Introduction

COBIT 5 includes an operational model and a common language for all business sectors involved in IT activities. Moreover, it provides a framework for measuring and monitoring the IT performance, integrating the best management practices, operating system and establishing the communication with stakeholders. COBIT 5 Framework contains a reference process model and defines and describes the processes of governance and management system. The reference process model includes all processes established in the organization for IT activities as a common reference and perceivable model for operating IT and business managers (IT Governance Network, 2011). The functions of COBIT 5 are equivalent to the control procedures of COBIT 4.1, the management procedures of Val IT and IT Risk framework. COBIT 5 follows the purposes and concepts as same as COBIT 4.1, Val IT and IT Risk framework, but these are renamed as the organizational objectives, the IT-related objectives and the process objectives which reflect a view of organizational level. COBIT 4.1 provides the samples of macro objectives and measures at the operational, management and process levels of organization. This is a change from COBIT 4.1, Val IT and IT Risk framework because they should go forward to a lower level. COBIT 5 provides the input and output for any management procedure, while COBIT 4.1 only provides these cases at the process level. Furthermore, it provides the additional detailed guide to designing the processes in order to consider the critical work products and helping to integrate the internal processes (ISACA, 2012). COBIT 5 prevent the continued Capability Maturity Model 23 approach (CMM) for COBIT 4.1, Val IT and IT framework. COBIT 5 is supported by a new ISO/IEC 15504-based process capability assessment approach and COBIT 24 program which was previously established for COBIT 4.1 as another solution according to the capability maturity model approach. The capacity maturity model-based approaches applied for framework of COBIT 4.1, Val IT and IT Risk are not consistent with ISO/IEC 15504 approach because these methods utilize the management scales and different features. COBIT 4.1, Val IT and IT Risk users demand for continuation of capability maturity model-based approach. They can utilize COBIT 5 guidance as the temporary or permanent approach, but they should use the table of COBIT 4.1 general characteristics without high levels of maturity models (ISACA, 2012).

The purpose of this article is to study and investigate the causes of established IT governance using COBIT 5 enablers in the Ministry of Road and Urban Development in 2013.

Research Principles

One of the main needs for information technology in any organization is to take the advantage and utilize the framework and method for information technology control in target organization. The feature of an efficient and appropriate framework for IT governance and control is to provide the service for types of local and foreign beneficiaries of organization. COBIT framework, which is now used by different organizations worldwide, provides the successful management experience in the field of information technology security and control, and its utilization is more valuable for IT control in the organization. The main features and advantages of this system are presented as follows.

The main COBIT features, which define it as a framework for IT Governance, are as follows,
International Journal of Scientific Management and Development

Vol. 2 (12), 668-675
December (2014)

- Focus on the business: This framework is designed for IT systems designers, users, auditors, managers and business owners.
- Process orientation: This framework provides a reference process model for all employees in order to monitor and manage the IT activities in the organization.
- Centralized control: This framework is helpful in managers and organizations' decision-making by creating a balance between the risk, criteria and indexes.
- Measurability: This framework monitors and manages the IT frameworks by providing the organizational maturity model.
- According to the described features, the following advantages are expected from this system.
  - Reducing the experimental difficulties of previous IT management systems.
  - Monitoring the organizational activities every moment.
  - Reducing the IT management costs compared to previous systems.
  - Reducing the risk and diversion from goals due to deficiency in timely data transfer.
  - Ensuring an inviolable framework in line with implementing the approved IT rules and policies.
  - More efficient relationship between vertical and horizontal levels of managers and units in predefined formats.
  - Reducing the auditing and preferred costs according to the establishment of similar framework in the system. (Moeinzad, 2011).

Theoretical Principles

Five new governance processes have been introduced in COBIT 5 and they have utilized and improved COBIT 4.1 governance system approaches, Val IT and IT Risk Framework. This helps the organizations to largely refine and reinforce the IT governance system at the level of executive management. IT supports the integration of IT governance system by existing procedures of governance system and is consistent with ISO/IEC 38500. These processes are presented in Figure 1 (Soroush, 2013).

This paper seeks to find the factors of IT governance establishment in Ministry of Road and Urban Development by utilization of enablers in COBIT 5. Figure 2 shows the criteria of empowerment in COBIT 5. The definitions of each criterion are presented as follows.

Figure (1) Framework of COBIT 5 processes

Figure (2) Enablers in COBIT 5
Principles, policies, frameworks: This framework is defined to implement the strategic information technology. This framework includes the structure of information technology processes and the relationship among them (Nabiollahi, 2012).

Processes: The concept of process in the COBIT standard implies the business requirements in the form of EDI (Evaluate, Direct, Monitor) which is classified into the management of planning stages (APO), construction (BAI), implementation (DSS) and display (MEA) (Preittigun, 2012).

Organizational structure: The internal and external organizational structure of IT should be consistent with the business requirements. A special process can be developed for continuous evaluation of ICT organizational structure in line with the adjustment of employment requirements and strategies for providing resources. In employing the contract and consulting staff or outsourcing of ICT services, it is necessary to define and explain the policies of organization to protect the information assets and they should be inserted in the contract requirements (Nabiollahi, 2012).

Culture, Ethics and behavior: The professional organizations with work context associated with one of the functional areas, have their own specific ethical principles. These rules should be taken while developing the functional systems. Thus, the organizations should consider the privacy rules. Most of the organizations develop and mandate the special charters for of privacy policies and other issues related to the culture, ethics and communication with customers (local, foreign) (Turban, 2006).

Information: The information refers to any data which is transferred in the networks by means of special technologies in the forms of text or multimedia. This data can range from the customer order to the within-organization operation and delivery to customer (Turban, 2006).

Service, Infrastructure and Software: The purpose of this group of terms is generally in the form of goods. The service refers to the product which is offered within the units (for local customers) and between the organizations (for foreign company and customers). The infrastructure is a designed hardware set for providing the service for local and foreign clients. The software program refers to a program which receives the product or service from the source and sends it to the destination after necessary monitoring and processing. The set of services (products), communicational infrastructures (hardware) and software (computer program) make up a context called the ICT (Turban, 2006).

People, skills, competencies: The IT staff and end users' roles and responsibilities are determined and notified after developing the IT framework and proper organizational structure. In this regard, it is necessary to identify the IT key staff; and the roles and responsibilities should be classified in a way that the likelihood of interference in tasks is prevented. Learning the ways of administration for IT managers is among the necessary skills in achieving the organizational structure. It is also necessary to define and reinforce the communicational and interactional structure as well as the cooperation between the IT staff and other employees in the organizations (Nabiollahi, 2012).

Research Literature

The results of research by Shafipour-Motlagh and Yarmohammadian (2012) indicate that the knowledge management provides the context of research activities as well as the utilization of ICT. Applying the meta-analysis methods and utilizing the comprehensive data meta-analysis software, Ghorbanizadeh et al (2012) concluded in their paper that the variables such as the staff empowerment, extensive use of technology, understanding the ease of use, and perceived usefulness had the highest impact on the adoption of information technology in Iranian organizations, respectively. Bagherinejad and Sattari (2012) utilized the analytical hierarchy in their research to assess the e-readiness of organization for applying the information and communication technology. Akbarian and Dorri (2010) provided the models of strategic information alignment and organizational strategies in their article and introduced a method for measuring and determining the levels of using the information systems in line with decision-making at the universities.

Research Methodology

This study is applied in terms of objective and descriptive-survey according to data collection method. The questionnaire with closed questions, degreeed from every high to very low by Five-point Likert scale, is utilized for data collection. Data analysis is performed using SPSS software. The Ministry of Road and Urban Development in Islamic Republic of Iran is as the spatial domain of research. The time domain of study is the year of 2013. The descriptive and inferential statistics are applied in order to investigate the research hypotheses and obtaining the research objectives. In the section of descriptive statistics, the statistics are applied such as the mean, standard error, standard deviation, sample variance, skewness, kurtosis, and in the section of research findings the inferential statistics such as Kolomogrov- Smirnov test, Pearson correlation coefficient and Friedman rank test.

Statistical population and sampling method

The statistical population in this study covers the managers and employees in the Ministry of Road and Urban Development. The judgmental sampling method, which is one of the non-probable sampling methods, is utilized in this study since there is no available complete list of population individuals and the samples are considered based on the researcher's vision or a subjective criterion. The following equation is used to determine the sample size.

\[
n = \frac{(z_{\alpha/2})^2 pq}{\varepsilon^2} = \frac{(1.96)^2 \times 0.25}{0.0036} = 267
\]

According to the presented formula and by taking into account \( p = 0.5, q = 0.5, \varepsilon = 0.06 \) and \( Z_{\alpha/2} = 1.96 \), the number of samples was obtained equal to 267. Due to the existence of some non-delivery or incomplete or abnormal questionnaires, 280 questionnaires were sent to conduct the field studies and 267 complete questionnaires were analyzed.

Reliability and validity of research

The content validity method was utilized for determining the reliability of questionnaire because it was made by the researcher. Thus, the questionnaire was modified was revised by IT experts after review. Then the questionnaires were given to a target (30-sample) population (random) and then the responses were collected. The results obtained from the sample population offers were assessed and the final revision was led by relevant experts and academics professors and then the main questionnaire was given to the main statistical population. Cronbach's alpha coefficient was utilized in order to evaluate the reliability of questionnaire. The Cronbach's alpha coefficients for given questionnaires are presented in Table 1.
Table (1) Comparative values of Cronbach's alpha for research variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Questions</th>
<th>Cronbach's alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rules and regulations</td>
<td>5</td>
<td>0.86</td>
</tr>
<tr>
<td>Processes</td>
<td>5</td>
<td>0.86</td>
</tr>
<tr>
<td>Organizational structure</td>
<td>5</td>
<td>0.87</td>
</tr>
<tr>
<td>Organizational culture</td>
<td>5</td>
<td>0.84</td>
</tr>
<tr>
<td>Information</td>
<td>5</td>
<td>0.86</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>5</td>
<td>0.86</td>
</tr>
<tr>
<td>Skill</td>
<td>5</td>
<td>0.87</td>
</tr>
</tbody>
</table>

According to the calculated Cronbach's alpha values which are more than 0.77 according to Table 1 and the total alpha of questionnaires which is equal to 0.876 according to Table 2, the reliability of questionnaires is confirmed.

Table (2) Comparative values of Cronbach's alpha for research questionnaire

<table>
<thead>
<tr>
<th>Cases</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>267</td>
<td>100.0</td>
</tr>
<tr>
<td>Excluded a</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>267</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.876</td>
<td>7</td>
</tr>
</tbody>
</table>

Research hypotheses

According to the research subject and study of factors which establish the IT Governance in the Ministry of Road and Urban Development, the IT governance is determined as the dependent variable and the rules and regulations, processes, organizational structure, organizational culture, information, infrastructures, and skills are determined as the independent variables in this article. The main enablers-based research hypotheses in COBIT 5 standard are presented as follows.

- The current regulations are led to the establishment of IT Governance in this ministry.
- The current processes related to COBIT 5 standard are led to the establishment of IT Governance in this ministry.
- The organizational structure is led to the establishment of IT Governance in this ministry.
- The organizational culture is led to the establishment of IT Governance in this ministry.
- The information and its accessibility practices are led to the establishment of IT Governance in this ministry.
- The current infrastructures are led to the establishment of IT Governance in this ministry.
- The skills and competencies defined in IT department are led to the establishment of IT Governance in this ministry.

Conceptual Model

The conceptual model if research is presented in Figure 3 according to the standard of COBIT 5 and the empowerment indexes in this standard.
Descriptive Statistics Research
This section provides the demographic and descriptive statistics of research variables including the mean, standard error, median, standard deviation, sample variance, skewness, kurtosis, minimum, maximum and the acceptable level of 99% according to Tables 3 and 4.

Table (3) Demographic Statistics of respondents

<table>
<thead>
<tr>
<th>Educational degree</th>
<th>Woman</th>
<th>Man</th>
<th>Employee</th>
<th>Manager and above</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>48</td>
<td>63</td>
<td>123</td>
<td>-</td>
</tr>
<tr>
<td>Associate degree</td>
<td>27</td>
<td>10</td>
<td>29</td>
<td>-</td>
</tr>
<tr>
<td>Bachelor</td>
<td>37</td>
<td>51</td>
<td>73</td>
<td>16</td>
</tr>
<tr>
<td>Master</td>
<td>15</td>
<td>12</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>PhD</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Sum</td>
<td>128</td>
<td>139</td>
<td>241</td>
<td>26</td>
</tr>
</tbody>
</table>

Table (4) Descriptive statistics of research variables

<table>
<thead>
<tr>
<th></th>
<th>Rules</th>
<th>Infrastructure</th>
<th>Information</th>
<th>Culture</th>
<th>Structure</th>
<th>Processes</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.0562</td>
<td>3.0786</td>
<td>3.0172</td>
<td>3.0043</td>
<td>2.9982</td>
<td>3.0454</td>
<td>3.0501</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.0699</td>
<td>0.0716</td>
<td>0.0694</td>
<td>0.0704</td>
<td>0.0684</td>
<td>0.0736</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>3.0936</td>
<td>3.1596</td>
<td>3.0146</td>
<td>3.0045</td>
<td>2.9692</td>
<td>3.0363</td>
<td>3.0014</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.1422</td>
<td>1.1694</td>
<td>1.1687</td>
<td>1.1335</td>
<td>1.1501</td>
<td>1.1175</td>
<td>1.2025</td>
</tr>
<tr>
<td>Sample Variance</td>
<td>1.3046</td>
<td>1.3676</td>
<td>1.3658</td>
<td>1.1284</td>
<td>1.3228</td>
<td>1.2488</td>
<td>1.4460</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-1.2165</td>
<td>-1.2265</td>
<td>-1.2152</td>
<td>-1.1640</td>
<td>-1.1015</td>
<td>-1.0947</td>
<td>-1.3057</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.0195</td>
<td>-0.1325</td>
<td>-0.0105</td>
<td>-0.0190</td>
<td>0.0213</td>
<td>-0.0620</td>
<td>0.0050</td>
</tr>
<tr>
<td>Minimum</td>
<td>1.0035</td>
<td>1.0300</td>
<td>1.0065</td>
<td>1.0013</td>
<td>1.0087</td>
<td>1.0277</td>
<td>1.0220</td>
</tr>
<tr>
<td>Maximum</td>
<td>4.9735</td>
<td>4.9854</td>
<td>4.9997</td>
<td>4.9875</td>
<td>4.9943</td>
<td>4.9999</td>
<td>4.9915</td>
</tr>
<tr>
<td>Confidence Level (99.0%)</td>
<td>0.1814</td>
<td>0.1857</td>
<td>0.1856</td>
<td>0.1800</td>
<td>0.1826</td>
<td>0.1774</td>
<td>0.1909</td>
</tr>
</tbody>
</table>

According to the demographic and descriptive statistics of sample population of research, it can be concluded that the population of respondents is above the expected average education and awareness of information technology and this verifies the results of field studies.

Research findings

Table (5) Results of Kolmogorov-Smirnov Test

<table>
<thead>
<tr>
<th>Normal Parameters</th>
<th>N</th>
<th>267</th>
<th>267</th>
<th>267</th>
<th>267</th>
<th>267</th>
<th>267</th>
<th>267</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.0487</td>
<td>3.0974</td>
<td>3.0000</td>
<td>3.0187</td>
<td>2.9813</td>
<td>3.0454</td>
<td>3.0501</td>
<td></td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.2360</td>
<td>1.2497</td>
<td>1.22013</td>
<td>1.1935</td>
<td>1.2126</td>
<td>1.1775</td>
<td>1.2733</td>
<td></td>
</tr>
<tr>
<td>Most Extreme Differences</td>
<td>Absolute</td>
<td>.158</td>
<td>.192</td>
<td>.172</td>
<td>.174</td>
<td>.150</td>
<td>.170</td>
<td>.178</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>.158</td>
<td>.151</td>
<td>.172</td>
<td>.174</td>
<td>.149</td>
<td>.164</td>
<td>.178</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>-.150</td>
<td>-.192</td>
<td>-.168</td>
<td>-.169</td>
<td>-.150</td>
<td>-.170</td>
<td>-.176</td>
</tr>
<tr>
<td>Kolmogorov-Smirnov Z</td>
<td>2.091</td>
<td>2.282</td>
<td>2.109</td>
<td>3.155</td>
<td>2.103</td>
<td>2.785</td>
<td>2.905</td>
<td></td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.109</td>
<td>.190</td>
<td>.065</td>
<td>.281</td>
<td>.072</td>
<td>.095</td>
<td>.099</td>
<td></td>
</tr>
</tbody>
</table>

According to the obtained values of Sig greater than 0.05, H₀ indicating the abnormality of distributed research is rejected. In other words, the obtained data of questionnaires have normal distribution; hence, we utilize the parametric tests.

The parametric tests are used in this study for investigating the rate of IT governance in the Ministry of Road and Urban Development. The main reason for this choice is the result of Kolomogrov-Smirnov Test as follows. Following this test, Pearson correlation coefficient and one-way ANOVA test are utilized.

**Normality test of statistical population**
Kolmogorov-Smirnov test with results of Table 5 is utilized to determine the normality of collected field data.

**Correlation coefficient test**
Pearson correlation coefficient is used to determine the relevance and accuracy of coefficients governing the relationship between variables. The results of test are presented in Table 6.
According to the results of computational Sig. in the table, the pair-wise comparison relationship between the research variables is as follows:

- There is no significant correlation between the rules and regulations with culture and skills.
- There is no significant correlation between the infrastructure with culture and skills.
- There is no significant correlation between the information with culture and skills.
- There is no significant correlation between the culture with structure and processes.
- There is no significant correlation between the processes and skills.
- There is no significant correlation between the structure and skills.

For pair-wise comparison of other variables, it can be concluded that:

- There is a significant correlation between the rules and regulations with infrastructure, information, structure, and processes, and the values of this correlation are equal to 0.970, 0.982, 0.979, and 0.983, respectively.
- There is a significant correlation between the infrastructure with the information, structure, and processes, and the values of this correlation are equal to 0.966, 0.966, and 0.964, respectively.
- There is a significant correlation between the information with structure and processes, and the values of this correlation are equal to 0.979 and 0.984, respectively.
- There is a significant correlation between the culture with skills, and the value of this correlation is equal to 0.972.
- There is a significant correlation between the structure and processes, and the value of this correlation is equal to 0.977.

**Hypotheses Test**

The one-way analysis of variance (ANOVA) test is applied to perform the research hypotheses test. The results of test are presented in Table 7. The "ANOVA" dispersion both between and within groups is testes in Analysis of Variance (ANOVA) method. Only the results of mean differences within groups are analyzed in this section.
According to table results, the values of computational Sig for all research variables and IT governance are obtained higher than 0.05, thus the hypothesis of unequal mean of research variables and IT governance is rejected. In other words, the mean of all research variables is equal to IT governance for and there is no significant difference. Therefore, all research hypotheses, indicating that the rules and regulations, processes, organizational structure, organizational culture, information, infrastructures, and skills as the independent variables lead to the establishment of IT governance in this ministry, are rejected.

Conclusion
This study seeks to investigate the reason for establishment of IT governance in the Ministry of Road and Urban Development. The parametric tests are used to study the main objective of study. The results of this study are consistent with previous studies such as (Weill, 2004), (Warland, 2005), (Sambamurthy, 2006), and (Holm Larsen, 2006) in terms of implementation procedures and several results.

Main research result
The pair-wise comparison of research variables indicates that there is no significant correlation between the variables of rules and regulations with culture and skills, the infrastructure with culture and skills, the information with culture and skills, the culture with structure and processes, the structure with skills, and also between the processes and skills.

As mentioned earlier, professional organizations with work context associated with one of the functional areas like Ministry of Road and Urban Development, have their own specific ethical principles. These rules should be taken into account while developing the functional systems. However, the research results indicate lack of consistency of rules with cultures and skills and also consistency of infrastructures with the skills and work ethics of the employers. Qorbanizadeh and colleagues (2012) have shown that one of the effective factors in accepting information technology in the Iranian organization is to understand its usefulness. So, if the employers feel that new infrastructures and rules related to the information technology will distort their working relations, they will not cooperate in its implementation.

For pair-wise comparison of other variables, it can be concluded that there is a significant correlation between the rules and regulations with infrastructure, information, structure, and processes and the values of this correlation are 0.970, 0.982, 0.979 and 0.983, respectively.

The infrastructures are consistent with the organizational rules unlike ethical principles and skills of employers. So, it is necessary to consider ethical principles and skills of employers besides organizational rules.

There is a significant correlation between the variables of infrastructure with information, structure, and processes and the values of this correlation are 0.966, 0.966 and 0.964, respectively. There is a significant correlation between the information with the structure and processes and the values of this correlation are 0.979 and 0.984, respectively. Information technology will influence different dimensions of the organizations. The organizational structure is among the dimensions that are highly influenced. Studying different aspects of this effect will help the organizations in applying this tool (Sa’adatmandi, 2004). The explanation of relation between information technology and organizational structure dates back to the studies of Charles Woodward Peru and other theorists of contingency approach. Like other technologies, information technology influences different organizational factors including organizational structure. So, the organizational structures must be changed and adapted to it (Khanlari, 2004). The results of the present paper show this has been occurred in the Ministry of Road and Urban Development.

There is a significant correlation between the culture and skills and the value of this correlation is equal to 0.972. Furthermore, there is correlation between the structure and processes and the value of this correlation is equal to 0.977. Moreover, all research hypotheses, indicating that the rules and regulations, process, organizational structure, organizational culture, information, infrastructure, and skills, as the independent variables, establish the IT Governance in this ministry, are rejected.
Since the variables raised in this paper were not effective on the information technology governance, other probable factors must be sought. It seems that one of the factors that this paper has not considered is the top to bottom relation structure in such organizations. Akhavan research (2004) also shows that managerial factors are among the most important elements in success or failure of information technology governance projects in the state organizations including Ministry of Road and Urban Development. However, certain conclusions in this regard warrant further research.

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