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A Study on Development Models for Business Processes

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Abstract – Most organisations are working hard to improve their performance and to achieve competitive advantage over their rivals. They may accomplish these ambitions through carrying out their business processes more effectively. Hence it is important to consider such processes and look for ways in which they can be improved. Any organisational business process encompasses several elements that interact and collaborate with each other to achieve the required objectives. These elements can be classified into hard aspects, which deal with tangible issues related to the software system or the technology in general, and soft aspects, which deal with issues related to the human part of the business process. If the business process needs to be analysed and redesigned to improve its performance, it is important to use a suitable approach or intervention that takes into account all of these elements.

Keywords: Development Models, Business Processes, organisations, working, performance, improve; achieve, effectively, important, technology, approach, etc.

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INTRODUCTION

Each organisation has objectives and goals that it tries to achieve through the organisational business process, which includes several parts or elements that interact with each other to accomplish the required objectives. In order to discuss the organisational business process, some definitions need to be reviewed. First, the business process can be considered in general terms as 'a set of partially ordered steps intended to reach a goal' (Alves, et. al., 2007). or 'a group of related tasks that together create value for a customer' (Andrews & Curbera, et. al., 2003).. In more detail, Platt (Brambilla & Ceri, et. al., 2005) defines the nature of the process as 'the transformation of something from one state to another state through partially coordinated agents, with the purpose of achieving certain goals that are derived from the responsibility of the process owner'. Further, Davenport (Chang, 2005) describes the structure of the business process as 'a specific ordering of work activities across time and place, with a beginning, an end, and clearly identified inputs and outputs: a structure for action'. Finally, the business process can be presented in detail as 'a set of partially ordered process steps, with sets of related artefacts, human and computerized resources, organisational structures and constraints, intended to produce and maintain the requested software deliverables' (Chen, & Zhang, et. al., 2007). From the above definitions, the business process may be said to consist of the following elements: ordered activities, human and computerized resources, constraints and business rules, a set of related artefacts and organisational structure.

The business process can also be defined from different viewpoints, such as the functional view, which deals with process activities and information flows; the behavioural view, which specifies when and how the activities are performed; the organisational view, which considers where and who will perform the activities; and the informational view, which deals with the informational entities (Hill, & Cantara, et. al., 2009).

REVIEW OF LITERATURE:

Any organisational business process encompasses several elements that interact and collaborate with each other to achieve the required objectives. These elements can be classified into hard aspects, which deal with tangible issues related to the software system or the technology in general, and soft aspects, which deal with issues related to the human part of the business process. If the business process needs to be analysed and redesigned to improve its performance, it is important to use a suitable approach or intervention that takes into account all of these elements.

With the advent of the Internet, the growth of electronic commerce (ecommerce) and the rise of virtual organisations, the business process extends over the organisational boundary to interact with the business processes of partner organisations which participate in shared business processes (Bravetti and Zavattaro, 2007). E-commerce is considered to cover all electronically mediated transactions between an organisation and any third party it deals with (Dijkman, and Ouyang, 2008). The Indian government defines e-commerce in general terms as 'the exchange of information across electronic networks, at any stage in the supply chain, whether within an organisation, between businesses, between businesses and consumers, or between the public and private sector, whether paid or unpaid' [8]. This definition covers all types of e-commerce: internal organisation business, business-to-business (B2B), business to consumer (B2C) and e-government.

The notion of electronic business (e-business) has emerged, involving all activities of e-commerce, which is considered as a subset of it. IBM defines e-business as 'the transformation of key business processes through the use of Internet technologies' (Dijkman, and Ouyang, 2008). E-business deals not just with transactions but also the key business processes of an organisation which are required to be restructured to adopt the advanced technology of the Internet (Dijkman, and Ouyang, 2008).

The relationships between partner organisations are created according to certain principles; for example:

- **Goal orientation:** Partner organisations agree on the expected results of the interaction.
- **Privacy:** Each partner organisation has its own private internal process that the other organisations cannot access
- **Flexibility:** This is the ability for any partner organisation to change its private internal process without affecting the results agreed with the other organisations.
- **Independence:** Each partner organisation wants to stay independent of any internal changes of the others.

Workflow Management Systems: Workflow technology has recently been regarded as one of the main types of IT. It has been estimated that almost $1 billion will be spent on workflow automation and technology to improve customer services. The number of companies using workflow was predicted to rise to 5.8 million. Also, the number of commercial workflow systems is increasing. The increased demand for workflow systems is due to the roles that they play in improving the way that large organizations operate Workflow systems assist in 'the everyday operation of enterprise and work environments'. In addition, workflow technology assists in defining the business process explicitly, to react to environment change, to manage and control the business process execution and to carry out the various business process activities by using integrated applications from various platforms.

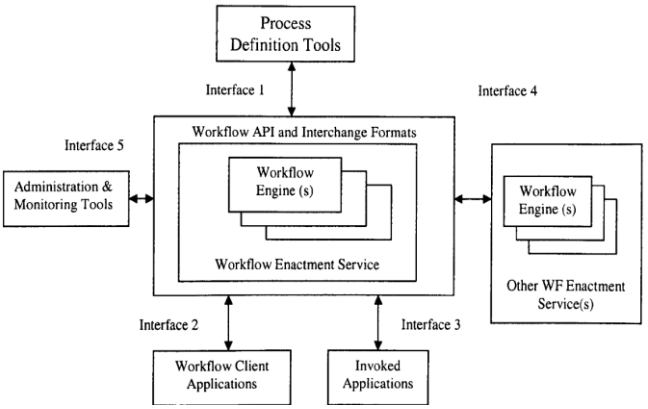

Figure 1: The WFMC Reference Model- adapted from the WFMC workflow reference model

Moreover, the use of workflow technology in electronic commerce as a back-end service-provider will shorten the business process time, assign resources efficiently and enhance the enterprise performance. The management of the business process through a workflow system will greatly cut down the administrative costs and enhance service quality. In the 1990s, workflow technology was considered a part of BPR, used to improve the business process by automating its activities and tasks, but it had a deficiency as the focus was on the technology, ignoring the human aspects of the business process. However, the need to model and monitor the business processes of many organisations increases the interest in BPM and the use of WFMSs to perform this role.

Comparison of Workflow Models: The workflow perspectives framework is considered as the representation of the various aspects of the business process that should be covered by the workflow model or system; thus, the suggested workflow perspectives framework consists of the soft perspective with several perspectives of the workflow reference model. Although these perspectives do not cover the whole workflow domain, the most important perspectives for modelling workflow systems are addressed. The perspectives of the workflow framework are as follows:

The soft perspective deals with the human aspects of the business process. It involves soft aspects such as the users' involvement, different points of view, the acceptance of the resultant system in use, and employee job satisfaction. For the workflow products it is possible to include the involvement of the users in the modelling of the business process

and the available facilities that assist the user in carrying out the assigned work items. This supports the acceptance of the system and uses it to perform the users' tasks in a way that promotes job satisfaction. The soft perspective also involves handling the exceptions that arise during the execution of the business process.

Soft Workflow Modelling (SWFM) Approach: Soft Workflow Modelling (SWfM), based on using Soft Systems Methodology (SSM) to study the organisational business process and model it as a workflow system to support the business process. First, the SWfM framework and its elements, SSM and Unified Modelling Language (UML), are presented. Then the steps, techniques and notations of the SWfM approach are covered in detail.

❖ **The SWFM Framework:**

The framework of the SWfM approach includes the use of SSM to investigate the organisational business process, to address the soft perspective and to verify the methodology's capability to model the organisational business process as a workflow system. Other methods or techniques such as UML may be integrated into SSM to handle issues that cannot otherwise be covered. Figure 3.1 outlines the SWfM framework:

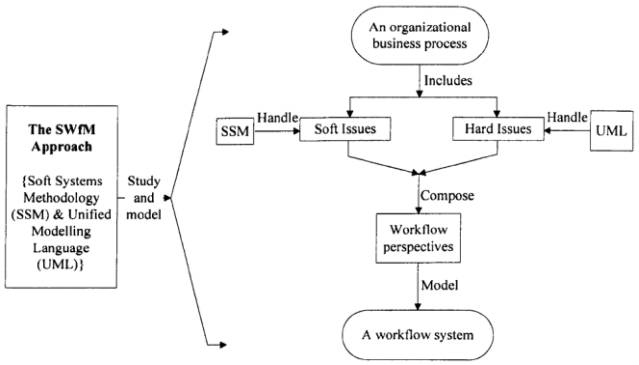

Figure 2: The SWIM framework

The above diagram shows that an organisational business process consists of two parts. The soft issues deal with human aspects of the process and some of them are represented as a soft perspective that can be handled by using SSM. On the other hand, the hard issues include the technical or tangible elements of the process, such as activities, tasks and data, which can be handled by the use of UML. These two parts can be classified into several workflow perspectives which will be addressed and modelled using the SWfM approach.

Organisational Business Process Investigation: This stage of the SWfM approach will be dominated by the use of SSM to study the organisation, its business processes and related issues, from a soft perspective. Thus, the organisation and its business processes are considered as a problem situation that SSM will be used to investigate. SSM is used to improve ill structured problems that have many perceptions. It uses the concept of a 'human activity system', in which 'a particular interpretation of the word "system" has been adopted'. SSM is 'perceived as an organised use of systems ideas in a methodology for learning one's way to purposeful action to improve a problem situation'. SSM is used when requirements are unclear, there are conflicting interests or the proposed system is contentious. Further, SSM is applied when there are changes in organisational structure or business processes. In addition, SSM supports the broad view of the situation and strategic planning for business improvement.

CONCLUSION:

This study proposes an evaluation of Development Models for Business Processes. This method will be developing by creating a framework on Business Process by analyzing the state of the literature regarding Business Process. This framework contains literature and criteria that have been extracted from this literature. The evaluation method itself consists of a selection of the framework's criteria, a case, information on how to use the criteria when evaluating the BPM products and a rating method which allows quantification of the evaluation. Hence it is important to consider such processes and look for ways in which they can be improved. Nowadays, most organisations are facing challenging competition from other organisations and are influenced by constant changes in the surrounding environment. These may take different forms such as an increasingly dynamic economy, altered customer requirements, global competition, new technologies and the emergence of the Internet and electronic commerce. Business Process is a standardized diagram notation for modelling interactive workflow processes graphically at the design stage. The primary objective of this study is to provide a framework for precise specifications and formal verifications of workflow processes modelled as Business Process.

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