

IT Governance Maturity Assessment Using Demographics Data of Bank Saderat Iran

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ABSTRACT — The use of information and communication technology components is a hardware and software platform in the business environment to facilitate commercial affairs and increase efficiency and effectiveness in order to achieve the strategic objectives of the organization. To achieve this goal, investment only in hardware and software without precise planning and control and also providing its requirements would not be possible. One of the goals of the widespread use of information technology in organizations and enterprises is to increase competitiveness in the market. Proper utilization of the benefits of information technology at various levels of the enterprise, national industry needs proper requirements and infrastructures, so that these platforms without massive investment in ICT will not realize the organization's strategic objectives without providing these infrastructures. One of the important requirements for obtaining the benefits of investment in information and communication technologies in business and meeting organizational goals is strategic alliance of the business sector with the information technology sector in an organization whose primary purpose is IT governance. Today, firms apply information technology as immaterial and developing managerial assets such as information and knowledge capital. This information must be precise and definite to be given to the right person at the right time and place so that the organization can achieve success. Due to the comprehensiveness and dependence of organizations on information technology, the importance of unity among information technology units and the trends of business strategy has increased.

KEY WORDS: Maturity Model, IT, demographic data, Bank Saderat Iran

Introduction

Since the traditional approach to information technology as a management support department till now that plays a strategic role in some organizations, it has been grown significantly. In many organizations today, IT not only support the business strategies, but also shape new strategies. Now, many IT managers who were able to establish themselves as a determinant of the essential strategies in the organization, express their need to enhance their ability to innovate [1-3]; while until recently they were involved to cover their organization's information needs. According to a survey carried out by Macanese Journal in the North American Companies, it was shown that 38% of IT managers believe that IT strategy in their organization has been prepared by the cooperation of business sector and IT sector, and 97% also believe that the organization's IT strategy is fully aligned with the needs of the business. Figure 1 shows the Maturity Model of IT strategy in organizations based on the same research [1]. As concluded from this figure, equipment and infrastructure are the main concerns of organizations at the lowest level of maturity, and IT departments are seen as a support section. In this situation, the IT sector does not matter the organization's business objectives and priorities. As it can be seen in Figure 1, as the organization matures, the cooperation of IT sector with executives is increased, the concentration of IT strategies is drawn on organizational goals and, in fact, IT tries to be aligned with business. At the highest level of maturity, competitive advantages arise and information technology can shape business strategies. In this case, IT considers technology trends and competitive advantages and affects the business objectives and strategies.

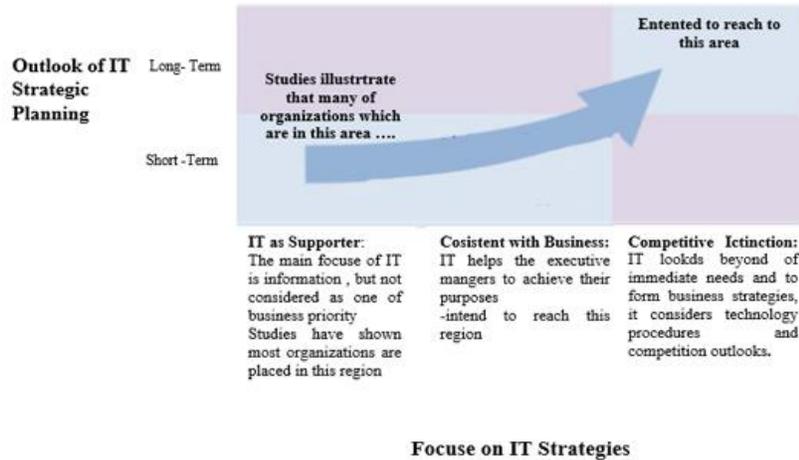


Figure 1. Maturity Model of IT strategy [1].

As is clear from Figure 1, the desired alignment appears in the long-term information technology plans (strategic planning) and we cannot go beyond maintaining the supportive status and providing infrastructure services and information needed by the institution in the short-term plan (operational planning). The results showed that 16% of IT executives at North American organizations prefer long-term planning on short-term planning in organizations [4]. In fact, we can say that based on this model, achieving high levels of IT strategy only requires a change in management and budget priorities and it is possible by a process of long-term planning. In organizations where IT is aligned with business, business and information technology executives in the short term, in addition to a clear understanding of each other's goals and programs, participate in the development of goals and short-term plans of the other side. In the long term, the executives of these two sectors help the development of this vision of how IT should contribute to the success of the business [5]. In short, the difference between the organizations in which IT plays only a supporting role and the organizations that IT shapes their business can be shown as Table 1:

Table 1. The different organizational approach to information technology (IT Governance Institute, 2005)

IT as strategic partner	IT as a server
IT for business growth	IT for efficiency
Budgeting is based on business strategy	Budgeting is the result of external benchmarking
IT is inseparable from the business	IT is separable from the business.
IT is an asset should be managed	IT is a cost must be controlled
IT managers overcome business problems	IT managers are technical specialists

Since the alignment of business with IT has been the top concern of senior managers in recent years, and given that governance is one of the mechanisms to align the business and IT [6], the aim of this report following the definitions and introducing available models and frameworks in the field of alignment is to explain IT governance. After the literature review and presenting the existing frameworks and standards in the in this context, a special study has been made on the COBIT framework as one of IT governance frameworks and then the strengths and weaknesses of this framework is documented based on studies performed to date. Also, regarding the reviewing nature of this report, it has been tried to introduce research topics related to this field, so that this section can be a starting point for further studies in the field of IT governance and the application of COBIT framework.

Research Methodology

One of the most important stages of research is gathering information. Information needed for the study can be collected in various ways. There are various tools such as observation, interviews, questionnaires, etc., to obtain data and documents. Each of these tools has advantages and disadvantages that must be considered when using them so that the research reputation is not damaged and the other strengths of the tool to be strengthened. Every researcher must choose one or more tools according to the nature of the problem and the hypotheses designed. When the required conditions about the reliability of the tools, they can be used to collect data so that the researcher can judge the hypotheses by processing and analyzing these data. Selection of the tools must be in a way that research can defend choosing the tools and thereby validate his achievements [7-11]. The library and Internet research studies have achieved the questionnaire, and data collection has been performed by interview and questionnaire that is discussed in detail in the following chapters.

Descriptive analysis of demographic data

This section describes the sample data. As previously mentioned, the data were obtained from 58 questionnaires. In the next, each of the important demographic data will be presented.

Gender

As specified in Table 3, 45 males and 13 females constituted all of the respondents in the survey, i.e. 77 percent of respondents were male and 33% female. This is shown in Table 3.

Table 3. Gender distribution of respondents

Gender	Frequency	
	Number	Percent
Male	45	%77
Female	13	%23
Total	58	%100

Position of the respondents

In this section, the position of the respondents was questioned in the two main categories of operational management and IT experts. According to the data obtained and shown in Table 4, it was found that the highest proportion of respondents is comprised of IT experts.

Table 4. The distribution of position of the respondents

Position	Frequency	
	Number	Percent
IT	6	10
Operational Management		
IT expert	52	90
Total	58	%100

Experience in the field of information technology

In this section, the experience of the respondents in the field of information technology has been questioned. For this purpose, 5 intervals were considered. According to the data obtained and shown in Table 5, it was found that 40% of the respondents have 6 to 9 years of experience in the field of IT that is the most frequency.

Table 5. The distribution of experience of the respondents

Experience	Frequency	
	Number	Percent
1-3	6	10
3-6	8	14
6-9	23	40
9-12	13	22
Over 12	8	14
Total	58	%100

Education

In this section, the education level of the respondents was questioned at 3 levels. In the section of the position, it was observed that operational managers or supervisors with more than 60 percent of respondents were the majority. Here, it is observable that the highest rate of decisions is structured decision made at the lower level of the bank; indicating a relationship between decisions and organizational position.

Table 6. Distribution of educational level of respondents

Education level	Frequency	
	Number	Percent
BS	35	60
MS	21	36
PhD and above	2	3
Total	58	%100

Model Analysis

As previously noted in this study, exploratory factor analysis techniques and Kolmogorov-Smirnov test, binomial test, Kruskal-Wallis test, chi-square test and Friedman Ranking test were performed using SPSS 14. 0 software. The output of each of test is listed separately below. A descriptive analysis of the questionnaire results is summarized in Table 7.

Table 7. Descriptive statistics from the analysis of research data

Process / sub-process	Number	Min	Max	Mean	SD
Processes of developing strategic IT planning	58	1	2	1.52	0.504
Processes of preparing IT architecture	58	1	2	1.69	0.467
Processes of IT orientation	58	1	2	1.72	0.451
Processes of developing structure, and IT processes	58	1	2	1.76	0.432
Processes of IT investment management and efficient use of investments	58	1	2	1.74	0.442
Processes of IT management of policies and IT laws	58	1	2	1.78	0.421
Processes of IT human resources management	58	1	2	1.67	0.473
Processes of IT service quality management	58	1	2	1.79	0.409
Processes of IT risk management processes	58	1	2	1.78	0.421
Planning and organizing IT	58	1.2	2	1.719	0.3092
Processes associated with identifying IT solutions and services	58	1	2	1.74	0.442
Processes associated with the use and maintenance of applications	58	1	2	1.76	0.432
Processes associated with the use and maintenance of technology infrastructures	58	1	2	1.84	0.365
Processes associated with the exploitation of information technology	58	1	2	1.72	0.451
Processes associated with providing IT resources	58	1	2	1.76	0.432
Processes associated with IT programs change management	58	1	2	1.78	0.421
Processes associated with changes in IT programs	58	1	2	1.79	0.409
The development and implementation of IT	58	1.1429	2	1.77	0.2715
Processes of outsourced IT service management	58	1	3	2.05	0.711
Processes of performance management of IT resources, infrastructure and capacities	58	1	3	2.05	0.711
Processes of IT service continuity	58	1	3	2.05	0.782
Processes of systems' security	58	1	3	2.02	0.761
Processes of IT cost allocation	58	1	3	1.91	0.779
Processes of provide training programs to users	58	1	3	2.14	0.782
Processes of management to respond to users' questions	58	1	3	2.12	0.703
Processes of IT configuration management of IT infrastructure and capacity	58	1	3	2.03	0.674
Processes of user satisfaction	58	1	3	2.02	0.805
Processes of Information management	58	1	3	1.95	0.605
Processes of IT physical environment management	58	1	3	2.07	0.672
Processes of IT operations management	58	1	3	2.1	0.693
Field of IT service and support	58	1.3077	2.8462	2.042	0.5405
Processes for monitoring the effectiveness of the implementation of the laws and regulations in the realization of Information Technology goals of the Bank	58	1	3	2	0.749
Processes to monitor the compliance with the Information Technology rules of the Bank	58	1	3	2.09	0.708
Processes to monitor the compliance with the IT goals of bank	58	1	3	2	0.701
The area of monitoring and evaluation of information technology	58	1	3	2.038	0.5712

In the table 8, the frequency and percentage of each of the primary and secondary processes are shown. The mean and standard deviation for each is given in the last columns. Table columns are for 4 primary processes and 1 total amount is also shown in the last rows. Since the amounts of primary processes is the mean produced by their sub-processes and percentages were not calculated for them, the average of the results for the whole processes is achieved 1.89.

Table 8. The frequency and percentage of the processes of planning and organization

Process		Level 1	Level 2	Level 3	Level 4	Level 5	Mean	SD
Processes of developing strategic IT planning	Frequency	28	30	0	0	0	1.52	0.5
	Percent	48%	52%	0%	0%	0%		
Processes of preparing IT architecture	Frequency	18	40	0	0	0	1.69	0.47
	Percent	31%	69%	0%	0%	0%		
Processes of IT orientation	Frequency	16	42	0	0	0	1.72	0.45
	Percent	28%	72%	0%	0%	0%		
Processes of developing structure, and IT processes	Frequency	14	44	0	0	0	1.76	0.43
	Percent	24%	76%	0%	0%	0%		
Processes of IT investment management and efficient use of investments	Frequency	15	43	0	0	0	1.74	0.44
	Percent	26%	74%	0%	0%	0%		
Processes of IT management of policies and IT laws	Frequency	13	45	0	0	0	1.78	0.42
	Percent	22%	78%	0%	0%	0%		
Processes of IT human resources management	Frequency	19	39	0	0	0	1.67	0.47
	Percent	33%	67%	0%	0%	0%		
Processes of IT service quality management	Frequency	12	46	0	0	0	1.79	0.41
	Percent	21%	79%	0%	0%	0%		
Processes of IT risk management processes	Frequency	13	45	0	0	0	1.78	0.42
	Percent	22%	78%	0%	0%	0%		
Processes of IT project management	Frequency	15	43	0	0	0	1.74	0.44
	Percent	26%	74%	0%	0%	0%		

According to the table 8, it can be concluded that in the area of planning and organizing, the Processes of developing strategic IT planning are at the lowest level of maturity and the Processes of IT management of policies and IT laws as well as the Processes of IT risk management processes are at the highest level of maturity in comparison to the others. It should be noted that none of the processes are at the desired level of maturity.

Table 9. The frequency and percentage of the processes of development and implementation

Process		Level 1	Level 2	Level 3	Level 4	Level 5	Mean	SD
Processes associated with identifying IT solutions and services	Frequency	15	43	0	0	0	1.74	0.44
	Percent	26%	74%	0%	0%	0%		
Processes associated with the use and maintenance of applications	Frequency	14	44	0	0	0	1.76	0.43
	Percent	24%	76%	0%	0%	0%		
Processes associated with the use and maintenance of technology infrastructures	Frequency	9	49	0	0	0	1.84	0.37
	Percent	16%	84%	0%	0%	0%		
Processes associated with the exploitation of information technology	Frequency	16	42	0	0	0	1.72	0.45
	Percent	28%	72%	0%	0%	0%		
Processes associated with providing IT resources	Frequency	14	44	0	0	0	1.76	0.43
	Percent	24%	76%	0%	0%	0%		
Processes associated with IT programs change management	Frequency	13	45	0	0	0	1.78	0.42
	Percent	22%	78%	0%	0%	0%		
Processes associated with changes in IT programs	Frequency	12	46	0	0	0	1.79	0.41
	Percent	21%	79%	0%	0%	0%		

According to the table 9, it can be concluded that in the area of development and implementation, the Processes associated with the exploitation of information technology are at the lowest level of maturity and the Processes associated with the use and maintenance of technology infrastructures are at the highest level of maturity in comparison to the others. It should be noted that none of the processes are at the desired level of maturity.

Table 10. Frequency and percentage of the processes of IT service and support

Process		Level 1	Level 2	Level 3	Level 4	Level 5	Mean	SD
IT service layer management processes	Frequency	13	30	15	0	0	2.03	0.7
	Percent	22%	52%	26%	0%	0%		
Outsourced IT service management processes	Frequency	13	29	16	0	0	2.05	0.71
	Percent	22%	50%	28%	0%	0%		
IT Resources, infrastructure and capacities performance management processes	Frequency	13	29	16	0	0	2.05	0.71
	Percent	22%	50%	28%	0%	0%		
IT service continuity processes	Frequency	16	23	19	0	0	2.05	0.78
	Percent	28%	40%	33%	0%	0%		
Security systems processes	Frequency	16	25	17	0	0	2.02	0.76
	Percent	28%	43%	29%	0%	0%		
IT cost allocation processes	Frequency	20	23	15	0	0	1.91	0.78
	Percent	34%	40%	26%	0%	0%		
Processes of providing training programs to users	Frequency	14	22	22	0	0	2.14	0.78
	Percent	24%	38%	38%	0%	0%		
Management processes to respond to user questions	Frequency	11	29	18	0	0	2.12	0.7
	Percent	19%	50%	31%	0%	0%		
IT infrastructure and capacity configuration management processes	Frequency	12	32	14	0	0	2.03	0.67
	Percent	21%	55%	24%	0%	0%		
User satisfaction Processes	Frequency	18	21	19	0	0	2.02	0.81
	Percent	31%	36%	33%	0%	0%		
Information management processes	Frequency	12	37	9	0	0	1.95	0.6
	Percent	21%	64%	16%	0%	0%		
IT physical environment management processes	Frequency	11	32	15	0	0	2.07	0.67
	Percent	19%	55%	26%	0%	0%		
IT operations management processes	Frequency	11	30	17	0	0	2.1	0.69
	Percent	19%	52%	29%	0%	0%		

According to table 10, it can be concluded that in the area of IT service and support, the Processes associated with the cost allocation processes are at the lowest level of maturity and the Processes associated with providing training programs to users are at the highest level of maturity in comparison to the others. It should be noted that none of the processes are at the desired level of maturity. However, the maturity status in this area is somehow better than planning and organizing area and development and implementation area.

Table 11. Frequency and percentage of the processes of monitoring and evaluation

Process		Level 1	Level 2	Level 3	Level 4	Level 5	Mean	SD
Processes of monitoring the compliance of costs, benefits, strategy, policies and IT services with control requirements of bank	Frequency	12	30	16	0	0	2.07	0.7
	Percent	21%	52%	28%	0%	0%		
Processes for monitoring the effectiveness of the implementation of internal laws and regulations in the realization of Information Technology goals of the Bank	Frequency	16	26	16	0	0	2	0.75
	Percent	28%	45%	28%	0%	0%		
Processes for monitoring the compliance with Information Technology rules of the Bank	Frequency	12	29	17	0	0	2.09	0.71
	Percent	21%	50%	29%	0%	0%		
Processes for monitoring the compliance with the goals of bank supervision	Frequency	14	30	14	0	0	2	0.7
	Percent	24%	52%	24%	0%	0%		

According to the table 11, it can be concluded that in the area of monitoring and evaluation, the Processes associated with monitoring the effectiveness of the implementation of internal laws and regulations in the realization of Information Technology goals of the Bank are at the lowest level of maturity and the Processes associated with monitoring the compliance with Information Technology rules of the Bank are at the highest level of maturity in comparison to the others. It should be noted that none of the processes are at the desired level of maturity. However, the maturity status in this area is somehow better than planning and organizing area and development and implementation area.

Table 12. Frequency and percentage of the main processes

Main processes		Level 1	Level 2	Level 3	Level 4	Level 5	Mean	SD
planning and organizing	Frequency	16.3	41.7	0	0	0	1.72	0.31
	Percent	28.1%	71.9%	0%	0%	0%		
development and implementation	Frequency	13.29	44.71	0	0	0	1.77	0.27
	Percent	21%	79%	0%	0%	0%		
Service and support	Frequency	13.85	27.85	16.3	0	0	2.04	0.54
	Percent	23.85%	48.31%	27.84%	0%	0%		
monitoring and evaluation	Frequency	13.5	28.75	15.75	0	0	2.04	0.57
	Percent	23.5%	49.75%	26.75%	0%	0%		
Total							1.89	0.42

Conclusion

Use of information and communication technology components is a hardware and software platform in the business environment to facilitate commercial affairs and increase efficiency and effectiveness in order to achieve the strategic objectives of the organization. To achieve this goal, investment only in hardware and software without precise planning and control and also providing its requirements would not be possible. One of the goals of the widespread use of information technology in organizations and enterprises is to increase competitiveness in the market. Proper utilization of the benefits of information technology at various levels of the enterprise, national industry needs proper requirements and infrastructures, so that these platforms without massive investment in ICT will not realize the organization's strategic objectives without providing these infrastructures. One of the important requirements for obtaining the benefits of investment in information and communication technologies in business and meeting organizational goals is strategic alliance of the business sector with the information technology sector in an organization whose primary purpose is IT governance. Today, firms apply information technology as immaterial and developing managerial assets such as information and knowledge capital. This information must be precise and definite to be given to the right person at the right time and place so that the organization can achieve success. Due to the comprehensiveness and dependence of organizations on information technology, the importance of unity among information technology units and the trends of business strategy has increased. IT governance is the primary goal of this alliance.

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