

Survey and Analyze Processes Status of Information Technology in Electronic Banking Arena by Using Process Maturing View and Main COBIT Model (Case Study: REFAH Bank-Iran)

Fatemeh Heidari¹, Seyed Matin Hashemi², Ehsan Elahifard³

¹Master of Industrial engineering- productivity and system management of Yazd University

²Master of Industrial engineering- productivity and system management of Yazd University

³ Department of Public Administration, Payame Noor University, PO BOX 19395-3697, Tehran, IRAN,

ABSTRACT

In global current economy, one of the challenging issues of organizations is their ability to utilize multi skills and knowledge in organizational processes. Expansion of communication technology leads to a revolution in various dimensions of human life and organizations operations. Electronic trading, Electronic business and Electronic banking are the main conclusions of IT usage in economical dimension. In using ITC and specially banking arena, Iran is relatively new and it takes time for it to achieve an ideal status. Permanent evaluation of electronic banking in our country, in regard to recognizing of current status and also to improve the processes, can play significant role in progressing electronic banking of IRAN and to reduce its level against developed countries.

In this article it has, after introduce of process maturity approach and the main COBIT model, the current status of IT processes in REFAH Bank is evaluated according 6 level maturity model, which is provided by Software Engineer Institute (SEI), used by COBIT for doing comparative surveys and recognizing essential improvements in IT level.

By determining the level of maturity of IT process in Refah Bank, the processes were classified and prioritized by operation-important technique. Three main processes were recognized with high priority for improvement. These processes are: "Determine technological direction", "Communicate management aims and direction" and "Manage IT human resource". Then a number of operational activities were presented according to COBIT framework and Refah Bank expertise's ideas to improve the maturity level of these processes. However, these approaches are prioritized based on using Ease and Impact methods which are approved by Europe Quality Institute and EFQM reward.

Finally the following activities were suggested to improve the level of maturity of the selected processes: "Create and maintain a technology infrastructure plan", "Establish and maintain an IT control environment and framework" and "Identify IT skills, position descriptions, salary ranges and personal performance benchmarks".

KEY WORDS: Maturing process, COBIT, Information Technology, process management.

1. INTRODUCTION

One of the features of business world is the permanent and rapid changes of customers' needs. In today trading competition the only organization which has required facilities for getting informed of these changes rapidly and has the ability of quick response to them will be stay in this circle, by the exception of this it doesn't have enough chance to be in this competition arena. Organizations found experimentally and by lapse of time that reflex and search will be removed by functional solutions of business. Duty-oriented organizations can, difficulty, be flexible in facing the environmental changes and be harmonized with environment. A solution recommended to organizations in return for functional solution is process solution.

Competition in many industries has been based mainly on strategic assets and on the ability to deploy these assets. However, competition is now based on capabilities, or "complex bundles of skills and accumulated knowledge, exercised through organizational process"(Day, 1994; McCormack et al, 2009). Owing to this new business approach, many firms are strategic assets. Under the new approach, organizations are no longer viewed as a collection of functional areas, but as a combination of highly integrated processes (Hammer & Champy, 1993). Additionally, processes are now viewed as assets requiring investment and development as they mature. Thus the

*Corresponding Author: Fatemeh Heidari, Master of Industrial engineering- productivity and system management of Yazd University
Email: fh.aries63@gmail.com.

concept of process maturity is becoming increasingly important as firms adopt a process view of the organization (McCormack *et al.*, 2009).

Maturity models of business processes make managers able to describe current status of an organization as maturity process view of point. By analyzing current status(what it is) and idealistic status (what it will be in future) are all according following model that managers are able to distinguish weak points of an organization (process) and to centralize on improving it. Prior objective of maturity model of business process is as following:

- To describe current status or weaknesses and strengthens (what it is)
- To determine idealized maturity level depending on key factors of business processes management (what it will be in future)
- To provide improving of business process management by plans shown how idealized status will be achieved [Curtis B., Alden].

In other hands, abundant growth and extension of IT brings a revolution in various dimensions of human life and organizations operation. This technology has been changed the way of thoughts and operation of people, organizations and governments and it caused to provide new industries, occupations and innovations in doing things. Adverting some phenomenon such as electronic business, electronic trading and electronic banking are the conclusions of IT expanding in economical dimension. In presenting and using Electronic trading and banking arena, our country is a new born one and it takes a long time for it to achieve idealistic status.

Central role of banking systems is evitable in economical system solutions. The role of banks has been changed during recent decades in industrial countries and there are a lot of new facilities with new technology at banking services authority. Regarding to the importance of electronic banking in banking industry of our country in recent years, most of the banks, in general public or private, is to supply new services as an electronic banking for their customers. [Ghasemi, Roja].

In Iran existence of efficient banking system is the fundamental factor to extend electronic banking, enter global marketing and be a member of organizations such as World Trade Organization. Therefore, it is important to use Information and Communication Technology to provide and extend electronic banking in our banking system. Although some ways of presenting the services of electronic banking such as ATM machines and debit cards have been used in our banking system during these years, but there is a way left to get as high level as developed countries in the case of electronic banking [Amadeh, Hamid].

Because of this reason, permanent evaluation of electronic banking status in our country, in regard to recognizing current status and also representing external solutions in promoting path, can play a significant role to improve electronic banking in IRAN and diminish its level against developed countries.

2. Theoretical frame

2.1. Definitions

2.1.1. Process definition

Process is a set of continued and related activities which are creating special production and requires some unique data (input) for providing this production. Current processes are designed to obtain organizational missions in any organization to provide essential needs of customers by better operation. [Ramezani, Mohammad Rahim] To respond customers' needs current processes should have effectiveness and efficiency. A process will have efficiency when it is done accurately and while it is chosen and designed correctly, it will have enough effectiveness.

Process can be known as a value chain that each level added value to previous level. Therefore, business processes consist of necessary activities in organization that is not limited to functional borders and make relationship between human resources, management skills and technology proficiency to focus on providing value strategy for stakeholders and customers. [Ramezani, Mohammad Rahim]

2.1.2. Maturity definition

Maturity is the amount of growth and developing in which to achieve respective perfection. Process maturity can make matured processes. Matured processes choose the best and shortest way to produce maximum benefit for process applicant in an organization and perform accordance to altering actions, parts, constructions and even considered people. Now a day, maturity models are successfully used to improve processes, productions and deliverable goods in most of the organizations and companies. High effective cause and abundant extension of these models in organizations is that companies can evaluate themselves and their maturity levels by using these models. [Khamaneh, Amir Hossein]

2.1.3. Maturity history

Concept of maturity was at first illustrated by Watts Humphrey and his colleagues in IBM in early of 1980s that in fact it was a model of 5 surf maturities. They expressed in this model that software quality produced by company is absolutely related to processes quality for which has been used to produce that software. This expression was not so profitable since then defense ministry of united state established a Software Engineering Institute to provide required software of it. After passing a period of time to setting up SEI, US defense ministry evaluated the results and concluded that although they used update experiences and technologies to produce software, but the results are not justified the costs. After that Watts Humphrey represented his maturity model to SEI in 1989 and it got acceptable, so the first model of maturity was formed for evaluating the amount of software producers' ability. Main approach in this process maturity model was that a company can never perform any successful experience which experienced in another company so quickly and then achieve ideal results, but also performing any experience needs various levels of maturity, a company, on the other hands, has to determine its ability, limited sources and lack of experiences in any level of maturity, and prevent to invest in other experiences. [efqm.org]

Most of the maturity models in the world are based on capability maturity model. In these models there is one or some processes based on latest experiences of successful company in any level. Companies have to centralize on these processes in each level and achieved expressed capabilities in that level, so they prepared themselves for next level. Maturity models focus on gradual improvement instead of immediate and concurrent improves. [efqm.org]

2.1.4. COBIT, a controlling frame

The IT Governance Institute (ITGI) (www.itgi.org) was established in 1998 to advance international thinking and standards in directing and controlling an enterprise's information technology. Effective IT governance helps ensure that IT supports business goals, optimises business investment in IT, and appropriately manages IT-related risks and opportunities. ITGI offers original research, electronic resources and case studies to assist enterprise leaders and boards of directors in their IT governance responsibilities. New edition of this standard was established as a name of COBIT 4.1 in 2007. This frame consists of spectacular characters that it makes it different from any other methods and frames existed in IT management field.

To satisfy business objectives, information needs to conform to certain control criteria, which COBIT refers to as business requirements for information. Based on the broader quality, fiduciary and security requirements, and seven distinct, certainly overlapping, information criteria are defined as follows:

- **Effectiveness** deals with information being relevant and pertinent to the business process as well as being delivered in a timely, correct, consistent and usable manner.
- **Efficiency** concerns the provision of information through the optimal (most productive and economical) use of resources.
- **Confidentiality** concerns the protection of sensitive information from unauthorized disclosure.
- **Integrity** relates to the accuracy and completeness of information as well as to its validity in accordance with business values and expectations.
- **Availability** relates to information being available when required by the business process now and in the future. It also concerns the safeguarding of necessary resources and associated capabilities.
- **Compliance** deals with complying with the laws, regulations and contractual arrangements to which the business process is subject, i.e., externally imposed business criteria as well as internal policies.
- **Reliability** relates to the provision of appropriate information for management to operate the entity and exercise its fiduciary and governance responsibilities.

To govern IT effectively, it is important to appreciate the activities and risks within IT that need to be managed. They are usually ordered into the responsibility domains of plan, build, run and monitor. Within the COBIT framework, these domains are called:

- **Plan and Organize (PO)**—provides direction to solution delivery (AI) and service delivery (DS)
- **Acquire and Implement (AI)**—provides the solutions and passes them to be turned into services
- **Deliver and Support (DS)** — receives the solutions and makes them usable for end users
- **Monitor and Evaluate (ME)**—monitors all processes to ensure that the direction provided is followed

COBIT's IT Processes are shown in table 1:

Table 1: list of IT processes in COBIT frame

Domain	Process Identity	Process Heading
Plan and Organize	PO ₁	Define a strategic IT plan
	PO ₂	Define the information architecture
	PO ₃	Determine technological direction
	PO ₄	Define the IT process, organization and relationships
	PO ₅	Manage the IT investment
	PO ₆	Communicate management aims and direction
	PO ₇	Manage IT human resource
	PO ₈	Manage quality
	PO ₉	Access and manage IT risks
	PO ₁₀	Manage projects
Acquire and Implement	AI ₁	Identify automated solutions
	AI ₂	Acquire and maintain application software
	AI ₃	Acquire and maintain technology infrastructure
	AI ₄	Enable operation and use
	AI ₅	Procure IT resource
	AI ₆	Manage changes
	AI ₇	Install and accredit solutions and changes
Deliver and Support	DS ₁	Define and manage service levels
	DS ₂	Manage third-party services
	DS ₃	Manage performance and capacity
	DS ₄	Ensure continues service
	DS ₅	Ensure system security
	DS ₆	Identify and allocate costs
	DS ₇	Educate and train users
	DS ₈	Manage service desk and incident
	DS ₉	Manage the configuration
	DS ₁₀	Manage problems
	DS ₁₁	Manage data
	DS ₁₂	Manage the physical environment
	DS ₁₃	Manage operations
Monitor and Evaluate	ME ₁	Monitor and evaluate IT performance
	ME ₂	Monitor and evaluate internal control
	ME ₃	Ensure compliance with external requirements
	ME ₄	Provide IT governance

2.1.5. Maturing process in COBIT

Senior managers in corporate and public enterprises are increasingly asked to consider how well IT is being managed. In response to this, business cases require development for improvement and reaching the appropriate level of management and control over the information infrastructure. Maturity modeling for management and control over IT processes is based on a method of evaluating the organization, so it can be rated from a maturity level of non-existent (0) to optimized (5). This approach is derived from the maturity model that the Software Engineering Institute (SEI) defined for the maturity of software development capability.

0 Non-existent—Complete lack of any recognizable processes. The enterprise has not even recognized that there is an issue to be addressed.

1 Initial/Ad Hoc—there is evidence that the enterprise has recognized that the issues exist and need to be addressed. There are, however, no standardized processes; instead, there are ad hoc approaches that tend to be applied on an individual or case-by-case basis. The overall approach to management is disorganized.

2 Repeatable but Intuitive—Processes have developed to the stage where similar procedures are followed by different people undertaking the same task. There is no formal training or communication of standard procedures, and responsibility is left to the individual. There is a high degree of reliance on the knowledge of individuals and, therefore, errors are likely.

3 Defined Process—Procedures have been standardized and documented, and communicated through training. It is mandated that these processes should be followed; however, it is unlikely that deviations will be detected. The procedures themselves are not sophisticated but are the formalization of existing practices.

4 Managed and Measurable—Management monitors and measures compliance with procedures and takes action where processes appear not to be working effectively. Processes are under constant improvement and provide good practice. Automation and tools are used in a limited or fragmented way.

5 Optimized—Processes have been refined to a level of good practice, based on the results of continuous improvement and maturity modeling with other enterprises. IT is used in an integrated way to automate the workflow, providing tools to improve quality and effectiveness, making the enterprise quick to adapt [COBIT 4.1].

2.2. Previous studies

Although many firms have adopted the BPO concept, little to no empirical data exists to substantiate its effectiveness in facilitating improved business performance. McCormack and Johnson (2000) conducted an empirical study to explore the relationship between BPO and enhanced business performance. The research results show that BPO is critical in reducing conflict and encouraging greater connectedness with an organization, while improving business performance. Moreover, companies with strong measures of BPO showed better overall business performance. The research also showed that high BPO levels within organizations led to a more positive corporate climate, illustrated through better organizational connectedness and less internal conflict.

The process maturing concept has been developed and tested relative to the software development process (Harter et al., 2000) and the project management process (Ibbs and Kwak, 2000). However, there have been no published studies to date which examine the concept relative to supply chain management. In investigating the maturity concept relative to the software development process, the researchers used an assessment instrument developed by the Software Engineering Institute (SEI) (2002) along with outcome measurements (e.g. quality and cycle time) developed specifically for the study. The researchers found that the net effect of process maturity was a reduction in overall software development cycle time and software development effort (McCormack & Johnson, 2003).

The importance of software has been growing to the development of various Internet and e-business applications. One of the active research areas in software involves its evaluation methods or models. The traditional approaches to software evaluation are based on the development process point of view, and their major concerns are not strongly related to user or customer-oriented evaluation of software. Maturity model and an evaluation system, as a facial study, were used software companies in Korea. This maturity model considers customers' satisfaction level from software accordance to software boxes and even related services. Questionnaire and interview were used to evaluate customers' satisfaction level. Outcomes reveal that most software companies are at the beginning of customers' satisfaction in this country (Leem & Yoon, 2004).

The way of relation between process maturity with supply chain management, however, are declined that in general for surveying relation between process maturity in SCM and SCM performance, regression analysis are used that results reveal that SCM are violently related with SCM maturity (McCormack & Johnson, 2003).

Several years of data from over 1,000 companies in the USA, Europe, China and Brazil that have completed BPM assessment are analyzed to identify which components of BPM stabilize, when and in what order. The purpose of these researches are to report on the result of research into the precedence of the maturity factors, or key turning points in business process maturity (BPM) implementation efforts. A key turning point is a component of BPM that stabilizes within an organization and leads to the next maturity level (McCormack et al, 2007). To develop key turning point, for this reason, different project experiences are used and business process maturity fields are to be known and technology of decision tree used in data mining is utilized in transmitting from one level to next maturity level. Business maturity concept, however, adhere to SCM levels and cluster analysis was used to distinguish importance of planning and executing SCM.

3. RESEARCH PROCEDURE

The used way in this research is survey – analytical. During implementing this project, in recognition current status of IT processes, 34 given standard processes in COBIT model in 4 fields of plan and organize, Acquire and Implement, deliver and support and monitor and evaluate were being distinguished. Firstly, procedure was design in this form that workshop procedure was used for identity of current status of IT processes and recent status of every processes ,by using brain storm, were specified that unfortunately because of some limitation are exist in this organization, this possibility never occurred that all related people gathered together at a exact moment. Because of that, after recognition of standard processes of COBIT model, questionnaire was designed to evaluate maturity level in these processes that this questionnaire distributed between managers and assistances of IT in this organization that totally were 11 persons in 3 different offices of design, support and new services. Those people's ideas were the same just for 14 processes and there were differences in other ones that mentioned people were interviewed again and by using Delphi technique, collective agreement was reached for these 20 processes and maturity level of every one of these 34 processes were identified.

After recognition of IT maturity level, another questionnaire similar to previous one were made for 34 standard IT processes based on evaluating importance rate of those processes that repeatedly former statistical community filled out this questionnaire, then for importance rate of these processes, after using the same techniques that mentioned above, also collective approval were reached.

3.1. Ease and Impact technique

There are different techniques to characterize improvement suggestions. These techniques are based on quantified criteria which are recommended by amounting in a meeting with experts and authorities that finally its priority will be determined. Extracted priority in this procedure , in all these models, finally, is considered by CEO and there is a possibility the lowest characterizing is chosen as a first prior by them that the reason of this is various, for example, in some cases CEO, in regard to organization status and recent positions, choose a project with lower risk as a first prior (even though its benefit is lower than other projects and according to rating system it reaches lower rates) and or management observes some changes in near future of organization that are unexplainable in quantified criteria frame and or are not going to be said but they will be implemented in characterizing.

Europe quality institute and EFQM reward introduce Ease and Impact technique as the most appropriate method for evaluating and characterizing improvement projects. In this method focus is on two criteria of ease of executing improvement project and even impact level that these projects can have according to objectives. In this technique main decision maker members in company must be present. Thus, projects navigate of improvement must be same, so a suitable team is formed.

For ease in executing project rate of 1-3 and for impacts on operation of company rate of 1-5 is allocated to companies. The way of rating in this procedure is based on experts community, thus all present people in one team, which have not be more than 5 persons (the more persons, the more team will be formed and for every of them one leader will be chosen, so it is wanted them to get agree among their team and then declare their ideas) must have discuss face to face obviously and reach rate of improvement project. For reaching the result more rapidly among members of the team, numeral average will be taken and that number accounted as a main one.

Finally ease rate, multiplies to impact rate and a total rate will be given, so the project has higher total rate is chosen as a first prior. But in this procedure for final accuracy, it is asked of team members to consider results totally, whereas they have disagree idea in regard to characterizing, it will be repeated again that in this manner some members may attempt to accurate their rates.

3.2. Data Analyze

That resulted outcomes of two questionnaires that mentioned in Research procedure, are given in 4 process domain in table 2.

Table 2: study the importance rate and operation of IT processes based on COBIT model

Operation	1	2	3	4	5
importance					
Very much	<ul style="list-style-type: none"> -Determine technological direction -Communicate management aims and directing -Manage IT human resource 				
Much	<ul style="list-style-type: none"> - Define the information architecture -Ensure system security -Manage configuration 	<ul style="list-style-type: none"> -Define strategic IT plan -Manage quality -Assess and manage IT risks -Manage projects -make operational solution -Procure IT resource -Manage changes -Ensure continuous service -Educate and train users -Manage service desk and incident -Manage problems -Manage data -Manage the physical environment -Ensure compliance with external requirements -Provide IT governance 	<ul style="list-style-type: none"> -Acquire and maintain technology infrastructure -Manage operations 		
Average	<ul style="list-style-type: none"> -IT investment management 	<ul style="list-style-type: none"> -Define IT process, organization and relationships -Identify automated solution -Install and accredit solutions and changes -Define and manage service levels -Monitor and evaluate IT performance -Monitor and evaluate internal control 	<ul style="list-style-type: none"> - Acquire and maintain application software -Manage third-party service -Manage performance and capacity 		
Little	<ul style="list-style-type: none"> -Identify and allocate costs 				
Very little					

According to table 2, three processes of "Determine technological direction, Communicate management aims and directing, Manage IT human resource" are so significant but they are at the lowest level of maturity. These three processes, therefore, have required priority for define improvement projects.

In regard to COBIT model and IT experts' ideas for any of these 3 processes, some suggestions are drawn for improvement. Then for characterizing these suggestions by using ease and impact technique, a meeting was held by presenting IT managers and two of assistances of them and two criteria of ease operation of improvement suggestions and even the effectiveness of them on organization operation were polled and finally members got concurred about concessions.

About some suggestions achieved same concessions; repeatedly these suggestions were also characterized by accordance of present members' ideas.

According to obtained rates, for determine technological direction "Create and maintain a technology infrastructure plan", must reach highest rate and for communicate management aims and directing "Establish and maintain an IT control environment and framework" reached a first prior and for manage IT human resource, "Identify IT skills, position descriptions, salary ranges and personal performance benchmarks" achieved highest rate. In following suggestion characterizing is mentioned:

Determine technology direction (PO₃):

1. Create and maintain a technology infrastructure plan
2. Existence of required skills and proficiency of staffs to define plan and program of IT substructure
3. Ability in changing plans and programs of IT substructure
4. Existence of extraversion and cooperation as a solution for obtaining needed skills and proficiency
5. Create industrial and international standards according to needs of information architecting
6. Create bureau for leading information architecting and surveying consistency
7. Identify deviations of plan and program and predictable problems

Inform about purposes and directions of management (PO₆):

1. Establish and maintain an IT control environment and framework
2. Inform and notify about policies, standards and trends
3. Define and reach IT policies, audiences and other precise, justified and approved documents for beneficiaries
4. Existence of controlling environment equal to strategic management of organization
5. Existence of frame for adjustment and survey of consistency
6. Review, make up to date and improve controlling environment permanently
7. Recruit internal and external organization experts to adapt operational procedures with controlling issues

IT human beings management (PO₇):

1. Identify IT skills, position descriptions, salary ranges and personal performance benchmarks
2. Aware of organization coherency to key people and diminish dangers resulted in high coherency to those people
3. Create plan and program for managing human beings and strategic approaches for recruiting and managing of IT staffs
4. Evaluate salaries and operation of staffs
5. Create motivation by promoting the profession, allocating roles and responsibilities to staffs accordance to their skills
6. Changeability in plan and program of human being management
7. Allocate responsibility of defining and improving the plan of human being management to specialist persons and groups

4. Conclusion

According to resulted outcomes it can be said that 23% of IT processes are in first maturity level (Initial/Ad Hoc), 62% in second maturity level (Repeatable but Intuitive), 15% in third maturity level (defined processes).

63% of level one process and 24% of second processes are belonging to Plan and Organize domain. Obtained results reveal that plan and organize domain in one hand is not in the appropriate status and on the other hand IT processes in this domain are very important. We can say IT strategies are not in the same way with business strategies, organization staffs have unobvious recognition of IT objectives and also dangers of this domain are unfamiliar; in regard to this fact that processes of this field are as a fundamental and basic processes in any organization, thus improvement of processes is so significant in this domain.

Acquire and Implement domain has no ideal status but some of processes of this domain like “acquire and maintain application software” and “acquire and maintain technology infrastructure”, has relatively ideal status. At whole it can be said that in the case of implementing new systems, these systems can relatively cover essentials and business requirements but imposed changes sometimes cause distraction and disturbance in business operations. Processes of this domain, sometimes, also are so significant for organization and some plans have to be defined for improvement.

In Delivery and Support domain that its processes are so important, except processes of “manage third-party services”, “manage performance and capacity of sources” and “manage operations”, other processes of this domain are at lower level of maturity and it can be said that IT services are unequal with business priorities and IT expenditures are not optimum.

By considering processes of Monitor and Evaluate domain, internal controlling tools are correlated to skills and efficiencies of people and management cannot guarantee that these tools are effective and optimum. Dangers, consistency, equivalence and operation are to be evaluated but results and accomplishments description are to be done according to people efficiencies and there is not meticulous plan of reevaluating of these aspects. Processes of this domain, considering related tables, has relatively mediocre significance in organization.

By considering obtains of this research, it is hopeful these processes to get to highest level of maturity by "Create and maintain a technology infrastructure plan", "Establish and maintain an IT control environment and framework" and "Identify IT skills, position descriptions, salary ranges and personal performance benchmarks".

REFERENCES

- [1]Ghasemi, Roja, 1386, “*relation recognition of strategic wealth and accepting electronic banking in Iranian banks*”, graduation thesis, Tarbiat Modares University, management collage
- [2] Ramezani, Mohammad Rahim, Porbakhsh, Se’ed Hamed, 1386, “*new structures of organization and process management*”, Tadbir science-survey monthly magazine, No.187
- [3]Amadeh, Hamid, Jafarpour, Mahmood, 1388, “*determine obstacles and solutions of electronic banking in frame of Iran view of point 1404*”, science and development magazine, sixteenth year, No.26
- [4]Khamaneh, Amir Hossein, 1386, “*adjustment comparison among maturity models of project management and choose optimum model for using in companies with public contract structure*”, fourth international project management conference
- [5] Curtis B., Alden J., *the Business Process Maturity Model: What, Why and HOW*, A BP Trends Column, February 2007
- [6] Day, G.S. (1994), “*The capabilities of market driven organizations*”, Journal of Marketing, October, pp. 37-52.
- [7] Hammer, M. and Champy, J. (1993), “*Reengineering the Corporation: A Manifesto for Business Revolution*”, Harper Business, New York, and NY.
- [8] IT Governance Institute (www.itgi.org), Control Objective for Information and Related Technology (COBIT), Ver. 4.1, USA, ITGI, Apr 2007
- [9] McCormack, K. and Johnson, W. (2001), “*Business Process Orientation: Gaining the E-business Competitive Advantage*”, St Lucie Press, Delray Beach, FL.
- [10] McCormack, K., Johnson, W. and Walker, W. (2003), “*Supply Chain Networks and Business Process Orientation: Advanced Strategies and Best Practices*”, APICS Series on Resource Management, CRC Press LLC, Boca Raton, FL.
- [11] McCormack, K. (2007), “*Business Process Maturity: Theory and Application*”, DRK Research, Raleigh, NC.
- [12] McCormack, K. et al (2009). “*A global investigation of key turning points in business process maturity*”, Business Process Management Journal, Vol. 15, No. 5, pp. 792-815
- [13] www.efqm.org,vol,1,No.1.