INTEGRATED MODEL FOR ORGANIZATIONAL TRANSFORMATION IN BUSINESS PROCESS REENGINEERING

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ABSTRACT

This paper presents a pilot study implementing business process engineering where integrated model was used for business transformation analysis. Business process reengineering is a process that contributes to organizational transformation which will redesign the business processes and management to achieve dramatic improvement in business performance. A model that can bridge the gap between business and technical view is needed in the reengineering processes such that it can be easily translated from both business and technical perspective. This study demonstrate the feasibility of using integrated model as a technique in generating reengineering solution for organizational transformation in a human resource department of a wholesale company. Evaluation by users including the human resource officer shows a high satisfaction and improvement in the prototype representing new work processes develop using Lotus Notes.

Keywords: Organizational transformation, Business process reengineering

1.0 INTRODUCTION

Business process reengineering (BPR) is a methodology for redesigning processes and the associated systems and organizational structures intended for improvement in business performance measures such as cost, quality, service and speed (Alavi and Yoo, 1995; Prosci, 2002). It is one of the major drives of change within an organization in the way of thinking

their business processes and management while achieving better efficiency and efficacy that radically departs from other business practices such as total quality management, lean production, downsizing or continuous improvement (Motwani et al., 1998).

This study will adopt the BPR framework forwarded by Motwani et al. (1998) that con-sist of six main phases as shown in Fig. 1. In this framework, phase one is the top management recognition of the need for change that is followed by an activity of selecting business processes that need to be redesigned in the second phase. In the third phase, once the processes have been identified, current processes will be evaluated to uncover bottlenecks, redundancy or duplication and establish benchmarks for future improvements. Breakthrough opportunities will be identified and new work steps or processes will be designed. The actual business transformation of the reinvented process or organization will take place in the next phase. It is usually conducted in a small-scale pilot environment that can facilitate finetuning, enhancement and estimation of change and resource requirements needed. In the last two phases, the reengineered processes will be fully implemented and then evaluated.

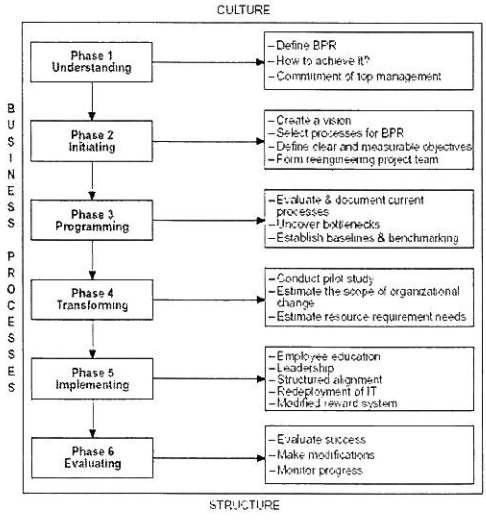

Fig. 1: BPR framework (Motwani et al., 1998)

This paper will describe a pilot study conducted using the aforementioned BPR framework where the main focus of the discussion will be on activities in phase one to four: understanding, initiating, programming and transforming.

An integration model (IM) for business transformation (Brown, 2000) is used in evaluating the current business processes and modeling the new design.

1.1 Integration Models

In any technical project, it is common that the view of the world between technical people differs from the view of the business people. Integration model is a model introduced to bridge the gap between the technical and business people perception of the world. This approach enables the business people to focus on the business concerns via a viewpoint analysis model that captures the business viewpoint. The view model reflects the business concerns and an integration model will be applied to resolve the issue. The technical people then will be briefed on the business viewpoint and use the integration model as a basis for the technical models.

M combines the views and opinions about a process, department or a project by bridging the gap between business and technical view to act as a background formulation for modeling integration issues and solutions. IMs can be used in the early and high-level modeling work of a project or in a detailed and physical design models. However, generally IM adoption is broad, focused more on the dynamic context for system building and less on the physical design of imple-mentation solutions. Brown (2000) lists eight integration models which are:

- Cycle: depicts a life cycle or cyclical process, which is characterized by repetition, evolution and the features of self-reinforcement and self-correction.
- Seed: a generator or transformer structure depicting a situation where a core component produces, collects or contains an array of results.
- Web: depicts a network of nodes/endpoints and connectors/arcs. It is useful in modeling network routing and for performing complex path analysis and optimization.
- Flow: utilized by process and flow analysis to trace the course of information, goods, services, communications etc.
- Wave: used to describe the layers of a system, environment or network. Layers help man-age complexity.
- Ring: useful in depicting chaining of events, people, devices or network addresses. While the cycle models directional processes, the ring models peer-to-peer relationship.

- Cell: supports modeling of categorization and compartmentalization. It is useful for analysis of distribution systems such as the geographic division and behaviors at the local versus global levels.
- Tree: a structure utilized to model systems with characteristics that include complex branching, diversification and implementation of distribution alternatives.

The issue here is can IM be used as method of searching for BPR solution in an organization? The main aim of this paper is to demonstrate the feasibility of IM as one of the reengineering activities for evaluating the current business processes and designing new or improved processes by integrating a business and technical view as a business transformation method.

2.0 METHODOLOGY

This study follows the steps in the Motwani's BPR framework mentioned in Section 1.0. The Human Resource (HR) department of Mid Store Sdn. Bhd (MidStore), a wholesale company in Malaysia was taken as a case study. An HR officer is in charge of HR matters placed in the headquarters, warehouse and the storehouse.

There are eight scopes of an HR officer's duty: staffing, payroll, attendance, leave, yearly assessment, misconduct, safety and training. A manual system using paper forms are used to record employees data and information. With a fast growing business, the HR officers are over-loaded with work and repetitive and mundane task with ever increasing staff recruitments. The HR officer recognized the need for change in his department in particular work processes that can be improved, done faster, made more efficient and simpler. This is phase one of the BPR framework.

In the second phase, a series of interviews were conducted with the management in order to gain more understanding of the nature of business and the current processes, bottlenecks, duplication and redundancy. All the information was later modeled with IM. Next, a new IM with the reinvention processes was designed. This new IM was examined to identify improvements and change that should be done. Finally, this model was implemented as a prototype in Lotus Notes environment. Usability testing of the prototype was carried out as the final activity.

3.0 FINDINGS

Upon executing the BPR processes from phase one to four, various results were obtained. In the second phase, based on the interviews conducted with the HR management and analysis on related documents, the current business processes were evaluated and modeled using IM method. There are two parts to the model, which involves the staff interaction and the filing system.

The first part of the model is illustrated by the ring and flow model. Flow refer to the processes flow resulting from the interaction between staff namely workers, the manager, the director and the HR officer. For example, the employees, the manager and the director interact with each other for absence leave application and approval. Then the employees, the manager and the director again interact with the HR officer to get or give information required. As for the reports, only the director can view the report while the HR officer prepares them All this related flows are connected to each other thus forming a ring model depicting a chain of people and events as shown in Fig. 2.

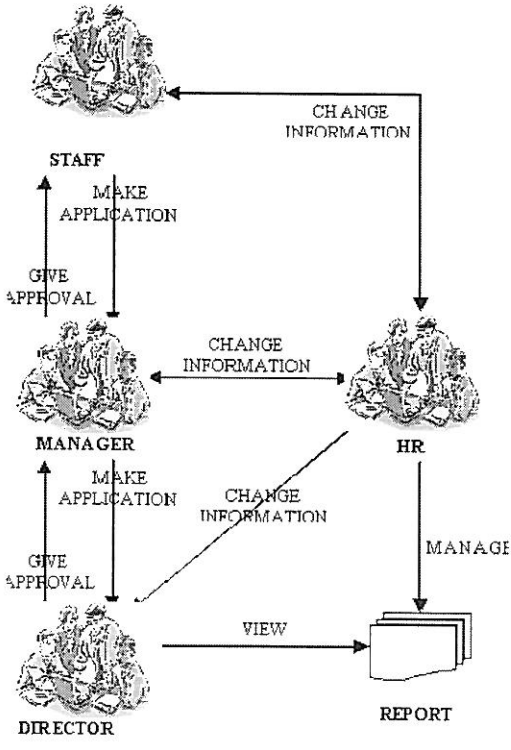

Fig. 2: Management model based on ring template

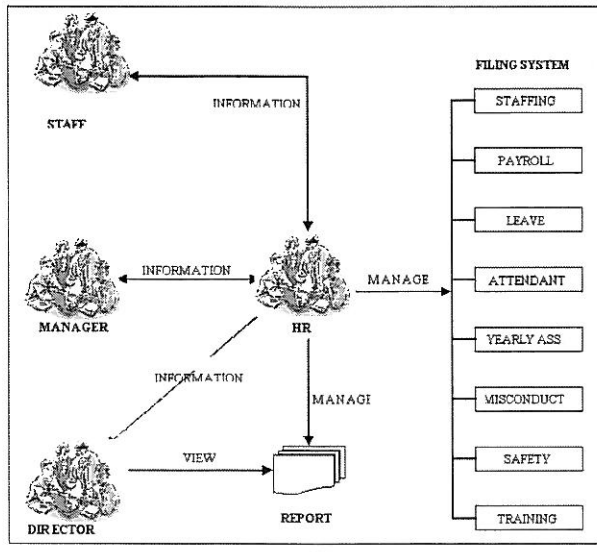

Fig. 3: The seed model of the manual filing system

Next, an improved model was designed using IM as depicted in Fig. 4.

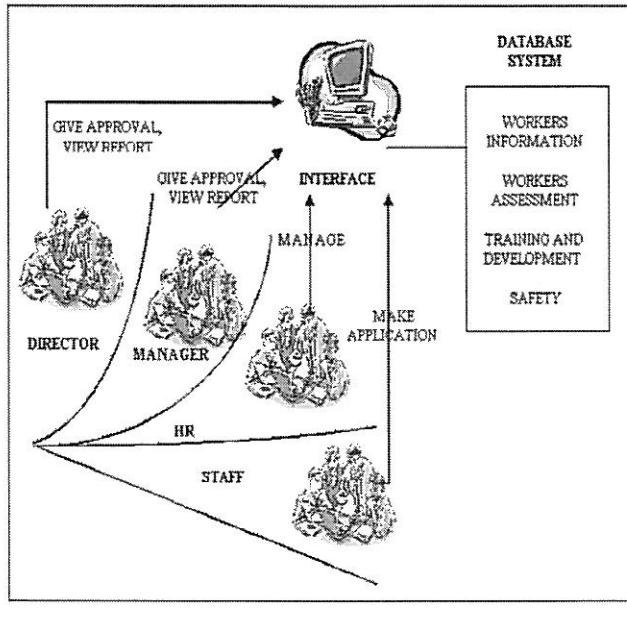

Fig. 4: Integrated model after BPR for transformation

The second part of the model is the seed model that involved filing system. An array of result is generated by the HR officer for this system. All actions such as the input of data, updating of data and managing the filing system is done by the HR. This shows that only the HR officer has the access to HR data and information as shown in Fig. 3.

After the BPR process was completed, the integration model was simplified into the second model as in Fig. 4. There are two models involved, which are the wave and the seed model. The wave model comes from the ring and flow model in the first integration model. But, it is not the same as it illustrates the layers of those staff. In other words, it shows a different level of access to the system.

Secondly, the seed model in Fig. 4 shows the interaction between the director, the manager, the HR officer and the employees as a generator and the system that collects an array of results. The interaction in the previous flow model is replaced by the interaction through the system. For the database, all the eight HR components involved have been put into a single database as shown in Fig. 4. There are 4 modules, which include the aforementioned scope of HR. The data on the employee's information form contains their personal data,

Table 1: HR officer evaluation

Test Dimension	Average Score
Procedural aspect	0.9
Time aspect	1.0
Workload aspect	0.8
Facility aspect	0.9
Total	0.9

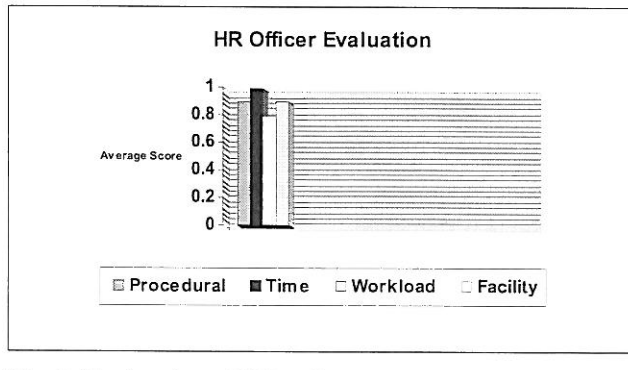

Fig. 5: Evaluation of HR officer

attendance, leave and pay-roll records. The data on the employee's assessment form contains the yearly assessment and misconduct. The training and safety module remain as it is.

Next, the model was implemented as a prototype in a Lotus Notes environment. Usability testing was conducted. Ten people were selected at random and also the HR officer to test the system. A questionnaire adopted based on Hussin (2002) with a Likert scale of 1 to 5 representing very good, good, medium, bad and very bad was distributed to the respondents for measure-ment purposes. Table 1 shows the result of the HR officers evaluation and is depicted in Fig. 5.

The HR evaluation of the four aspects are explained below. For procedural aspect, the HR gave 90% rating showing that he agrees there is a reduction of activities as a result of simplification and easy to understand process. A 100 % score was given to time aspect which it indicates that the officer agrees that time was greatly reduced in executing, responding to an activity and also generating reports. In terms of workforce, 80% score was given showing

Table 2: User evaluation

Test Dimension	Average Score
Functions	0.9
User Interface	0.95
System Capability	0.98
Reliability	0.8
Total	0.95

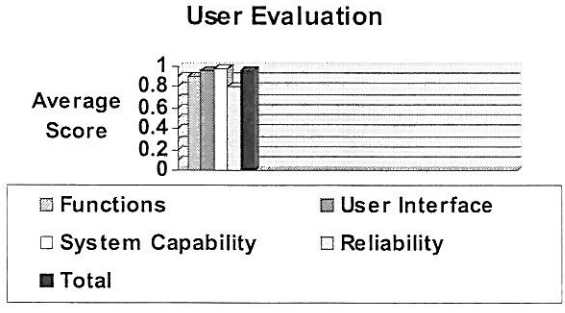

Fig. 6: User evaluation

that there was a reduction of workload and finally 90% was given for the facilities in record keeping, storage medium, storage and access method. On the average, the rating of the HR officer is 90%.

As for the user evaluation on the prototype developed, Table 2 shows the results and depicted in Fig. 6.

Based on the above results, it can be concluded that the prototype was able to function well with suitable user interface and is able to meet the users' requirements. It is concluded that the prototype has high reliability. The overall user evaluation score was 95%.

These two results show that the pilot study on carrying out BPR framework using the IM model gave high satisfaction level to the users and the HR officer. It also showed that it helps to reduce workload, increase efficiency in terms of time, quality and cost.

4.0 CONCLUSION

This study has shown that IM can be used to support the BPR activity by providing an in-tegrated view of the business and technical people. By using IM, the gap between the non-technical view and technical view can be bridged, hence providing a better representation of the business processes from both sides. The prototype also shows an encouraging improvement in the workload, activity and satisfaction level of the users in using such an online system.

REFERENCES

Alavi, M. & Yoo, Y. 1995. Productivity gains on BPR: achieving success where others have failed. Information Systems Management 12 (4): 43-47.

Brown, L. 2000. Integration models: Template for business transformation. United States of America: Sams Publishing.

Hussin, H. 2002. Sistem Pembekalan Dokumen Elektronik Berteraskan Web Perpustakaan Sultanah Zanariah. Masters Thesis. Faculty of Computer Science and Information Science, Universiti Teknologi Malaysia.

Motwani, J., Kumar, A., Jiang, J. & Youssef, M. 1998. Business process reengineering: A theoretical framework and an integrated model. International Journal of Operations & Production Management 18 (9): 964-977.

Prosci. 2002. Reengineering. Available online via Retrieved from http://www.prosci.com on 14 November, 2002.