Iranian Journal of Management Studies (IJMS) *http://ijms.ut.ac.ir/*
Vol. 9, No. 2, Spring 2016 *Print ISSN: 2008-7055*
pp. 287-304 *Online ISSN: 2345-3745*

Structural requirements for auditing educational and research processes (Case: Shahed University)

Khodayar Abili[1], Jafar Towfighi Dariyan[2], Saeed Khodamoradi[3], Lotfali Jabbari[1*]

1. University of Tehran, Tehran, Iran
2. Tarbiyat Modarese University, Tehran, Iran
3. Shahed University, Tehran, Iran

(Received: 6 March, 2015; Revised: 20 August, 2015; Accepted: 26 August, 2015)

Abstract

The present study identified the structural requirements for auditing educational and research processes in universities. The problem posed in this research is the lack of specific and appropriate structural dimensions for educational and research auditing. The study is descriptive and used the exploratory method. Questionnaires were used to collect data. Data analysis revealed that formalization elements, formation of an official division of specialized professional staff, an organizational chart and activities organized using a horizontal complexity approach are structural requirements for auditing the educational and research processes.

Keywords

Auditing, Education and research, Horizontal complexity, Structural requirements.

* **Corresponding Author, Email:** lajabary2005@gmail.com

Introduction

The main functions of universities are education and research. Education is the provision of services that lead to student acquisition of knowledge, skills, scientific qualification, and mental and social progress. Research is investigation that results in expansion of knowledge about a subject that manifests as findings, understanding, technological and scientific innovations, and artistic creation (Foyuzat, 2003, p.60).

Education and research can be defined as "a process of providing services", meaning that they are not merely the result of line activities, but are the outcome of staff processes and activities in specialized and professional areas.

In the real world, universities usually undergo different types of evaluations (Abili, 1997, p.334). Regardless of the type, approach, time, or level, the goal of evaluation is improvement in system yield. Auditing the process is one step along this path. Moreover, universities should maintain and promote their effectiveness appropriately. To change and react to existing challenges, universities should redesign their structures and organization to be more effective; they should redefine and reset their roles and responsibilities.

Amending and recovering organizational processes can achieve greater productivity and higher quality (Torkzadeh *et al.*, 2009, p.92). This procedure is referred to as organizational development or organizational improvement (Javdani *et al.*, 2007, p.29). Improvement and recovering of processes in general and in reference to educational and research processes have always been important for universities. Auditing the processes can pave the way for increased efficiency, effectiveness and organizational development of universities. The present research offers appropriate strategies for establishing a system for auditing educational and research processes.

The necessity and significance of this study at Shahed University was to implement a system to audit the educational and research processes to improve them. Also higher education of the country (Iran) is faced with competition and financial limitations, in this view

auditing educational and research processes is essential at Shahed University. It is notable that organizational processes and outcomes are better fulfilled by auditing (Peni & Karmil, 2010, p.37). Higher education institutes can achieve optimal levels of critical processes for higher education.

Auditing and auditing the processes are an administrative unit in universities that require an organizational structure (Anderson *et al.*, 2010, p.19). Neither human nor organizational capital can be used in an organization unless the structural grounds and issues are taken into consideration (Khifer *et al.*, 2009, p.49). Auditing processes is essential to quality assurance and to assure optimal performance of projects and tasks in achieving standards and expectations (Shu *et al.*, 2010, p.285). The main features a new organizational structure should be flexibility and the ability to adapt to changing environments (Farhanghi *et al.*, 2013, p.645).

Lack of proper organizational structure when establishing a system to audit educational and research procedures could hinder the process of auditing. A framework for auditing these procedures in universities should be established and organized from the very beginning. The research statement is: What are the appropriate requirements for auditing educational and research processes? Which structural features are necessary for efficient establishment of an auditing system for educational and research processes in universities and how should it be organized?

Literature review

Auditing a process

An audit is the process of accumulating evidence. Data from an audit is applied to determine whether or not criteria have been fulfilled (PRJL, 2011:1). Auditing can investigate all aspects of an institute, including the work force, technology, and processes (Wikipedia, 2012). Auditing is an independent and systematic activity to determine whether existing activities and their results have adapted to planning issues and requirements and whether they are appropriate for effective

achievement of objectives and performance (Mostafayi, 2012, p.4). One functional area of auditing an organization is process auditing.

"Process" is a concept that has been broadly used in organizational discussions (Amid, 2012, p.14). Recently, a process approach has proven its abilities and merits for the evolution and improvement of an organization after several decades (Mohammadi, 2011, p.5). A process is a series of correlated duties that collectively provide a result. It is a group of activities that converts inputs into outputs or results (Peyriz *et al.*, 2007, p.90). Auditing the process is to engage in planned and systematic assessment of procedures, activities and equipment of the operation of that process and data on existing and expected capacity, efficiency and effectiveness (Volvo, 2003, p.30).

Key questions when auditing a process

Are the efficiency and effectiveness of all processes measured? Are those in charge of a process examined for process yield and sequence? Do process improvement objectives adhere to organizational objectives? Do significant plans exist for fulfillment of process objectives? Are the suitability of yields of all organizational processes revised by the CEO? Is the data analyzed when a process does not fulfill its objectives? Are all employees aware of organizational objectives and the present status of their assessments? Do all employees know who their customers are and if they are satisfied? Do all employees know the organizational grounds that are effective in the process? Can they describe the present or planned status for process improvement? What do the personnel assert when they are interviewed about all areas/processes? (CSC, 2009, p.20; Zack Zisky, 2003, p.50).

Academic processes

One comprehensive definition of university processes was modeled by Charles Sturt University in 2009. The model was designed using a universal approach and can be applied as a reference model by other academic institutes (CSU, 2011:7). The main assumption is that universities are complex organizations. Each university has two main groups of processes: Support processes that include planning,

governing, and reinforcing processes and core processes that include educational processes such as teaching and learning and research processes that include research and complementary education. Each process is divided into several sub-processes. The major educational processes at universities are accreditation of courses, preparation of courses, implementation, and outputs. The major research processes are planning, implementation, outcomes, and review.

Structural requirements

Requirements are those items that should be provided (Haringtон, 2011, p.275). Mintzberg (1983) stated that an organizational structure is a set of methods in which a task is divided into duties that are all coordinated. Organizations should have a professional and individual structure within them rather than a robust structure (Khanifar *et al.*, 2009, p.510). The study of scientific and research concepts reveals what theoreticians and researchers establish organizational structures for innovative knowledge-based organizations, organizational entrepreneurship, and for science, research, and technology. Establishment of an auditing system for educational and research processes is also deemed a professional and innovative category in the academic system.

Table 1 lists the aspects and requirements that theorists consider for structural establishment or improvement of organizational activities. They present these requirements as being knowledge-based, entrepreneurial, research-oriented, and innovative for organizations and universities. These requirements should be considered when auditing the processes. In this research, four categories of structural requirements were considered:

1. Formalization elements,
2. Type of organizational unit,
3. Type of organizational chart,

Complexity approach. Formalization is the codification of written and approved laws, rules, work instructions, and communication regarding the organization and its unit affairs (Robbins 2011, p.88).

Table 1. Structural requirements for improvement of organizations and commencement of specialized units

Researcher	Year	Aspects/requirements of structure design
Robbins	1987	Formalization (law, rules, procedures, policies), Complexity (horizontal, vertical, geographical), Centralization (manner of making formal decisions)
Shine	1998	Hierarchy, duties, inclusion, unit type
Karapetrovich and welborn	2000	Goals, management, Resource allocation, work plan, work documents, rules, methodology
wang	2003	Formalization, Centralization, formal structure and networks, structural professionalism, fluidity, line and staff
Anderson and *et al.*	2010	Main organizational features, governance features, mission, value propositions, being in line with beneficiaries, auditing activities features, auditing services quality
Daft	2001	Size, Centralization/, complexity, formalization, specialization, Standardization, Hierarchy, Professionalism, Division of labor
volvo	2003	Organizational chart, job descreption, controls documents, flowcharts, work design
Whatts	2012	Goals, operators, rules and documents, work scope, reporting system

Formalization elements include working rules, goals and policies, duties, procedures and methods (Rezaiyan, 2013, p.31). Robbins (2011) considers compiling roles, rules, policies and procedures as formalization. The organizational units are either line or staff (Seyd Javadin, 2013, p.310). A line refers to those duties that directly allow major organizational goals to be achieved; staff refers those activities that allow effective execution of organizational duties (Alaghehband, 2013, p.102).

An organizational chart is provided following formalization of an organization to show the administrative structure of the organization (Rezaiyan, 2013, p.210). Horizontal complexity is the required degree of knowledge for performing the tasks and to produce and deliver services and products in a system. This degree of complexity can be measured by the educational degree of the organization members. Three main factors for the study of horizontal complexity are professionals, professional tasks, and professional training (Hall, 2006, p.90).

A literature review of existing research reveals that they can be divided into two groups. The first category is research on

requirements, factors, and themes, and design of the organizational structure of organizations such as universities for appropriate structures for entrepreneurship, knowledge base, research and technology. The result of such research reveals that in addition to classic structural aspects such as formalization and the organizational chart, attention should be paid to features such as fluidity, professionalism, being in agreement with beneficiaries, and interaction to effectively fulfill the ideas and subjects in a scientific and professional nature (Zahedi, 2007; Anderson *et al.*, 2010; Wang & Ahmad, 2003).

The second category are studies done about the organizational aspects of auditing in universities and include auditing structure, appropriate scope of auditing, levels of auditing, the role of auditing, process of auditing, and application of auditing in promotion of the quality of universities (Azad, 1994; Che, 2004; Zakaria And *et al.*, 2006; Eliot *et al.*, 2007; Reed, 2010; Anderson *et al.*, 2010). The main conclusions of such research were designing the structure and levels of auditing and verifying the efficiency of the auditing system in academic fields.

Research questions

Main question

What are the appropriate structural requirements for auditing educational and research processes of a university?

Minor questions

What are formalization elements for auditing educational and research processes of a university? What type of organizational unit is proper for auditing educational and research processes of a university? What type of organizational chart is proper for auditing educational and research processes of a university? To what extent is horizontal complexity proper for auditing the educational and research processes of a university? What are the structural requirements for auditing educational and research processes of a university based on instructors' scientific ranking and faculty?

Methodology

The research method chosen for the present study is the exploratory mixed method. The research type is applied in view of its goal. Following the study of theoretical concepts and literature, aspects regarding the structural requirements of auditing educational and research processes were noted. The categories and aspects were analyzed in a 12-member focus group comprising six professionals and six beneficiaries of the processes (managers). These members were chosen by targeted sampling. Next, sample opinions about the research problems and statistical hypotheses were investigated. This second step was done quantitatively and the research was a combination of focus group and survey method.

The statistical population at the quantitative stage included all faculty members of Shahed University, a total of 298 individuals. The required sample size was estimated to be 169 using the Cochran formula. To improve certainty, 182 individuals were selected for the final sample. Since the statistical population came from different faculties of the university, they were selected by stratified sampling.

Questionnaires were used to collect the data. Cronbach's α was used to determine the reliability of the questionnaire to be 91%. Descriptive statistical methods were used for classification, producing tables, drawing charts, and calculating the means and standard deviations. To examine the statistical assumptions, (H_0: $\mu \geq 3$) and (H_1: $\mu < 3$) inferential tests were used. The tests used were the one-sample t-test for mean significance of each variable, one-way ANOVA (F) for integrity or compatibility of member answers based on their personal and organizational specifications.

Research findings

Findings of qualitative research phase

Findings of content analysis by the focus group interviews suggest that the structural requirements for auditing of educational and research processes can be considered in four dimensions:

1. Method of formalization,

2. Nature of the tasks and roles of the processes audit (line or staff),
3. Characterizing appropriate organizational chart,
4. Determining the pattern of organized audit activities.

The major theological statements and qualitative data analysis framework are shown in Table 2.

Table 2. Findings of qualitative research phase

Interviewee code	Statement numbers	Concept	Sub category
P9, P2, P8	3	objectives and policies of processes audit	Formalization mechanisms of the processes audit
P8, P6, P12, P11	4	procedures and methods	
P11, P1	2	Organizational posts and job descriptions	
P7, P6, P8	3	Acts approved rules	
P9, P10, P11	3	Doing staff activities	Determining type of organizational units
P11, P12, P3	3	specialized Staff	
P9, P11, P3	3	professional bureaucratic	
P10, P2	2	3I	Identifying proper organizational chart
P8, P1	2	Shamrock	
P11, P5	2	Applying the services of specialists	Organizing activities by specialized approach (horizontal complexity)
P7, P9	2	Tasks professional division	
P8, P12	2	Holding professional trainings	
P2, P1, P11	3	Formation of specialized teams	

Findings of quantitative research phase

Table 3 shows that the highest score was recorded for the definitions of posts and job descriptions (3.82). The lowest score was recorded for providing and approving rules and instructions (3.4). The t-values for formalization of auditing educational and research processes reveal that all formalization factors were significant at $\alpha = 0.05$. This means that $(H_0: \mu \geq 3)$ is rejected and $(H_1: \mu < 3)$ is confirmed. The research findings confirm that identifying the goals, setting the policies, designing the procedures and methods, defining the positions and jobs, providing and approving rules and instruction are all necessary for auditing edlucational and research processes.

Table 3. Statistical indexes of formalization

Variable titles	$\bar{X}$	SD	t	sig
Identifying goals	3.67	1.06	8.4	0.000
Setting policies	3.55	1.1	6.8	0.000
Designing procedures and methods	3.74	1.1	9.1	0.000
Defining posts and job description	3.82	1.0	11	0.000
Approving rules and guideline	3.4	0.91	7.4	0.000

Table 4 reveals that the highest mean score for type of organizational unit was for staff unit (3.45) and the lowest was for line (3.04). The t-values for type of unit for auditing educational and research processes indicate that type of staff unit and professional are significant at α = 0.05. This means that $(H_0: \mu \geq 3)$ is rejected and $(H_1: \mu < 3)$ is confirmed. Personal and public units were not adequately assessed for auditing of educational and research processes; therefore, the research findings confirmed that the professional quarter is the proper unit for auditing educational and research processes.

Table 4. Statistical indices for type of organizational unit

Variable titles	$\bar{X}$	SD	t	sig
Line unit	3.04	0.7	0.91	0.36
Staff unit	3.45	0.6	10.2	0.000
Specialized staff	3.33	0.61	7.2	0.000
Personal staff	3.08	0.69	1.6	0.103
General staff	3.05	0.67	1.05	0.291

Table 5 shows that the highest score for type of organizational chart was for professional bureaucratic structure (3.33) and the lowest score was for type of shamrock structure (3.03). The t-value for structure of professional bureaucracy was 7.2, which was significant at α = 0.05. This means that $(H_0: \mu \geq 3)$ was rejected and $(H_1: \mu < 3)$ was confirmed. The research findings confirm that professional bureaucratic structure is the proper unit for auditing educational and research processes.

Table 5 shows that the highest score for type of organizational chart was for professional bureaucratic structure (3.33) and the lowest score was for type of shamrock structure (3.03). The t-value for structure of professional bureaucracy was 7.2, which was significant

at α = 0.05. This means that ($H_0: \mu \geq 3$) was rejected and ($H_1: \mu < 3$) was confirmed. The research findings confirm that professional bureaucratic structure is the proper unit for auditing educational and research processes.

Table 5. Statistical indices for type of organizational chart

Type of organizational structure	$\bar{X}$	SD	t	sig
professional bureaucracy	3.33	0.61	7.2	0.000
shamrock	3.03	0.6	0.83	0.406
3I	3.06	0.75	1.07	0.283

Table 6 indicates that the highest score for appropriateness of horizontal complexity was for professional training (3.56) and the lowest score was for tasks done by professionals (3.49). The t-values for each of the four variables were significant at α = 0.05. This means that ($H_0: \mu \geq 3$) was rejected and ($H_1: \mu < 3$) was confirmed. The research findings confirmed the professional task unit, professional training, and use of professional work teams.

Table 6. Statistical indices for appropriateness of horizontal complexity

Variable titles	$\bar{X}$	SD	t	sig
Doing tasks by experts	3.49	1.2	5.6	0.000
professional division of labor	3.55	1.16	6.5	0.000
professional trainings	3.56	1.14	6.3	0.000
applying professional work teams	3.58	1.15	7	0.000

Table 7 reveals that sample members selected high and low responses for the variables of formalization, professional quarter, professional bureaucratic structure and horizontal complexity with 51.6%, 45.7%, 52.5%, 57.6%, respectively. The mean of each variable was larger than the theoretical mean (3). The t-values indicates that the mean values of all 4 variables were significant at α = 0.05. This means that the research findings show that formalization, type of unit in the professional quarter, organizational chart of the professional bureaucratic structure, and work organization with a horizontal complexity approach are confirmed to be structural requirements for auditing educational and research processes.

Table 7. Statistics of structural requirements (main variables) for auditing educational and research processes

Variable titles	Percentage of distributed of selected options					$\bar{X}$	t	sig
	Very low	low	average	high	plenty			
Formalization elements	8.6	8.4	31.3	31.7	19.9	3.46	7.9	0.000
unit type - Specialized staff	7.6	10.2	36.5	32.8	12.9	3.33	7.3	0.000
Chart type-professional bureaucracy	6.2	10.1	31.2	37.2	15.3	3.48	7.2	0.000
horizontal complexity	8.4	7.1	26.9	36.9	20.7	3.47	8.2	0.000

Table 8 confirms that one-way ANOVA of structural requirements for auditing educational and research processes as per scientific ranking of the statistical sample was F= 0.974, which is not significant at α= 0.05, so $(H_0: \mu \geq 3)$ was not rejected. This means that the structural requirements of auditing educational and research processes as per scientific ranking are not significant.

Table 8. Results of one-way ANOVA for structural requirements for auditing educational and research processes as per scientific ranking of statistical sample

Sources of variations	SS	DF	MS	F	Sig
between groups	0.811	3	0.270		
Within groups	49.38	178	0.27	0.97	0.406
total	50.2	181			

Table 9 confirms that one-way ANOVA of the structural requirements for auditing educational and research processes as per working faculty was F= 1.011, which is not significant at α= 0.05, meaning that $(H_0: \mu \geq 3)$ was not rejected. This means that the structural requirements for auditing educational and research processes as per working faculty is not significant.

Table 9. Results of one-way ANOVA for structural requirements for auditing educational and research processes as per working faculty

Sources of variations	SS	DF	MS	F	Sig
between groups	3.902	7	0.7		
Within groups	46.29	174	0.26	1.01	0.110
total	50.2	181			

Discussion and Conclusion

The findings confirm that defining and approving formalization is one structural requirement for auditing educational and research processes. Logically speaking, auditing is actually executed in a university when administrative themes are approved by competent authorities. This assures formal support of auditing and the results are stronger and more confidence is placed in them. It can be concluded that objectives, policies, procedures, methods, tasks, rules and instructions for auditing educational and research processes should be written and approved so that the auditing system is legally and formally established by the university.

Another finding is that auditing of educational and research processes should be an organizational unit supervised by specialized staff. The main duty of auditing system is to present specialized data that results in logical and efficient decisions. A specialized staff aids executive units at the technical and professional levels of organization. Specialized staff should be equipped with the skills and training that line managers' lack. Those in charge of auditing educational and research processes must be able to effectively make decisions as part of their technical and professional skills. The auditing unit should reflect a level of competence entailing the right to issue work instructions for other units on technical affairs and activities to improve the scientific approach.

Another finding is that the organizational chart for auditing educational and research processes should be professional bureaucratic. Traditional hierarchical structures cannot cope with technical and auditing tasks and objectives. Because auditing is complicated, a professional bureaucratic structure is most efficient because it allows auditing professionals to work independently and propose decentralized decisions by professional teams and individuals. The audited universities are often relatively stable, but auditing is complex more strength and confidence. As a result, one structural requirement for auditing educational and research processes is to have a professional bureaucratic structure. Application of structural features

and aspects of other organizational charts such as the 3I and shamrock could be also applied.

Another finding is that horizontal complexity should be applied to organize tasks and divide the work of those in charge of auditing educational and research processes. In this approach, instead of dividing tasks into simple monotonous jobs, the tasks organize in internal departments. The creation of internal departments increases the status of individual professions and educations. If this approach is applied, social professionalism in which individual tasks are specialized rather than works. A professional team works better than when organizational liberalism dominates. Then issuing general instructions and principles for auditing educational and research processes, the experts in charge automatically determine and perform professional- contingency methods. Horizontal complexity matches with a flat structure such as professional bureaucracy and more productivity and satisfaction can be seen among employees. So concludes a horizontal complexity approach is appropriate to organize tasks and audit professionals.

The findings of other researchers (Azad, 1994; Che, 2004; Zakaria *et al.*, 2006; Eliot *et al.*, 2007; Reed, 2010; Anderson *et al.*, 2010; Zahedi, 2007; Anderson *et al.*, 2010; Wang & Ahmad, 2003) confirm the importance of formalization, specialization, determination of the audit level, and the organizational chart. The results of the present study are consistent with these previous research findings. To compare and generalize the results of this study, research limitations should be considered. The implementation of this research at Shahed University is most important limitation of this study. The studied University has specific situation, including that the comprehensive academic majors and faculties. Therefore the findings of this study are effective in the scope of studied university.

The results of ANOVA show that there is a relationship between sample member opinions (as per their scientific ranking and working faculty) about the structural requirements for auditing educational and research processes. It can be concluded that formalization factors should be recorded and approved for establishment of a system for

auditing educational and research processes in universities. Then a professional unit with an organizational chart should be planned and activated. Finally, the activities should be organized with horizontal complexity.

Suggestions

The following suggestions are made regarding the findings and results of this study:

- The notion of independent auditing of educational and research processes is new; it is suggested that the subject be approved by university authorities.
- A professional team should be is formed to follow up and establish auditing educational and research processes.
- Before auditing begins, the necessary platforms such as training of staff in charge should be provided.
- Comparative experiences should be applied as much as possible for optimal commencement of the system for auditing educational and research processes.
- Hardware facilities should be provided at universities and be available for those in charge of auditing processes.

References

Abili, kh. (1997). "The nature of current supervision and evaluation in Iranian higher education". *1th higher education congress in Iran*, Tehran, Iran, Allameh Tabatabi Univrsity.

Alaghehband, A. (2013). *General management*, Tehran, Iran, Ravan. (In Persian)

Amid, A. (2012). *Reengineering the business processes*. Tehran, Iran, SAMT. (In Persian)

Andersona, U., Christ, M., Johnstone, K. & Rittenberg, l. (2010). *Effective Sizing of Internal Audit Departments*. Texas, USA, The Institute of Internal Auditors Research Foundation (IIARF).

Azad, Ali. N. (1994). "Operational Auditing in US Colleges and Universities". *Managerial Auditing Journal*, 9(2), 12-19.

Bozkus, k. (2010). *lean higher education: increasing the value and performance of university processes*. Springer, Vanderbit University, Nashville, USA.

CSC (2009). *developing audit trails that make a difference*, USA.

Elliott, M., Dawson, R. & Edwards, J. (2007). "An improved process model for internal auditing". *Managerial Auditing Journal*, 22(6), 552-565.

Farhanghi, A., Abbaspour, A. & Abachian, R. (2013). "The effect of information technology on organizational structure firm performance: an analysis of consultant engineers firms (CEF) in Iran". 1st world congress of administrative and political sciences (ADPOL-2012), Elsevier, *presidia -social and behavioral sciences*, 81, 644-649.

Foyuzat, Y. (2003). *Role of the universities in national development*, Tehran, Iran, Arasbaran.

Harington, J. (2011). *Business process improvement*, translated by Gholamhossin salehi, Hossin mobbaraki, Tehran, Iran, Nashreh Akhar.

Javdani, H., Pardakhtchi, M. (2008). "Study of Organizational Development in Iranian Higher Education System". *Quarterly journal of Research and Planning in Higher Education*, 13(4), 21-44.

Khanifar, H., Hassan zadeh, H. & kolivand, H. (2009). "The environmental requirements for Iranian Central Assurance structure". *Journal of Insurance World News*, 130, 49-63.

Mostafayi, s. (2012). *Auditing the human resource training and development in Iranian GAZ cooperation with ISO 10015 standards*. M.S thesis, Shaheed Beheshti University, Tehran, Iran.

Mohammadi, sh. (2011). *Organization and processes*. Tehran, Iran, Khagehnasier university.

Penini, G. & Carmeli, A. (2010). "Auditing in Organizations: A Theoretical Concept and Empirical Evidence". *Journal of Systems Research and Behavioral Science*, 2(27), 37-59.

Praxiom Research Group Limited (2011). *Auditing definitions*. ISO 19011. Caneda. (www.praxiom.com).

Reid, K. (2010). "An evaluation of an internal audit on student feedback within a British university: A quality enhancement process". *Quality Assurance in Education Journal*, 18(1), 47-63.

Robbins, s. (2011). *Organization theory; structure, design and processes*. translated by syeed mehdi alvani and Hassan danaiee fard, Tehran, Iran, saffar.

Perez, A., Barcelo, M., Sanchez, S., Martin, F., Tomas, J. & Vanti, A. (2007). "A Model and Methodology to Knowledge Auditing Considering Core Processes". *Journal of Knowledge Management*, 7(1), 7-23.

Rezaiyan, A. (2013). *Fundamentals of organization and management*. Tehran, Iran, Samt.

Richard, H. (2012). *Organization; structure, processes and outcomes*. translated by Ali parsayan and syeed mohammad araabi, Tehran, Iran, Cultural Research Office.

Daft R.l. (2001). *Organizational theory and design*. USA: South-Western publication.

Shu, F., Li, Q., Wang, Q. & Zhang, H. (2010). "Measurement and analysis of process audit: A case study". Conference Paper, *International Conference on Software Process*, July 8-9, Paderborn, Germany.

Turkzadeh, J., Sabbaghiyan, z. & yamani, M. (2009). "Analytical assessment of the organizational development successful experiences in some foreign universities". *Iranian Higher Education Association Journal*, 2(3), 89-113. (In Persian)

Volvo, P. (2003). *Process and product audit*, PQP11, ISSU. 20, Great Ebook library.

Watts, F.B. (2012). *Engineering documentation control handbook*. fourth edition, Science Direct, 307-324.

Zahedi, Sh. & Kheirandish, M. (2007). "Explaining Structural Factors in Knowledge Based Economy: A Case Study". *Journal of Management System*, 2(6), 49-68. (In Persian)

Zakaria, Z., Susela, D. & Zarina, Z. (2006). "Internal auditors: their role in

the institutions of higher education in Malaysia". *Managerial Auditing Journal*, 21(9), 892-904.

Watts, F.B. (2012). *Engineering documentation control handbook*. fourth edition, science Direct, pp.307-324.