The Role of Processes Re-Engineering and Workflow In The Transformation Of E-Government

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ABSTRACT:

This paper aims to support the concept of workflow and the transition to e-government through a new technology by applied Arabdox for workflow system and design models electronic transfer operations from station to another (from one user to another) according to a high-security controls for users. Our case study is vacation request which various kinds in the National Pensions Fund (NPF) and use monitors and reports showing the path of the flow process and follow-up workflow .This process focuses in controlling the requests of vacations of the organization, from the initial request up to its approval or rejection.

KEYWORDS: *Arabdox,Workflow,E-government, BPR,WFMC,BPM,Reengineering.*

I. INTRODUCTION

The general idea of the project is the computerization of manual procedures within state institutions using computer techniques, tools and equipment eligible for such a workflow management systems which allow organizations to define and control the various activities associated with a business process and used to describe the actions of electronic automation functions transactions and internal models for any organization that facilitates the flow of transactions by hierarchical and approval as well as used workflow systems procedures any transaction fully or partially dependent on passing from one station to another for approval or to take the necessary action, the process of vacations request starts when any employee of the organization submits a vacation request, once the requirement is registered, the request is received by the immediate supervisor of the employee requesting the vacation, the supervisor must approve or reject the request, if the request is rejected the application is returned to the applicant/employee who can review the rejection reasons. If the request is approved a notification is generated to the Human Resources Representative, who must complete the respective management procedures each according to its validity and engines functioning work helps users to interact on documents and manage project tasks and building custom business handler on a document or item level, workflow engine helps organizations restriction firm steps to address their business and therefore helps to improve productivity and work efficiency [13] [16]Workflow is concerned with the automation of procedures where documents, information or tasks are passed between participants according to a defined set of rules to achieve, or contribute to, an overall business goal [8] [9].

Workflow may be manually organized, in practice most workflow is normally organized within the context of an IT system to provide computerized support for the procedural automation and it is to this area that the work of the Coalition is directed. Generally determined to work in any company or institution set of incremental steps undertaken by a group of employees, and the Workflow Management System automate this process where information is transmitted, tasks and documents from one person to another within a set of procedures and specific steps in advance and can simplify the idea of the system incoming alert officer given via e-mail that asking him to task performance, and move this task to the next person when completed, and the process will continue until you reach this task to the last point in a series of specific actions in advance, And one of the most important steps for the successful development and automate the functions of any origin lies in the documentation and characterization of their own actions. The procedures for the transition to e-government or an environment that is free of paperwork requires careful definition and characterization of all the activities and operations of the facility, internally and externally to provide its services to the beneficiaries of the individuals or institutions. Workflow management Systems provides support for the definition and control of the various activities (tasks) combined in business processes,

making workflow used in the provision of structuring applications in one form or term tasks and also in temporary information between tasks and applications work or only workflow implemented intraday by procedures workflow conformity [8] [9] [10]. The objective of support for business processes is to reduce the cost and reduce the time flow and to improve the productivity and quality of service, however, reduce the procedures workflow in reality is a manual process is complex and subject to a percentage of errors and this leads to problems in systems deployed in enterprises, it is important to the ability to distinguish accuracy measures the workflow before adopting [4].

Outfits governments around the world to establish a so-called e-government or digital government, in every region of the world from developing countries to industrialized countries, put national governments and localities with critical information on-line, and using the mechanism to streamline operations, which were complicated in the past. And diffuse definition of e-government or is the use of digital information and communication technology to support the effectiveness of government services and dealing with citizens in a way that better and easier, and to allow access to the greatest amount of information, and make government itself more responsive to the wishes of the citizens. May include providing e-government services via the Internet and the Web, telephone, community centers, wireless gadgets or other communication systems available. However, we should note that the e-government is not a substitute or stands for economic development and the provision of budget and efficient government, as it is not a single event may be changed immediately and forever the current government situation. E-government is a process, or we can say, it is developing or often conflict presenting the costs and financial and political risks, that the success of e-government requires a change in how the work and performance of the government, how they interact with information, how he sees the officials their jobs and interact with an audience of citizens? It also requires achieving e-government active participation between government and citizens and the private sector and the civil sector. And e-government needs to enter and feed continuously to and from the citizens and officials who deal with e-government services and use. E-government can contribute significantly to the process of transformation of the government towards a leaner, more cost effective government. It can facilitate communication and improve the coordination of authorities at different tiers of government, within organizations and even at the departmental level. Further, e-government can enhance the speed and efficiency of operations, by streamlining processes, lowering costs, improving research capabilities, and improving documentation and record-keeping. However, the real benefit of e-government lies not in the use of technology per se, but in its application to processes of transformation [7] [11] [12] [15].

Arabdox workflow system helps organizations automate a range of business processes and tasks. It electronically routes the right information to the right people at the right time. With the help of   Arabdox workflow software, users are notified of pending work, and help manager's route approvals through the system quickly. The benefits of automatic business process management are facilitating business process efficiency, increasing business process quality and reducing operating costs, BPR is a structured approach to analyzing and continually improving fundamental activities such as manufacturing, marketing, communications and other major elements of a company's operation[5]. Arabdox Workflow Administration offers powerful, centralized capabilities and conveniences for remotely managing and administrating workflow processes to evaluate and improve their effectiveness[16][17].

II.   WORKFLOW BENEFITS

1. Improving the efficiency of the work: and the resulting elimination of unnecessary steps.
2. Better control procedures: improving the management of business processes and achieve this by standard methods of work and provide good attempts.
3. Improved customer service: ease and simplification of procedures leading to the expectations of the best on the level of response from the customers.
4. Flexibility: Control software allows operations Redesign with changing business needs.
5. Improve business processes: a focus on business processes leads to the sequence and simplification.
6. Directed Cost Savings: Better use of staff (or reduction of staff).
7. Opportunities for Organizational Change: Workflow Management Systems can help agencies and departments achieve the organizational changes necessary to operate effectively in today's world.
8. Opportunities for Process Change: Since workflow systems force organizations to examine and define their business processes, it is the ideal time to consider business process reengineering.
9. Improved/Increased Access to Information: Workflow management systems build corporate knowledge. "Workflow takes the business intelligence that comes from experience and embeds it.

10. Improved Security & Reliability: Workflow management "provides secure storage and access to a consistent set of all of the data related to a service [8] [11].

Business process reengineering (BPR) began as a private sector technique to help organizations fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs, and become world-class competitors [2][4]. Reengineering is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed [3]. Business Process Reengineering presented as a way or a new way to meet the challenges of improving the quality of the business while reducing the cost, computing systems group considered as a means of re-engineering actions and because it aims to improve the efficiency of a group of people who cooperate in a set of actions. Especially those workflow management systems seem to offer the best support for process re-engineering [1] [6].

III.   ACTIVITIES AND THE BASICS OF PROCEDURES ENGINEERING
Basics helps in thinking is necessary to change the structure of the proceedings. Basics are valuable investigation and determine the most process re-engineering projects and how difficult or ease, especially considering options to change procedures [14].

IV.   BASICS THAT HAVE BEEN ASSUMED BY AUTHOR HAMMER AS FOLLOWS
1.   Several functions combined in one post.
2.   Help the two works on decision-making.
3.   The steps in the process done on a regular basis and normal.
4.   Procedures have several copies.
5.   Get the job done in a manner closer to the logic.
6.   Less possibilities and control while Application Control is important, case manager provides less time communications [1] [10] [14].

The problem statement and motivation
Procedures for vacation request in NPF are in hand resulting from the accumulation of vacation request s in employee file over time , slow and expensive procedure and a waste of time and effort of staff affairs individuals in the search for the file and save requests be great for that was designed electronic forms to vacation request of various types making it much easier on the staff and management of the affairs of individuals to reduce the cycle time for the leave application procedures and application electronically with employee e-file applying new technology to minimize the handling of papers in the organization, Arabdox system for the flow of business.

The importance of the paper
1.   The possibility ¬ mapping workflow.
2.   The possibility of drawing the administrative structure through the Web.
3.   Set up and adjust the relations between the participants in the work, each according to the powers and roles.
4.   Integration workflow system with the administrative structure.
5.   The possibility of integration with other systems.
6.   System reports the flow of information on the web.
7.   The possibility of organizing a calendar to enter holidays and holidays.
8.   Alert by e-mail (SMS&VOICE MAIL).
9.   Dealing with any action within the institution through electronic forms instead of papers.
10. Enterprise configuration and help to enter into the e-government portal for the state by documenting and computerized procedures.
11. Application of total quality in the public sector institutions and private.

The objectives and benefits of the paper
1.   Reduce labour costs: The use of workflow management system in the organization reduces the intensive tasks that need to control, supervision and intervention by others. Employee needs only to finish his mission and then sends an alert to another employee that he finished his mission and all that with one click and without leaving the office.

2. Improved production: This is done by reducing the models and the presence of models and standard documents and reduce the burden of treatment and implementation of the work in addition to avoid delays which could finally getting through budget burdens distributed to employees in the organization.

3. Better services: the existence of the transition within the cycle of hard work in the sense to walk in the paths steady work and take appropriate training to the nature of the new work you ensure better service in the organization. So using workflow management system service will be provided faster, more accurate, and easier implementation. In the end, the Foundation will provide a high quality service to their employees and customers.

4. Improving employee performance: to adopt workflow management system central like Arabdox system, every employee in the organization focuses on the tasks assigned to him only and thus become more productive. So there are no discomforts from other employees and there is no any error as long as the employee performs the tasks assigned to it properly and finally, the employee will feel comfortable in the execution of its duties.

5. To improve communication: communication between staff and tasks, including transmission will become quickly and automatically using workflow management system. In this way, the information transmitted to the right place and as soon as and with less effort.

6. Making the right decision at the right time: Using Workflow Management System is able to manage the institution monitor the status of the working sessions at any moment, find choke points and to improve work performance redirect resources optimally and avoid delays and not reduce the rate of production in addition to balancing the burden distributed staff, so that some tasks are routed to another employee in the same class of the hierarchy based on a comparison the volume of work assigned to them. Always remember that the decision-making easier when you know exactly what happens in detail and in the time that you want.

7. Standard models to the requests of employees: work flow management system uses standard forms to staff requests the employee can simply fill the demand with appropriate information and motivate to be appropriate action. After that will be informed of the outcome of his application. Therefore, the system is easy on the staff application procedures such as: vacation, complaints, and apologies.

Conceptual framework

Arabdox System for the workflow helps of institutions to automate many functions and business processes for the transfer of the right information electronically to the right people at the right time and with the assistance Arabdox to business flow is notified users the work is not over yet, as able managers of the transfer approval through system quickly and management benefits of the tasks of work in an automated fashion to facilitate the task efficiency and increase quality and reduce costs. The operations designed one of the most important components of the Arabdox work course. It is through this element that the institution can you design a form of work on the unit and definition stages and select a user each stage on the basis of his job. Each process is designed in the form of a map serve as a graphic representation shows how the process flow from one stage to another and the steps that take place within each stage. Arabdox implementing a course of action by dividing it into easy stages and determine the rules for the implementation of each stage. Stages are linked to each other through "links" that make it easier for the user to define the process in the form of a flowchart, which is called the "process map".

Applied framework

In this case, we will show you a simple workflow process where the initiator applies avocation request to the Direct Manager, then the Unit Manager and finally to the Administrative Affairs see fig (1).
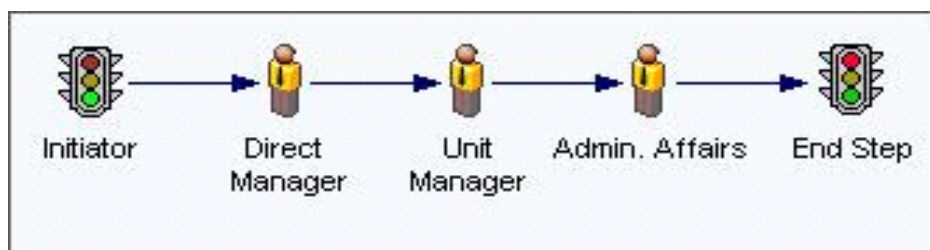

Fig (1) Simple workflow process created design by Arabdox designer.

The initiator starts by applying the request. The task status is Active. Then, he/she progresses the request to his/her Direct Manager. The status becomes removed at the initiator user step and Active at the Direct Manager user step as shown below in fig (2).
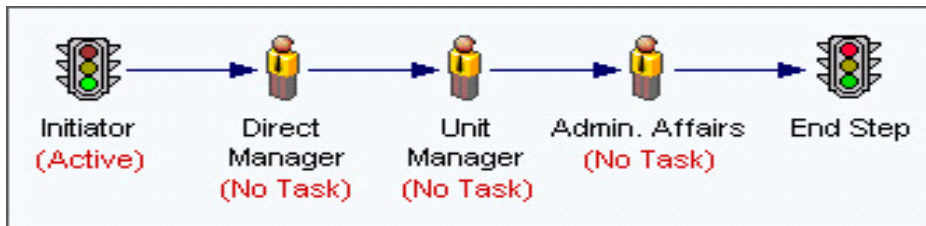

Fig (2): The task status is Active in Initiator.

Following are the possibilities that may occur on this workflow process the request is approved by all the recipients. The task is progressed by the Direct Manager to the Unit Manager. The status becomes removed at the Direct Manager user step and Active at the Unit Manager's see fig (3).
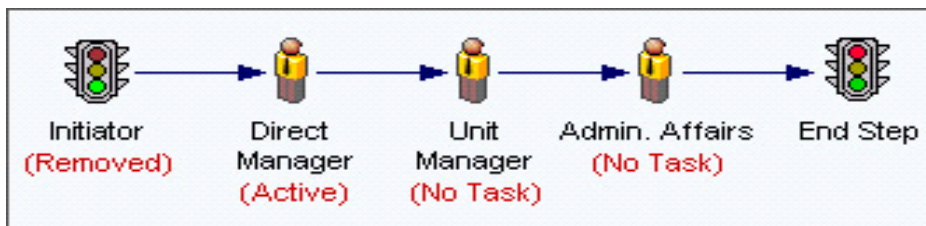

Fig (3) the process is active in Direct Manager.

Then the Unit Manager progresses the request to the Administrative Affairs ، the status becomes removed at the Unit Manager User step and Active at the Administrative Affairs' see fig (4).

Fig (4) the process is removed at the Initiator and Unit Manager.

Then the Unit Manager progresses the request to the Administrative Affairs. The status becomes removed at the Unit Manager User step and Active at the Administrative Affairs' see fig (5).

Fig (5) the status becomes removed at the Unit Manager and Active at the Administrative Affairs'.
The Direct Manager may return the request to the initiator for any errors in the request. The status becomes returned at the Direct Manager user Step and Active at the initiators see fig (6).
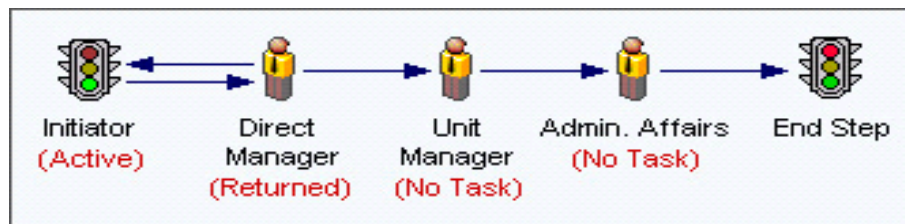
Fig (6) The Direct Manager may return the request or send to another user.

The Direct Manager may reject the task for any reason. The status becomes aborted at the Direct Manager user step see Fig (7).
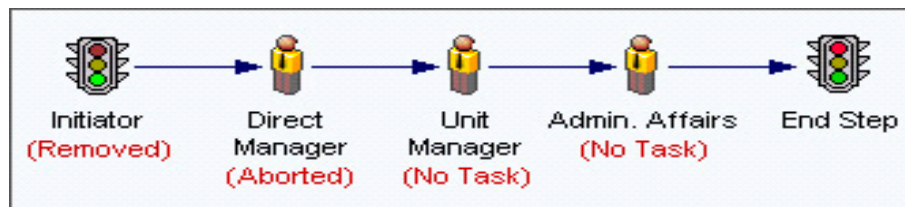

Fig (7) the status becomes aborted at the Direct Manager.

V.   RESULTS AND DISCUSSION
        Through this research was to reach the following conclusions: the purpose of the re-engineering of business processes and work flow and the trend towards e-government to achieve the following:

1. Simplification of procedures: determining the course of operations and cancel all unnecessary steps.
2. Speed accomplishes tasks.
3.   Define the powers and roles based on the structure of the institution.
4.   Raise the work efficiency: there would be monitoring for personnel operations, each according to their jurisdiction and their achievement of the tasks assigned to them.
5. Improve performance at work: the ratio of as few mistakes as possible because the deal is through the electronic models and clear.
6.   The division of labour on the staff equally.
7. The concept of TQM in the organization: develop clear strategies and vision for the future of the institution and achieve the desired goals.
8.   Earn the satisfaction of users and customers: the continuous improvement and service in a short time and service when requested by the user.
9. Control and monitoring processes: in the case of the failure of the employee of the action required of him in the time limit for the process transformed the process automatically to the Director-top, leading to accounting officer.
10. Spreading the concept and importance of modern technology among employees: be dealing through computers and electronic models and train them to do so.
11. Speed of decision-making in the organization: the provision of information through the screens reports and clear.
12. Speed shift towards e-government project which seeks the state in its implementation: Convert all manual systems to computerized systems and minimize handling paperwork and dealing through electronic forms.
13. Save files and documents electronically archived automatically for long-term periods.

VI.   RECOMMENDATIONS
        In order to achieve the concepts of this paper (the role of process re-engineering and work flow in the transformation of e-government) must do the following:

1. Re-engineering procedures in government institutions.
2. Support from senior management and decision-making support for.
3. Determine the organizational structure of the institution and to be based on the powers and roles of each institution's staff.

4. Spread the culture of e-government and staff training on TQM programs and technologies (prepare staff electronically).
5. To promote research in this area because of its importance.

REFERENCES

[1]   Michael Hammer and James Shambe. Reengineering the corporation, may 2003.
[2]   Gene L. Dodaro&Brian P. Crowley .Business Process Reengineering Assessment Guide, May 1997.
[3]   Yih-Chang Chen .Empirical Modeling for Participative Business Process Reengineering, 2001.
[4]   Sotiris Zigiaris. Business process reengineering, Jan 2000.
        GUNASEKARAN & B. KOBU .Modeling and analysis of business process reengineering, 2002.
[5]   Liam O'Brien .Reengineering, Carnegie Mellon University, 2005.
[6]   Guido Bertucci .Un e-government survey. United Nations, New York, 2008.
[7]   David Hollingsworth .Workflow Management Coalition the Workflow Reference Model . Hampshire, UK, 19-Jan-95.
[8]   CTG.MFA – 002 .An Introduction to Workflow Management Systems. University at Albany / SUNY,1997.
[9]   James G. Kobielus .Workflow Strategies, 1997.
[10]   Dr. Ahab bin Abdul Aziz Arisen .The role of the workflow in the shift towards e-government. Ministry of Higher Education of Saudi Arabia, Riyadh, 2008.
[11]   Mohammed Mohamed Hade .Orientations security and transparency of information under the e-government, submitted in the third Arab Conference on Information Technology and Administrative Development "transparency and information security under the e-government", Sharm El Sheikh,2-6 October ,2004.
[12]   Dr. Majid Bin Abdullah Al Mishari Al-Saudi . Business process re-engineering. Umm Al-Qura University, Saudi Arabia, 2010.
[13]   Fahd Al-Sultan .Business Process Reengineering radical shift in concepts and technology management.Riyadh, 1419.
[14]   Arab League . Arab document Towards an Arab information society, a joint action plan . Arab League and the Ministry of Communications and Information Technology, Cairo ,2003.
[15]   Sakhr Software Company . Arabdox user guide. Egypt, 2009.
[16]   ArabDox Document Management . http: //najishukri.files.wordpress.com/2012/03/arabdox. Access Date: [29 of Aug, 2013-3:36 PM].
[17]   Mathias Weske .Business Process Management Concepts, Languages, Architectures, Germany, 2007.