Business Process Re-engineering: A Case Study of Haier Group

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Abstract. Business process re-engineering is a business management strategy, focusing on the analysis and design of workflows and business processes within an organization. BPR aimed to help enterprises fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs, and become world-class competitors. Haier Group is a successful case of applying business process re-engineering. In last thirty years, Haier has transformed itself from an insolvent collectively-owned factory on the brink of bankruptcy into the number one global home appliance brand. This project would refer the successful case as an sample, than apply INCOME software to simulate the efficiency of supply chain, the process improvement of both information flow and logistics, and the benefits of applying business process re-engineering method. The simulation result would be used to compare the performance between original and improved model with numerical data of simulation.

Keywords. Business Process Re-engineering, Haier

Introduction

With dynamic and rapidly changing environment nowadays, enterprises start to consider how to adjust their current structure and behavior in order to support their evolution and adaptation. Change has always been the case especially for unpredictable, rapid and revolutionary situation that we might face. The development of new technologies and the globalization of business operations have changed customer expectations. In order to successfully face these difficult operation conditions, enterprises start to redefine their core strategies to minimize the cost, continuously improving to meet the satisfaction of customers. Hence, the business process reengineering (BPR) has been carried out to change old-fashion management practice and inefficient working processes of enterprise, and it has received lots of attention from industries as well as the academic community. The project would start with conception of business process reengineering, then elaborate the detailed implementing steps for enterprises. In order to illustrate more specifically, the successful example would be carried out. The chosen example which would be used as case study of this project is Haier Group Company. Haier Group Company has been recognized as one of the successful enterprises to improve their intra-structure by business process reengineering. The core strategies that Haier implemented would be described and explained by Income software, the key indicator of the simulation model is time. Furthermore, the improved simulation model of the business process would be compared with the original simulation model, the numerical
data which generated by the indicator of simulation result would be used to evaluate the performance for both model. This simulation model of Income is designed as a tool for evaluate the performance after implemented business process reengineering. The detail would be explained more in the following chapters.

1. Research Process

This research is divided into three stages. The first stage is the background review and data collection. Based on the research background and purpose, relevant data are reviewed and reported. The second stage is to build simulation model, and compare the result of original behavior model and improved behavior model. The research process and order details are illustrated in Figure 1 as you could see.

![Figure 1. The Research Framework and Process Flow](image-url)
2. Methodology

This project uses Income software to simulate the organizational structure, business flows and information flows of Haier Group Company. In the 1980s, Haier is just a refrigerator factory which had millions of debt and suffered poor management. However, Haier has transformed itself into one of the biggest home appliances brands in the world. Haier successfully transformed itself to conduct several improvements for the purpose of meeting their core strategies which are shown in the picture. Haier applied business process reengineering for their management model for achieving the internationalization strategy.

![Figure 2. The Developmental Strategies of Haier Group](image)

Hence, Haier Group has been chosen as the case of this project, and the reengineering of business processes on management system would be simulated by Income. The simulation models would simulate the organization, information flows and the business flows, and built two versions of simulation model: one is the version of ‘before implemented BPR’, and the other one is the version of ‘after implemented BPR’. After the models have developed, the analysis of the simulation results would be carried out as an indicator to compare the performance between original model and improved model.

2.1. Original Simulation Model

The original simulation model which built by Income would demonstrate the problems of the original organization, business process and information flow.

2.1.1 Original Organization Model

This is the original organization model of Haier Group which built by Income. The organization is pyramid structure, and the structure contained four hierarchies for different department, each department was responsibility for its own top hierarchy, and belonged to it.

When there’s an order received, the order information would transmitted slowly from top to bottom hierarchy due to the complicated procedures between each department, which would spend too much time. Furthermore, since the functional group at the bottom of hierarchy belonged to different departments, the functional group couldn’t corporate efficiently due to lack of integration.
2.1.2 Original Behavior Model

This is the original process drawn by Income, the order business process starts from receiving order, ends at the delivery completed. For the first layer of model, there seem no problems needed to improve. It illustrates the normal order process of Haier.

However, at drill-down activities, there do have some problems of inefficiency. For the ‘Purchase Material’ part, the process of each activity are controlled by different departments, since the information of each activities couldn’t pass through the process directly and need to transmit within different departments, the ‘Purchase Material’ part would spend too much time to finish. For the ‘Shipping’ part, since Haier didn’t have the efficient logistics system before, there would be lots of materials or products stock in warehouse and wait for allocation.
2.1.2 Original Object Model

For the information flow shown in object model, each block with different color means that the block is managed by different department. As you could see, except for ‘product information’ is shared with all departments, other data couldn’t directly transmit to every department and only keep as departmental information. Since the organizational structure would limit the information flow, the improvements are needed to help Haier solve these serious problems once and for all, enhance the competitiveness of Haier Group Company.

2.2. Improved Simulation Model

The business process reengineering which Haier has implemented is based on computer information systems and centered on order information flow, it facilitates information flows within the enterprise, and use the electronic information to drive logistics flows and make the flows proceed more smoothly. Here are the major concepts. First, the just-in-time information exchanging system, it would connect with world-wide vendors, customers and also intra-enterprise departments, which means that the detail information would be transmitted via the connection system once the order has been built. To coordinate with the information exchanging system, the distribution center and logistics company had been built to achieve the three zero target and decrease the inventory level. With this efficient information exchanging system and logistics, the business process could response faster to customers’ need.

2.2.1 Improved Organization Model

In order to proceed the new policies smoothly, Haier changed their organization into a functional structure to coordinate with the new business process. There is less hierarchy, so the procedures time has decreased. Also, since each department already divided by
specific function, the functional group that belonged to different departments are now integrated in an individual department. The integration of the functions would benefit the company to proceed more efficiently. Furthermore, with the change of the organizational structure from vertical to horizontal, the departments are no longer operated by the top commands, but operated with ‘market chain’ inside Haier, every department would directly face the real customer or the downstream departments, and do ‘business’ with each department.

![Figure 6. The Improved Organization Model of Haier Group](image)

### 2.2.2 Improved Behavior Model

The order process has also changed as you can see in the improved behavior model.

![Figure 7. The Improved Behavior Model of Haier Group](image)

After applying the information exchange system, vendors would get the order detail once Haier updated them, and the vendors could respond immediately and know the exactly time to replenishment for Haier, and then speed up the ‘Purchase material’ part. Haier also established the Haier Logistics Company to achieve the JIT distribution. The
automatic stereoscopic warehouse and distribution centers have been built to decrease the inventory level of Haier, hence speed up the ‘Shipping’ process. With the improvement with business process reengineering method, Haier has done a successful revolution for their managements.

2.2.3 Improved Object Model

For the objective model, since the information system has driven the synchronization of supply chain, moves and increases the efficiency of the information flow, the information are totally transparency for each department due to the intra-enterprise information exchanging system, so the color of each block in the object model uses the same color to illustrate this concept. With the improvements, the probability of unexpected problems which caused by lack of information have happened less than before.

3. Performance Comparison of Simulation Results

To compare the performance of original model and improved model, this project assumes that Haier have accepted a refrigerator order, and the order would be completed smoothly without any abnormal factors affected.

Here is the comparison of original and improved behavior model. The simulation results are generated by Income, and the performance table has showed that the improved business process is more efficient and spends less time than the original model.

This simulation results also provided the numerical data for Haier to prove and compare their improving effects after implemented the business process reengineering method. The cycle time of completing a refrigerator order has reduced about 53% after business process reengineering implemented.
Table 1. The Performance Comparison of Simulation Models

<table>
<thead>
<tr>
<th></th>
<th>Original Simulation Model</th>
<th>Improved Simulation Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Time[Day]</td>
<td>Activity</td>
</tr>
<tr>
<td>Order Receive</td>
<td>0.20</td>
<td>Order Receive</td>
</tr>
<tr>
<td>Build Production Plan</td>
<td>0.50</td>
<td>Build Production Plan</td>
</tr>
<tr>
<td>Purchase Material</td>
<td>7.80</td>
<td>Purchase Material</td>
</tr>
<tr>
<td>Produce</td>
<td>5.00</td>
<td>Produce</td>
</tr>
<tr>
<td>Shipping</td>
<td>16.00</td>
<td>Shipping</td>
</tr>
<tr>
<td>Sum</td>
<td>29.50</td>
<td>Sum</td>
</tr>
</tbody>
</table>

4. Conclusion

This project provides the numerical data to support the business process engineering application for Haier Group Company. Through the simulation by Income software, the original model and the improved model have been compared for their difference. The implementation of this research has the following contributions. First, this project is to construct the clear business processes which are never been built in the previous research, and emphasize the difference between two models by simulation techniques. Second, the case of Haier Group to implement business process reengineering is an excellent example for the enterprises who want to apply this method, and the data of the project could be referred by them, uses this data to make their improvement proceed more smoothly.

References

[1] 周国强，海尔管理变革：市场链与业务流程再造，
[2] 企业流程再造-海尔集团案例分析
Available: http://wenku.baidu.com/view/e25bbd87e3a87c24028c45c.html
[3] 跨国公司组织理论——海尔公司组织结构案例分析
Available: http://wenku.baidu.com/view/sadf1dc7bb4f7f4afef0e5.html
[4] 海尔以流程改造构建竞争优势
[5] 董盟君，海爾全球行(五)：業務流程再造，驚險的一跳
[6] VMI模式在企业中的运用研究（下）