

# Business Process Re-engineering of e-catalogue Distribution Process

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## ABSTRACT

This paper aims to demonstrate that using Business Process Re-engineering would improve efficiency of a business process and increase the performance of the business. In particular, when a radical review of a business process results in the introduction of information technology, drastic improvements to the service associated with the business process can be immediately realized as evidenced from the study in which this paper was based. A four-phased approach to Business Process Re-engineering was used following the guidelines provided by the Malaysian Administrative Modernization and Management Planning Unit, Malaysia. The four phases were Preparation, Understanding, Process Analysis, and Implementation and Evaluation. These phases were then applied to a direct selling catalogue distribution system whose primary business is selling beauty and cosmetic products. Following the implementation of the e-Catalogue system, evaluations were carried out on the processes prior to re-engineering and comparisons made with the re-engineered processes. The results showed drastic improvement to the efficiency of the business process, from 20% efficiency prior to re-engineering to 86% process efficiency. The re-engineering efforts also managed to reduce the number of activities from 32 down to 13, with elimination of waiting time down to only 7% compared to 55% before re-engineering. Overall, this paper managed to show that Business Process Re-engineering is a worthwhile effort provided that a carefully planned and systematic approach is taken to take advantage of technology to improve the way business is conducted.

**Keywords:** BPR, Efficiency Rate, Pareto, Waiting time

## I. INTRODUCTION

Business Process Re-engineering (BPR), according to Hammer and Champy (1993) is the fundamental rethinking and radical redesign of business process to achieve dramatic improvements in critical temporary measures of

performance such as cost, service, quality and speed. Referring to this definition, the authors Abdous and Wu (2008) believe that the ultimate goal of process reengineering is to achieve efficiency and effectiveness by radically rethinking existing processes. The significance of introducing Information Technology (IT) in a BPR endeavour can be seen in Chen (2009) who found that using IT as a tool for business process specifically for operational perspective can dramatically change and improve business efficiency in connection with others such as customers, suppliers, partners and company competitors. This is exactly what this paper intends to demonstrate, that is, examining a set of business processes in a very specific direct selling environment, making attempts to redesign its business processes based on what the stakeholders wishes, implements the redesigned solutions using a systematic and structured BPR methodology, transforming that into an IT solution, and making comparisons of the outcome. The sections that follow present the efforts taken by the authors in carrying out the BPR tasks and the results that ensue which demonstrate the effectiveness of conducting a BPR study.

## II. SIGNIFICANCE OF BUSINESS PROCESS RE-ENGINEERING

Undeniably, BPR has been proven to be a successful technique in improving business process performance. However, engaging IT alone to convert manual processes is not enough. The misconception that automation can simply improve process efficiency is only half truth. Yes, it cannot be denied that IT can improve the efficiency of a business process. However, the question remain to what extent can improvement be realized? No wonder one would see over and over again how IT solutions were replaced by yet other IT solutions, all in the name of newer, modern and recent technologies. But the truth remains hidden, that is the lack of a systematic and structured approach to analyze the user requirements independent of specific technology and IT solution can contribute to failure in implementing the user-desired business process. More often than not the main culprit is the automation of old business processes! It requires a paradigm shift and “thinking out of the box” in

order to think of new ways of carrying out the business activities.

Previous studies proved the significant contribution of BPR in drastically improving user-desired business processes. Thyagarajan and Khatibi (2004) show 50 to 100% improvement to the organization due to BPR implementation. In another study Zaheer et al. (2008) reveal that the implementation of BPR technique in the public sector organizations attempts to reduce money cost by 81%, time cost by 74% and human resource by 69%. In a recent study, Ghandour et al. (2010) contend that the incorporation of IT solutions in Business Process Reengineering will lead to improve performance by 20 times better and also provide satisfaction for users involved in the process. Md Shariful Alam et al. (2011) posit that BPR is the key to transforming how people work insomuch that a small to a re-engineered process can have a dramatic effect on business performances such as better cash flow, quality service delivery, and improved customer satisfaction.

### III. STUDY METHODS

The methods used to conduct the BPR study is based on a guideline by the Malaysian Administrative Modernization and Management Planning Unit (MAMPU, 2009), a unit under the Prime Minister's Department, Malaysia. The guideline identifies four phases involved in the study. In the Preparation phase, the researcher identified the product catalogue distribution process to be re-engineered from the perspective of staff experienced in dealing with product catalogue distribution for customers. At the beginning of this phase, the researcher reviewed a variety of sources including print product catalogue, the company's websites, Facebook, Twitters, and literature search, and conducted a series of meetings with the Division Manager from the headquarters. The Understanding phase attempts to identify the business process by conducting in-depth discussions with key personnel. Documentations were prepared to collect all data from the series of discussions, analyzed and recorded to the work process schedule together with the time to accomplish each activity. Next, process mappings were conducted to map existing process activities with their associated time estimation to accomplish those activities. These were then input to the next Process Analysis Phase where a Pareto Chart was constructed based on the work process schedule recorded earlier. The Pareto lists all existing

activities ordered from longest to shortest time taken to accomplish the corresponding activities.

The re-engineered process started after the process efficiency rate was calculated based on the existing process.

The re-engineered process begins by examining the Pareto Chart, and observing the 80/20 percent rule. According to this rule, 20% of the activities that consumed 80% of the time were identified as potential activities whose processes were to be re-engineered. The result can be seen from the Pareto Chart shown in Figure 1.

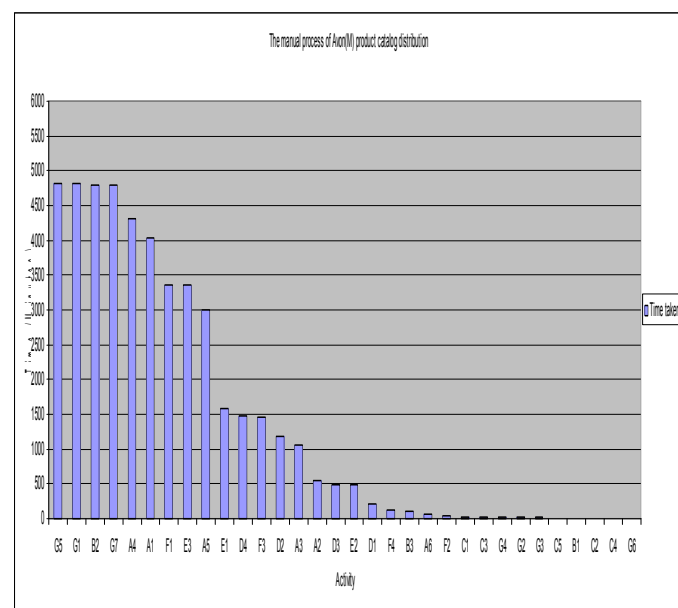


Figure 1. Pareto Chart

The 20% activities generated by the Pareto chart identified the following activities: Keep the print catalogue (G5), Receive the bundle of new print catalogue (G1), Coordinate the printing job (B2) and Distribute print product catalogue (G7) that consumed the most time. Together these activities made up 19200 minutes (4800 mins x 4). The total time taken for the whole work processes to complete was 46186 minutes as shown in Figure 2. This means that the four time-consuming activities account for 41.6% of the time, which is considered significant and worth the effort to re-engineer.

Work Process Schedule for product catalog distribution process

Consultant:

Siti Fatimah Bt Yusof

Respondents:

The stakeholders of Avon (M) Sdn. Bhd.  
 Rosman Abu Bakar (Division Manager Franchise & Field Development)  
 Siti Aminah Bt Suberi (Sales Representatives)  
 Siti Fatimah Bt Shafie (Dealer)  
 Siti Norhijjah Bt Jabar (Dealer)

Activity	Work	Description of Activity	Who	TIME TAKEN (Minutes)				
				VAT	WT	TT	RMT	TOTAL
1	A	Produce draft product catalog	AD	8650	3675	150	525	13000
2	B	Request for printing product catalog	MM	482	1460	1954	1010	4906
3	C	Update record for top sellers and active/inactive dealers	AMO	7	16	15	12	50
4	D	Deliver ready print product catalog	SCM	15	1874	1322	135	3346
5	E	Data Pos receive ready print product catalog	DP	13	2110	2232	1065	5415
6	F	Active dealer receive Product catalog	D	11	3450	974	556	4991
7	G	Avon Beauty Boutique receive Product catalog	SR	15	12965	980	56	14478
TOTAL TIME TAKEN (Minutes)				9193	25550	7627	3359	46186

Figure 2. Work process schedule for existing product catalogue distribution process

### A. Calculation of existing process

$$\begin{aligned} \text{Process Efficiency Rate} &= \text{Total VAT/TOTAL} * 100 \\ &= 9193 / 46186 * 100 \\ &= 19.90\% \\ &= \mathbf{20\%} \text{ (approximately)} \end{aligned}$$

$$\begin{aligned} \text{Waiting Rate} &= \text{Total WT/TOTAL} * 100 \\ &= 25550 / 46186 * 100 \\ &= 55.3\% \\ &= \mathbf{55\%} \text{ (approximately)} \end{aligned}$$

The Process Efficiency Rate is 20% whereas the Waiting Rate is 55%. Clearly the process prior to re-engineering is inefficient and wastes a lot of time as more than half of the time for the process to complete is to wait for subsequent activity. The re-engineering process took place based on the online process.

### B. Description of Re-engineering process

Based on the analysis of the online of the work process schedule, there are three main activities involved. These are:

- i. Produce draft product catalogue
- ii. Receive e-catalogue
- iii. View e-catalogue

Figure 3 shows the work process schedule for the re-engineered process.

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Activity	Work	Description of Activity	Who	TIME TAKEN (Minutes)				
				VAT	WT	TT	RMT	TOTAL
1	A	Produce draft product catalog	AD	7765	625	125	480	8995
2	B	Receive e-catalog (ready files)	MAM	16	15	15	-	46
3	C	View e-catalog	C/D/SR	165	27	23	25	240
TOTAL TIME TAKEN (Minutes)				7946	667	163	505	9281

Figure 3. Work process schedule for the re-engineered product catalogue distribution process

For the re-engineered process, the total time taken for the whole work processes to complete was 9281 minutes. This can be shown in the following calculation to identify the value of process efficiency rate and waiting rate for the new work process:

### C. Calculation of re-engineering process

$$\begin{aligned} \text{Process Efficiency Rate} &= \text{Total VAT/TOTAL} * 100 \\ &= 7946 / 9281 * 100 \\ &= 85.62\% \\ &= \mathbf{86\%} \text{ (approximately)} \end{aligned}$$

$$\begin{aligned} \text{Waiting Rate} &= \text{Total WT/TOTAL} * 100 \\ &= 667 / 9281 * 100 \\ &= 7.19\% = \mathbf{7\%} \text{ (approximately)} \end{aligned}$$

The results show a dramatic increase in efficiency rate from 20% to 86%. It also shows that waiting time was reduced from 55% to 7%. Therefore, it can be concluded that the Business Process Re-engineering technique in this study can contribute to increase in process efficiency and provide significant savings in time.

## IV. CONCLUSIONS

This study has successfully demonstrated that applying Business Process Re-engineering on selected business processes that consumed significant time, thereby changing the entire delivery system by introducing IT can drastically improve business performance. The selected 20% business processes that consumed slightly more than 40% of the time as exemplified in this study shows a dramatic increase in efficiency rate, at the same time significant reduction in

waiting time. This is proved that BPR really works and it requires only a handful but significant time-consuming processes as anchors that can transform the entire service delivery into a re-engineered business process without having to laboriously analyzing the entire business process activities.

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