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Assessment of IT Governance and Process Maturity: Evidence from banking Industry

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Abstract: The aim of the current study is to evaluate and compare the IT governance maturity of Iran's banking Industry and inform managers, who possess business knowledge and who may also be knowledgeable on the main aspects of COBIT, about the significant incremental risks this new technological advancement may expose the enterprise to if the proposals of possible controls are implemented by the prospective consumer enterprises to mitigate the incremental risks of cloud computing. To achieve this implications of IT governance framework and COBIT 4.1 were employed. Using data from 17 large publicly-owned and privately-owned banks. The results indicate that privately-owned banks have higher maturity rank in implementation of IT and business strategies compared to publicly-owned banks.

Keywords: IT governance maturity, IT strategies, strategies alignment, Banking Industry, COBITE

1. INTRODUCTION

Currently, information and communication technology (ICT) as a wondrous manifestation of technology has significant impact on manufacturing firm's performance and on the service industry^[1-3]. But adaptation and development of this new technology in business and entities itself require the availability of an appropriate set of conditions and factors whose absence, in many developing countries such as Iran, have limited the utilization of this new technological advantage^[4-7]. For instance it has been shown that companies that appropriated IT governance structure for effective decision making have been able to obtain higher return from investment than their competitors who did not^[8, 9]. Because of the pervasiveness and dependence on information technology (IT) in organizations, the importance of an alignment between IT units and the business' strategic direction has increased^[2]. This alignment is the primary goal of IT Governance. According to investigations^[6], Iranian banks, in order to maintain their position in the competitive environment, engaged in enormous investment in ICT. However the type of ownership and governance, and the non- competitive banking industry in Iran have caused the banks not pay much attention to the effective use of ICT as a competitive advantage. For this case, investing in IT will not reduce costs and increase efficiency. The aim of current study is to evaluation and comparison of Iran's banks IT governance maturity in the alignment of business strategies with IT strategies. Based on the governance structure of the banking industry (private and public) is explored. Additionally, the difference between IT governance maturity in the Iranian public and private sector bank is investigated using IT governance framework and COBIT 4.1. This paper contrasts IT governance in the private sector with that in the public sector in Iranian banking industry, basing on available literature.

2. LITERATURE REVIEW

The first scientific research regarding the fundamental concepts of IT governance was conducted by researchers in the 60s. But it was not until the late 1990's that the notation of Information system (IS) governance frameworks and then later IT governance frameworks started to feature prominently in the academic literature^[10]. Nowadays, due to the dynamic and competitive business environment, companies invest three to

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five percent of their annual income in the IT sector^[3, 11]. A good IT governance is no longer nice to have but a must have^[12]. Thus, comprehensive frameworks and models in order to evaluate the position of IT in organizations (e.g. IT governance) have been provided by researchers and science centers^[13, 14]. Consequentially many organizations have applied IT governance framework as one the most important operational guidelines^[15, 16]. Furthermore, extensive research using the concepts and IT governance frameworks have been conducted. For instance the research of Weill and Ross^[17] shows that top-performing enterprises generate returns from their IT investments up to 40 percent greater than their competitors. Their studies also show that firms with above-average IT governance have more than 20 percent higher profits than firms with poor IT governance strategy^[17]. In fact, many leading organizations use IT governance to pursue gains in efficiency, accountability, and regulatory and other forms of compliance. In 2006, the IT governance Institute (ITGI) conducted a global survey on 659 organizations and reported that 87 percent of the organizations considered IT crucial to the delivery of their business vision and strategy^[18]. With this major IT dependency comes huge vulnerability inherently imbedded in the complex IT environment^[10, 19]. Mohamed and Singh^[1] developed a conceptual framework that examines IT governance effectiveness, its determinants, and its impacts on private organizations. The results of review suggest 14 propositions and five factors grouped into determinants including organizational demographics, information intensity, organizational culture, external environment characteristics, and IT function characteristics.

2.1 IT governance maturity

IT governance, by deploying information through the application of technology has been recognized as a critical factor for the achievement of corporate success and it is widely accepted that the benefits generated by organizational IT investments directly are influenced by IT governance^[3, 11]. The definition of IT Governance in the literature differ considerably depending upon the perspective of researchers .however, these definitions all focused on the same issue, the alignment of IT with business^[11, 16]. The main goal with the strategic alignment domain is to always move in the right direction and always being better aligned than the competitors and specifically concern about defining, maintaining and validating the IT value proposition. Alignment of IT has been synonymous with IT strategy; does the IT strategy support the enterprise strategy? For IT governance, alignment encompasses more than strategic integration between the (future) IT organization and the (future) enterprise organization. It also is about whether IT operations are aligned with the current enterprise operations^[18].

2.2 COBIT Framework

COBIT was originally intended for use by an organization's management as a benchmarking tool consisting of the best practices related to IT controls. Since then and because of its strong control focus, both internal and external auditors have applied COBIT to financial statement audits as well as to operational and compliance audits^[8]. The COBIT framework is a high-level process model that organizes a broad range of IT activities in 34 processes into four domains(1) Plan and Organize (PO),(2)Acquire and Implement (AI),(3) Deliver and Support (DS), (4)Monitor and Evaluate (ME)(Fig 1). COBIT maturity model is based on the method of evaluating an organization, in view of rating it from a maturity level of non-existent (0) to an optimized level (5).

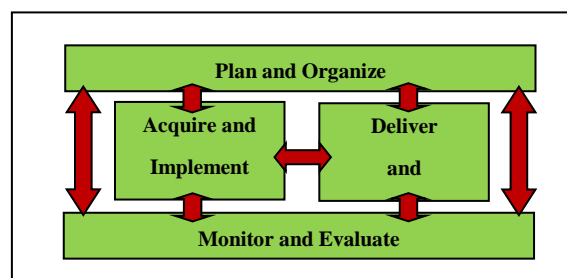


Figure 1: The four interrelated domains of COBIT^[20]

2.3 ITOMAT

IT Organization Modeling Assessment Tool (ITOMAT) is a model-based maturity assessments method for IT governance. It was developed by Simonsson [21] at the Royal Institute of Technology . ITOMAT is a formalized method for IT governance maturity assessments based on the COBIT framework. It provides a fully transparent and formalized analysis framework that enables aggregation of single metrics to comprehensive maturity scores on both process and enterprise level. ITOMAT has identified four generic metrics: activity execution, assigned responsibilities, documents in place and metrics monitoring in COBIT 19 different roles for IT governance are presented. According to ITOMAT, few organizations employ all 19 different roles and therefore ITOMAT features a more simplified representation of only 5 different roles[21].

3. THEORY AND HYPOTHESES DEVELOPMENT

According to Tsholofelo, John [22] government agencies constitute a significant component of economic activity in most countries. Like their private sector counterparts, many public sector agencies are struggling to cope with reduced or inadequate IT budgets and are continuously looking for ways to extract maximum value from IT resources. While there are many similarities between public and private sector organizations, there are inherent differences that suggest that a one size fits all approach to IT Governance may not apply in all circumstances. In private enterprise, the board, in conjunction with the senior management team, has the responsibility of implementing governance principles so as to ensure the effectiveness of organizational processes and investments[17]...According to Choi and Yoo [23] COBIT provides a framework for IT governance and a crucial element of IT governance is achieving a better alignment between business and IT goals. Accordingly, based on the literature review and discussion above, our hypothesis is proposed as follows:

H0: there are significant differences among IT governance maturity of Iranian Banking Industry (public and private sector) regarding the implementation of COBIT processes.

4. RESEARCH METHODOLOGY

For measuring IT governance maturity using COBIT framework, as well as ITOMAT adapted by [3, 24-26].For better understanding in and for effective data analysis, quantitative and qualitative methodologies were employed. This is done in two phases; a quantitative approach was used to gather data through personal interviews by using the ITOMAT. The maturity score of a process was calculated as the average maturity of the four internal metrics. Moreover the organization maturity was calculated as the average maturity of all the 34 COBIT processes[20]. In this study ITOMAT has been used as a tool to assess the IT governance maturity of organizations based on COBIT's maturity model, and since ITOMAT itself is based on COBIT the construct validity for this thesis is satisfactory[3, 27].

5. DATA COLLECTION

In the first phase and with help of in the various banks IT management, different functions of respondents were identified based on the ITOMAT in each bank. Then the IT managers based upon COBIT guidelines distributed 34 processes among the various tasks. Based on the merits and competencies of an individual to answer questions. These were senior managers of organizations, business section, IT sector, IT operational managers, and IT users. Respondents were contacted and interviews conducted. Semi-structured interviews were chosen as they allow for full understanding of the respondents experiences so as appreciate the reasons for answers given to questions asked. The advantages of the interview research method are that it provides a broad range and depth of information, develops relationship with the interviewees and offers flexibility during interviews. Statistical population of the research consists of 17 large banks (11 privately-owned banks and 6

publicly-owned banks) . Interviews and data collection were from September 2012 to February 2013. Table 1 shows the number of individuals’ interviewee from the various sections.

sector	Executive	business	IT managers	IT operations	users	Number of interviewees
public sector	8	9	6	9	10	42
Private sector	12	14	11	14	15	66

Table 1. ITOMAT tasks and number of interviewees of each bank

6. RESEARCH FINDINGS

6.1 privately-owned banks

The highest IT governance maturity among the privately-owned banks was 2.14 where as lowest was 2.05. Fig. 2 shows results of each domain and IT governance maturity (ITGM) average of the privately-owned banks. However, then average ITGM was 2.08.

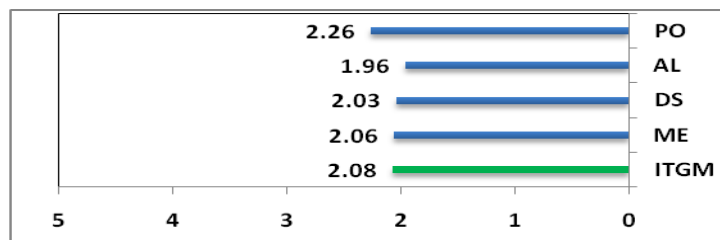


Figure 2: Domain and average IT governance maturity of privately-owned banks

As can be observed in Fig. 2, Planning and Organizing (PO), Monitoring and Evaluation (ME) have the highest maturity among the domains of the privately-owned banks. Also according to the Fig. 3 the highest maturity among the processes in the privately-owned banks were Manage Operations (DS13), Define a Strategic IT plan (PO1), Acquire and Maintain Technology Infrastructure (AI3), and Ensure Compliance with External Requirements (ME3). Higher maturity in the planning and organizing domain processes may be explained through higher IT alignment of business performance in privately-owned banks. Privately-owned Banks in Iran, according to organization strategies, using IT as a competitive advantage. Strategic approach to IT in privately-owned banks has led to structures and processes to be designed in accordance with these strategies. And also has caused to investment in accordance with organization strategies and proper management applying on IT projects. Accordingly, Define a Strategic IT Plan (PO1), Define the Information Architecture (PO2), Define the IT processes, Organization and Relationships (PO4), Manage the IT Investment (PO5), and Manage Projects (PO10) processes, have high maturity (Fig. 3).

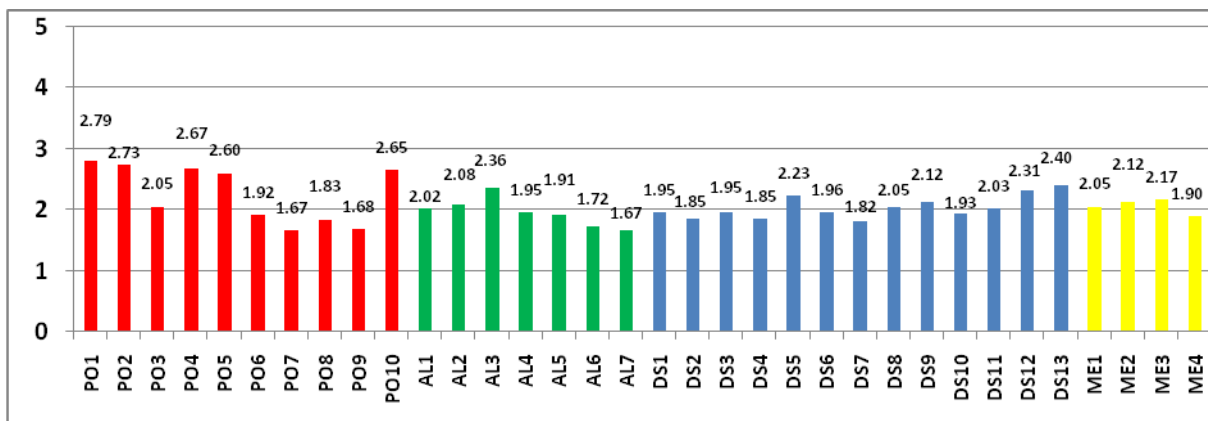


Figure 3. privately-owned banks, results per process.

Due to restriction on absorbing and retaining specialized personnel in the IT sector, the Manage IT Human Resources (PO7) process was not favored. However, most of the privately-owned banks somehow solved this problem by outsourcing IT projects. Additionally, the Assess and Manage IT Risks (PO9) process has the lowest maturity compared with the other processes.

6.2 publicly-owned Banks

The highest ITGM among the publicly-owned banks was 1.92 and lowest was (1.74). Fig. 4 shows results of each domain and the average IT governance maturity (ITGM) of publicly-owned banks (1.79).

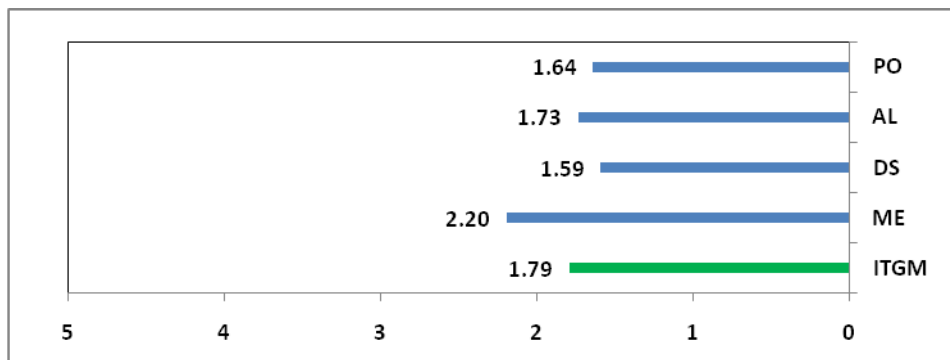


Figure 4. domain and average IT governance maturity of publicly-owned banks

Monitoring and Evaluation (ME) domain in publicly-owned banks has the highest maturity. This domain manages monitoring and controlling organization processes which performing through internal and external audits. Basically, Iranian publicly-owned banks are under intense supervision of central bank, and they should constantly adapt themselves with the rules and regulation as issued by central bank and other legalization centers such as: parliament. In this domain, Monitor and Evaluate Internal Control (ME2), Ensure Compliance with External Requirements (ME3) processes have the highest as shown in Fig.5.

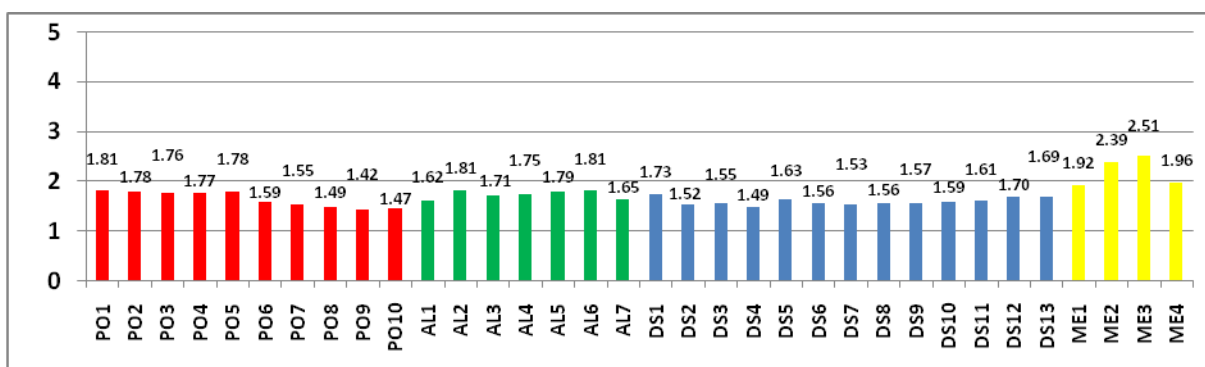


Figure 5. processes and maturity among publicly-owned banks

7. COMPARISON OF PUBLICLY AND PRIVATELY-OWNED BANKS

Results show, that ITGM is not in favored in by the Iranian banking industry. However, privately-owned banks have more favorable condition in terms of ITGM compare to publicly-owned Banks. This is reflected in the ITGM average that for the privately-owned Banks was 2.08 against 1.79 in publicly-owned banks. These results, also confirmed (not rejected), the hypothesis of the study.

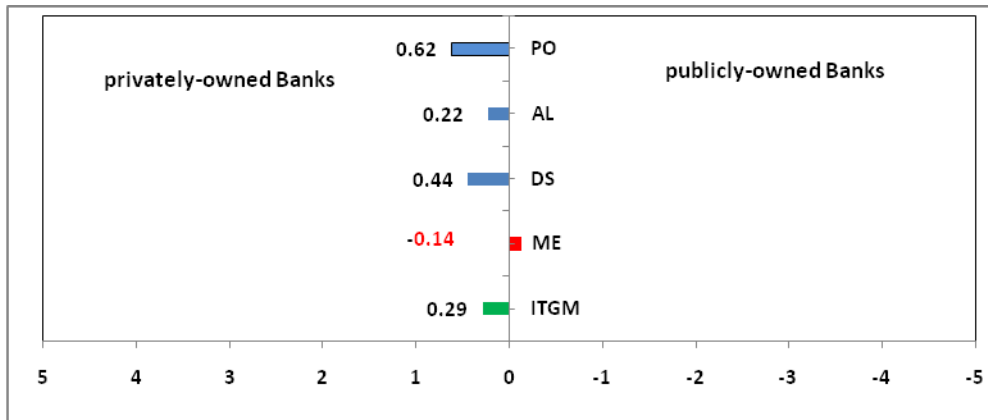


Figure 6. difference in ITGM per domain

Fig. 6 shows the difference between ITGM of the publicly-owned and privately-owned banks per domain, specifically, it represents the ITGM value of the privately-owned bank minus (-) that of the publicly-owned bank based on the four (4) domains. Clearly the Privately-owned Banks, on average have more maturity (0.29) than the publicly-owned banks with regards to ITGM. In fact, the privately-owned Banks have higher maturity in 3 domains in compared to the publicly-owned Banks. These are Planning and Organizing (PO), Acquire and Implement (AI), and Deliver and Support (DS). Not with standing, the publicly-owned banks have higher maturity than privately-owned Banks in the Monitoring Evaluation (ME) domain.

7.1 Planning and Organizing (PO) domain

Whereas the banks under government administration (publicly-owned banks), due to excessive support from government and their massive structure, do not have strategic approach to IT. This may be the reason planning and organizing of IT in the publicly-owned banks have lower maturity. As previously mentioned, high alignment of business strategies with IT strategies in the privately-owned banks through corporate governance may be explain the high maturity in the Define a Strategic IT Plan (PO1) process in this section. Moreover, the higher maturity for Assess and manage IT risks (PO9) and Ensure Systems Security (DS5) processes in the privately-owned banks then those in the publicly-owned banks may be attributed to their business models (Fig. 7).

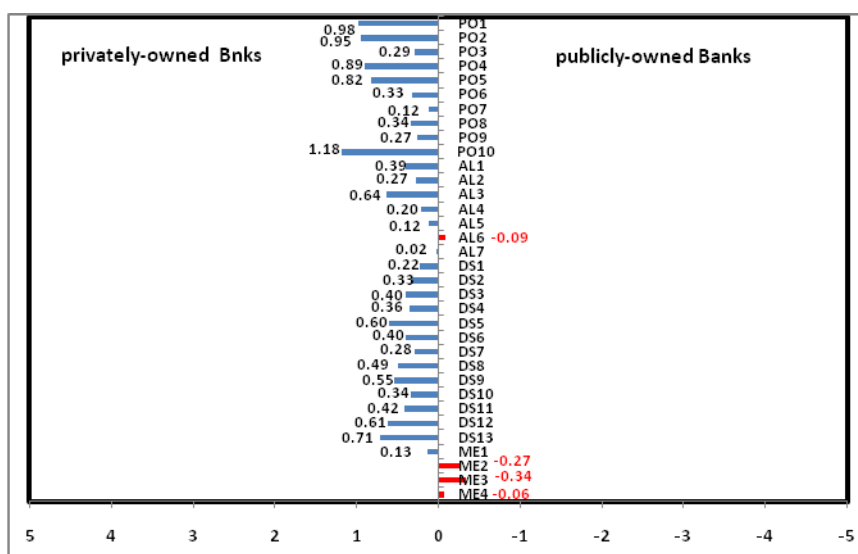


Figure 7. difference in ITGM per process

7.2 Acquire and Implement (AI) domain

Similarly in this domain privately-owned banks have higher maturity in compare to publicly-owned banks. Due to the same cases where previously mentioned, privately-owned banks have strategic approach to IT. And this approach allows them to take very important decisions in planning and in order to IT investment along with business strategies. Privately-owned Banks having high tendency to offer banking services through development of e-services, because compete with publicly-owned banks due to the number and geographical spread of branches cannot be justified, and the only advantage to compete in this environment is development and presentation of new and high quality e-services^[28, 29].

7.3 eliver and Support (DS) domain

This domain is concerned with the actual delivery of required services, these includes service delivery, management of security and continuity, service support for users, and management of data and operational facilities. Again in this domain privately-owned banks have higher maturity than publicly-owned banks. The greatest maturity difference between the publicly-owned and the privately-owned banks in this domain is observed in the Manage Operations (DS13) process. The major resource of banks, particularly, privately-owned banks is public perception and customer trust. The aim of privately-owned banks is not only to increase the number and diversity of resources basket (portfolio, customers) but to keep them for a lifetime and to develop and manage their needs and demands. So as to attract customer loyalty and trust in order to increase their market share^[30].

7.4 onitoring and Evaluation (ME) domain

All IT processes need to be regularly assessed over time for their quality and compliance with control requirements. This domain addresses performance management, monitoring of internal control, regulatory compliance and governance. The domain shows slight maturity difference between the two banking sectors. In fact, the publicly-owned banks have slightly higher maturity than the privately-owned banks. Generally, banks are under permanent supervision of central bank, and compliance with existing laws and regulations is very important. The Monitor and Evaluate Internal Control (ME2) and Ensure Compliance with External Requirements (ME3) processes also show slight maturity difference between two sectors.

8. ONCLUSION AND SUGGESTIONS

Based on the results, ITGM is not favored in Iran's financial services sector. However privately-owned banks enjoy better situation than publicly-owned banks. The ITGM average in privately-owned banks was 2.08 and that in the publicly-owned banks was 1.79, hence, the research hypothesis is confirmed (not rejected). IT is considered as a major and strategic part in development of banks business, and banks using IT as a competitive advantage. This particular issue find more important when we know that currently huge investments occur in banks IT sector and failure in these investments impose irreparable losses to the banks. Therefore, managers in addition to recognize concept of strategic alignment and factors affecting that. Should identify and follow steps to achieve this alignment. In this way, discovering and identifying factors that hinder the achievement of strategic alignment in organizations will contribute to the implementation of strong IT governance in organizations. Additionally, in order to keep strategic alignment in organization, continuous revision and supervision should be conducted. Is necessary to explain, similar to many cases that the managers encountered, achievement of alignment also has some challenges. The challenges such as: organizational culture, organizational structure and hierarchy, which managers must be prepared to meet these challenges. The key of success in this way is cooperation and participation of business managers and IT managers within organization. Hence, one of the most significant challenges for senior managers of banks and one of the most critical success factors is selection and implementation of appropriate model of IT governance in banks.

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