for information security (or, at least, minimize the negative consequences).

Developing information security management can be performed in 3 areas: technology, management, and Institutionalizing (Von Solmes, 2000). Nowadays, information security is not a mere technological issue, and requires that the managers be involved in it and that they develop policies, procedures, and structures which contribute to its expansion. Institutionalizing is more important than technology and management. It involves the expansion of information security as an essential component of organizational culture and makes information security a daily activity of the staff.
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