Volume 2, Issue 7, July 2012 ISSN: 2277 128X
International Journal of Advanced Research in Computer Science and Software Engineering
Research Paper
Available online at: www.ijarcsse.com

Service Oriented Business Process Re-engineering

Jaswinder Singh
Computer Application Department
Chitkara University
India

Ashu Gupta
Computer Department
Apeejay Institute of Management, Jalandhar
India

Jaiteg Singh
Computer Application Department
Chitkara University
India

Abstract*— Technology has drastically changed the way of doing business and performing business related transactions. If we need to avail any service like booking tickets, accessing important data or even purchasing any household goods we do not need to go anywhere. Current scenario is to sit in a room with one PC or a Laptop and perform any kind of needful transaction with single click. Business is highly dependent on the use of technology and technology runs on software. Software available for business is called as "Business Software". In today's scenario, the need of change in software because of changes in the business needs or requirement is frequent. These changes may results in redesigning of the software. This task is called as reengineering and for business processes it is called as business process reengineering (BPR). In this paper, efforts have been made to illustrate the essence of Service oriented business process reengineering by making cluster of common services which generally required by every person .

Keywords*— Reengineering, Business Process Reengineering, UML, Cluster, Service Oriented.

I. INTRODUCTION

Today Information technology has changed the way of doing business .Business is highly depend upon the use of information technology. To run a business, huge support is available form Information technology. In term of software on which the technology runs to support business, wide varieties of business software are available to fulfil almost every kind of operational need of the business. Need of change in software because of changes in the business needs or requirement or for customization is frequent. These changes may results in redesigning of the software. This task is called as reengineering and for business processes it is called as business process reengineering (BPR).It is important to understand what is Business process reengineering. As illustrated by Zigiaris [1], Business Process Reengineering involves changes in structures and in processes within the business environment. The entire technological, human, and organizational dimensions may be changed in BPR. Information Technology plays a major role in Business Process Reengineering as it provides office automation, allowing the business to be conducted in different locations, provides flexibility in manufacturing, permits quicker delivery to customers and supports rapid and paperless transactions. In general it allows an efficient and effective change in the manner in which work is performed. Combining existing independent services in one cluster and providing them to the needful person is challenging. This may require reengineering of existing legacy software system. The requirement for making changes in business process and software can be well analysed by use of modeling language .One standard modeling language that can be used to perform the task of analysing, visualizing, constructing and documenting the change is Unified Modeling Language (UML).

II. LITERATURE SURVEY

As defined by Davenport [2], business process is "a set of logically related tasks performed to achieve a defined business outcome". Hammer M et al. [3] stated that 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.

As defined by Stewart [4], BPR is "the search for, and the implementation of, radical change in business process to achieve breakthrough results". Zigiaris [1] identify following BPR objectives:-

Customer focus: Customer service oriented processes aiming to eliminate customer complaints. Speed: Dramatic compression of the time it takes to complete a task for key business processes. For instance, if process before BPR had an average cycle time 5 hours, after BPR the average cycle time should be cut down to half an hour. Compression: Cutting major tasks of cost and capital, throughout the value chain. Organizing the processes a company develops transparency throughout the operational level reducing cost. Flexibility: Adaptive processes and structures to changing conditions and competition. Being closer to the customer the company can develop the awareness mechanisms to rapidly spot the weak points and adapt to new requirements of the market. Quality: Obsession with the superior service and value to the customers. The level of quality is always the same controlled and monitored by the processes, and does not depend mainly on the person, who servicing the customer. Innovation: Leadership through imaginative change providing to organization competitive advantage. Productivity: Improve drastically effectiveness and efficiency. The role of UML in analysis and designing is widely recognized. Wampler [5] stated that design and

development methodologies have always needed a graphical notation to express the designs. In the past, one of the major problems has been that each major methodology has had its own graphical notation. This has all changed with the emergence of the UML (Unified Modeling Language) as the standard notation. Any of the current design methodologies, heavyweight or agile, use or can benefit from the UML..

III. CASE STUDY

In this paper, case of implementation of cluster of e-governance services [6] is considered for case study. It is aimed to provide multiple services meant to deliver for the people, to the people at one place. Through this paper the idea is to show the clustering of services by reengineering the existing process. Consider the case of issuing driving license.

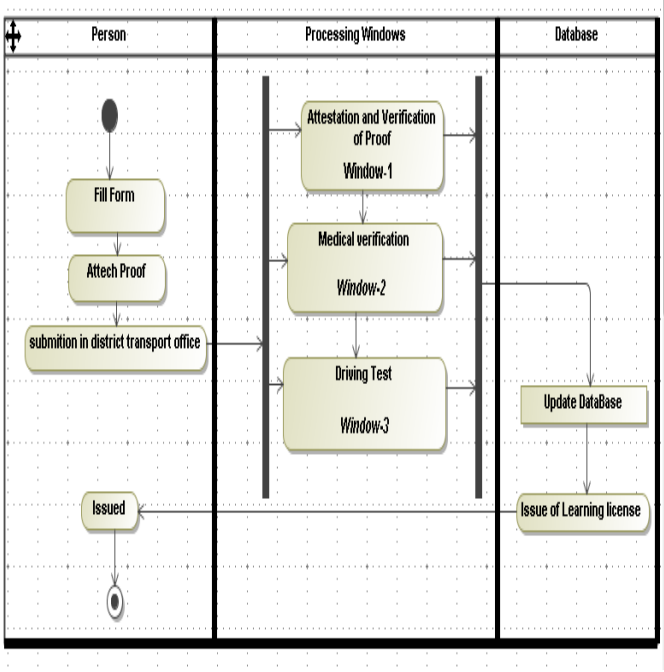

Fig.1 Licence issue Activity Diagram

The various activities involved for getting license issued from the transport department following mandatory steps are shown using the activity diagram of UML in Fig.1. There are three different windows which are given here. Different windows represent the different task being handled by different officials of that office or the mandatory steps required to be performed by the person who requires the licence.

A person who has to get license issued will have to visit three different windows personally to do his/her work done. Window-1 in the Fig.1 represents that the person is going personally for verifications of his certificates. After giving proof of records, he/she as being medically tested and at last getting information and performing test of driving form window-3. Thus even to acquire one service there are lots of efforts by the individual.

Similarly let us consider the activities for issuing Domicile certificate card. The various activities required for issuing of domicile certificate are shown as UML activity diagram in

Fig.2. A person who has to get Domicile issued will have to visit three different windows personally to do his/her work done. We can very well analyse the time and efforts required

for the work. Whether it is a task of issuing License or Domicile certificate, a self dependent working person will have to consume at least one day for this job to be done. For accomplishment of one task person will have to visit different windows. Now consider the process of reengineering these tasks. Consider the case of implementing the clustering of these two services mentioned above by changing the above design. The structure of process has been changed. The processes of issuing domicile and license have been reengineered such that in place of visiting different department offices and visiting different windows, one common window has been provided for applying for different government services (certificates, Passport etc). If we consider in terms of business then it is like providing different service to customers at one place.

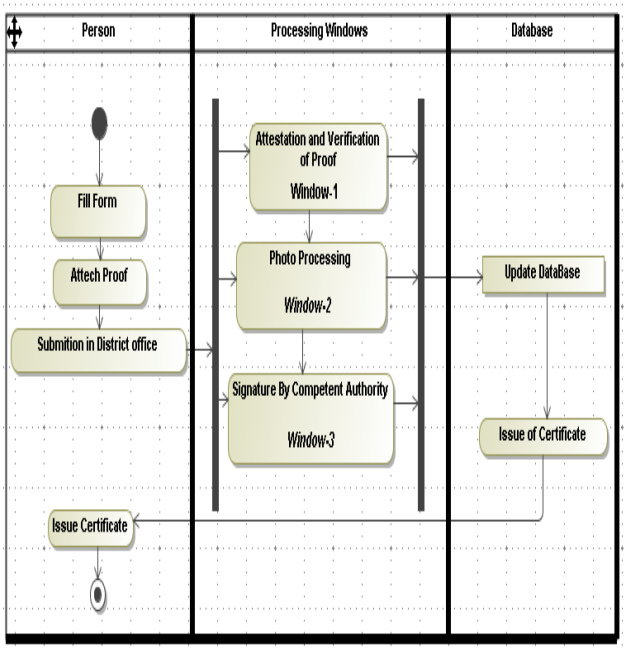

Fig.2 Residence Domicile issue Activity Diagram

Reengineered process showing the clustering of two services is depicted in Fig.3. Person who wants to give request will interact with online software system (a Portal) to request for service(s). As per the data requested to complete the form, it will be submitted online by the person. The request will be submitted to the concerned department and rest of the processing will be done at backend level. There would be verifications of request by the individuals of the concerned department. What ever response is required to be given, it will be given online within fixed time frame.

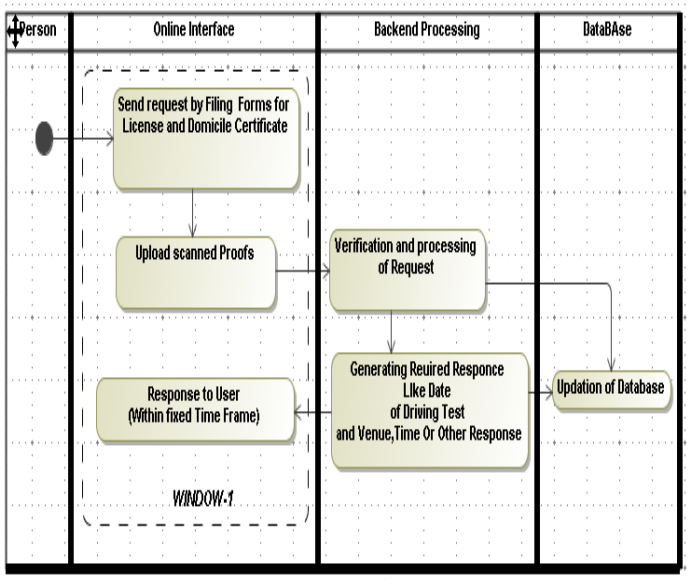

Fig.3 Activity Diagram of Reengineered System

There would be real time updating of data related to the request and processing in the database. Person need not to

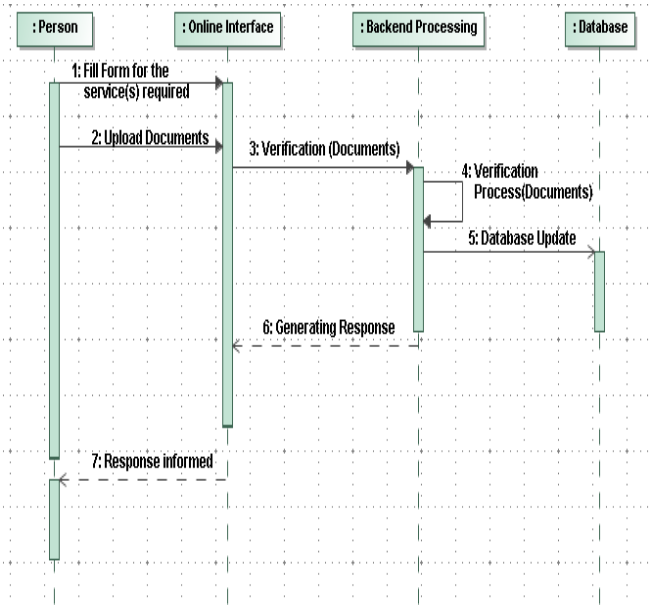

Fig .4 Sequence Diagram for the Process

visit different departments, will not move to different windows in each department. Let us have more understanding of the behaviour of this system by showing it using UML sequence diagram of the process. As given in Fig.4, Person object is interacting with the object of online interface by filling required form available on the interface for acquiring one or more services. Verification is done at the backend and after verification database will be updated. As per the backend processing, Response will be provided to the person who generate the request.

The benefits are obvious. Customer focus, Speed, Compression, Flexibility, Quality, Innovation, Productivity all objectives as mentioned above are clearly getting satisfied. Not only is the common person being benefited from this reengineering but also the work process of departments. The work process is highly transparent and providing ability to trace the work progress.

IV. CASE STUDY RESULT

Case study illustrates the process of reengineering the jobs involved in providing services which are meant for a common man under one common window (cluster). Person do not need to go different departments situated at different places but sitting at home or at one common place ,through single window(interface) he is able to forward his request for multiple services. Aim that gets fulfilled is to provide services which are meant for common man at their doorstep.

V. CONCLUSION AND FUTURE DIRECTIONS

We have tried to depict the service oriented business process reengineering by reengineering the processes of providing services to the common man. Further other services can be integrated in one window concept like passport service, land record service; police and Agricultural services etc. the system shown illustrated in our research paper can be actually implemented and run it the real environment.

REFERENCES

[1] Zigiaris .S,"*Business Process Reengineering-BPR,"* A Report produced for the EC funded project BPR engineer, B P R ,Hellas, S A, , 2000.

[2] Davenport, T.H. and Young, J.E., "*The New Industrial Engineering: Information Technology and Business Process Redesign,"* Sloan Management Review 1990., pp. 11–27.

[3] Hammer, M. and Champy.J, "*Re-Engineering the Corporation-* A Manifesto for Business Transformation," Nicholas Brearley Publishing Ltd 1993.

[4] Stewart .T.A, "*Reengineering: The Hot New Managing Tool*," Fortune, 1993, pp. 41–48.

[5] Wampler, Bruce.E, "*The Essence of Object Oriented Programming with Java and UML*," Boston, MA, USA: Addison-Wesley Longman Publishing Co., Inc, 2001.

[6] http://india.gov.in/govt/national_egov_plan.php

