

A Project-Based Model for Implementing BPR

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Abstract: Business process reengineering (BPR) is an outstanding management theory but with a high failure rates of 70%. One of the major problems in many BPR efforts is lacking of a disciplined method to model business process. In addition, the implementation methodologies in past literature and famous consulting firms were incomplete, and lack of practical experience or academic foundation. After analyzing and comparing the pros and cons of several representative BPR implementation methodologies, this study proposes a new methodology which combines previous academic outcomes and practical experience in consulting firms. Based on a hands on project, the detailed approaches, targets, needful materials, and expected results of each stage are elaborated as well as the commonly used BPR techniques and tools. Furthermore, the innovative methods and steps in this methodology which ensure the success of the project are discussed.

Keywords: Process reengineering & redesign, BPR implementation, methodology

I. Introduction

Business Process Reengineering (BPR) was a new management tool introduced by Michael Hammer and James Champ in early 1990s, and was defined as “radical thinking and redesign of business process in order to gain breakthrough improvement in the business performance, such as cost, quality, speed, and service”. Hence it quickly caught the imagination of western corporate leaders and became a major subject of attention in academia and industry. Since its first launch in China in mid 1990s, BPR was soon familiar to the internal corporations along with the popularity of ERP in less than ten years.

BPR is a very controversial topic in management literature. Despite isolated success stories at several firms, many organizations have encountered serious problems during their BPR implementations [1]. While BPR supporters claim that BPR is the only way to gain competitiveness and will lead to the reconstructed revolution instead of the industrial revolution, the discommenders bring forward the disappointed results of BPR efforts that the failure rates are as high as 70% [2]. Various reasons for this have been given in the past research. As William J. Kettinger

said “like most new managerial innovations, reengineering experienced an initial period of chaotic “trial and error,” with a lack of accepted methods”, one of the major problems in many BPR efforts is lacking of a disciplined method to model business process [3] and the BPR implementation always without a proper method supporting systematic redesign [4] [5].

So, is there a BPR implementation method that can enhance the success rate? Many experts and scholars have explored on this way for many years and have summarized some useful models, but the process of implementing BPR is still incomplete and fragmented in past literature [6]. Some worlds leading reengineering consulting firms, such as ISS, DMR Group, Andersen Consulting, Mckinsey C., all make use of their own proprietary BPR methods and experience to fulfill their clients’ unique needs. But they have not further summarized their useful treasures. Besides, they lack enough theoretical proofs to support the correctness of their methods. Thus, even given the plethora of BPR consulting services now available, there has not been a study placing these methodologies, techniques and tools into a classification framework permitting project planners to assess the “fit” between their unique organizational problem situations and available tools [7].

So, in this paper we will propose a new BPR implementation method which is feasible both in theory and practice by combining previous academic outcomes and practical experience in consulting companies. Also, commonly used BPR techniques and tools are mapped to each implementing stage. Especially, the efficiency and correctness of the implementation methodology has been validated and checked by a practical BPR project of KK Company.

II. Literature Review

To put BPR into action, methodological choices play a key role for the success of BPR [6]. In BPR literature, Many BPR implementation methods have put forward to fill the void of the critical mass of BPR projects, e.g. Wastell et. Al, G. White , 1996 [8]; Hammer, champy, 1993 [9]; Kettinger et al., 1997 [7], etc.. Table 1 summarized several typical implementing methods [7] [9] [10] in BPR literature in terms of the stages and activities included. As usual, BPR project can be implemented in three stages according to the domestic and international BPR project experience [11]. It is the simplest reengineering method among them while the

six-stage mode is the most complicated one. The composite stage-activity methodology based on the descriptions of 25 BPR methodologies derived by Kettinger et al. (2001) helps

the leading BPR project planners come out of the confusion of various reengineering methods choice [6].

Table 1 Representative methodologies, stages and activities

Methodology	Stages and activities					
Simple three-step mode	Categorize process <ul style="list-style-type: none"> • Categorize the process into three main sorts using value chain analysis: core process, boost up process, and sustaining process 	Analyze process <ul style="list-style-type: none"> • Identify improvement space of the candidate process • four indicators: cost, elapsed time, service quality, and performance influence 	Reorganize <ul style="list-style-type: none"> • Form implementing team • Reorganize • Dynamic evaluation and improvement 			
Four-step mode (Michael Hammer, Champy, 1993)	Make an agreement <ul style="list-style-type: none"> • Gaining top managers' support • Develop vision • Form BPR team • discover redesigning opportunities 	Analyze the business process <ul style="list-style-type: none"> • Analyze current process • Identify external demands • Define improvement objectives 	Redesign the process <ul style="list-style-type: none"> • Identify alternative solutions • Develop prototype • Create detailed design of system functions 	Implement business process <ul style="list-style-type: none"> • Implement infrastructure changes • Train employees • Perform process and system intergradations • evaluation 		
Five-step mode (Peppgaard J.Rowland P.,1998)	Build business condition <ul style="list-style-type: none"> • Develop business vision • Win top managers' support • Form a plan • Develop train • Identify core processes • Form BPR team • Develop vision 	Process diagnosis and redesign <ul style="list-style-type: none"> • Train BPR team • Diagnose current process • Diagnose current conditions • Benchmark • Design new process • identify redesign solution 	Redesign organizational structure <ul style="list-style-type: none"> • Examine the human resource • Examine the technical structure and abilities of employees • Redesign human resource structure • Redefine posts and train employees • Transpose labor into new process • Establish new IT infrastructure and application 	Implement pilot <ul style="list-style-type: none"> • Choose pilot • Form pilot team • Confirm the customers and suppliers involved • Run, monitor and support the pilot • Examine and collect feedback • Identify transform order and implement step by step 	Realize business vision <ul style="list-style-type: none"> • Evaluate performance • Make the benefits and efficiency apperceived by clients • Dig for more efficiency • Improve continuously 	
Six-step mode (Kettinger et al., 2001)	Envision <ul style="list-style-type: none"> • Establishing management commitment & vision • Discover reengineering opportunities • Identify IT level • Select process 	Initiate <ul style="list-style-type: none"> • Inform stakeholders • Organizing reengineering teams • Conduct project plan • Determine external process of customer requirements • Set performance goal 	Diagnose <ul style="list-style-type: none"> • Documentation of current process • Analyze existing process 	Redesign <ul style="list-style-type: none"> • Define and analyze new process concepts • Prototype and detailed design of a new process • Design human resource structure • Analyze and design IS 	Reconstruct <ul style="list-style-type: none"> • Reorganize • Implement IS • Train users • Process cut-over 	Evaluation <ul style="list-style-type: none"> • Evaluate process performance • Link to continuous improvement programs

The BPR implementation methodologies outlined in table 1 have their own specialties and properties. The three-step methodology is very consistent with its tools, and its evaluation standard is quite effective for its simpleness. So it quite suits the situation that the project has clear objectives and time limited. The four-step methodology is applicable to the common situations, i.e. if the project is some urgent, it can flexibly choose implementation approach and tools to reduce the time needed, or if the time is enough but the objectives are not very clear, it can choose corresponding implementation approach to identify the final aim in a longish period. The five and six steps methodologies are relatively mature and they are both suitable for the project which has undefined aim but with enough project time since they have a very detailed approach and its result is always perfect. However, all the methodologies have some its fatal weaknesses. For example, the three-step methodology is

only for the project which has definite demands and specific evaluation index, and if the demand of the company is not systemic, the whole results will run in the opposite direction. Though the four-step methodology is mature, it emphasizes particularly on theory and its implementation approach. It ignores the real demands and the people in the company. Lacking the support of people and without agreement on the project results will lead to failure in practice. The five-step and six-step methodologies have the similar problem with the four-step methodology. They totally ignore the people in BPR implementation. Even though they have noticed gaining the support of top leaders, they overlook the demand of the staffers. Besides, they don't have a definite approach to solve the compatibility between the new process and the existing process which is also a factor results in failure. Finally, the five and six steps methodologies have long period of project schedule which will increase the

investment and aggravate company's burden.

In conclusion, we summarize the following evaluation sheet of the above BPR implementation methodologies by considering several basic BPR principles (see table 2).

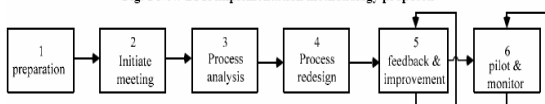
Table 2 BPR implementation methodology evaluation model

Basic Principles of BPR	Three-step mode	Four-step mode	Five-step mode	Six-step mode
Clear targets	Bad	Good	Excellent	Excellent
Extent focused on IT	Bad	bad	Excellent	Excellent
Reliability of project team	Bad	Good	Good	Good
Evaluation standard of project results	Good	Bad	Excellent	Excellent
Top managers' support	Bad	Good	Excellent	Good
Reduce the resistance from the people involved	Bad	Bad	High	Bad
Resistance from internal company	High	General	General	General
Choice of candidate processes	Excellent	Excellent	Good	Excellent
Solve the problem of compatibility	Bad	Bad	Bad	Bad
Pilot process	Bad	Bad	Excellent	Bad
Time needed	Short	Moderate	Long	Long
Feasibility	Bad	Bad	Good	Good
Continuous improvement	Bad	Bad	Good	Excellent

III. A Project-Based BPR Implementation Methodology

Is there a BPR implementation methodology which can not only gain the support of the whole company, but also can ensure the implementation quality as well as be time flexibility? With these questions in mind, we try to propose a BPR implementation methodology that can satisfy these requirements. By synthetically considering the pros and cons of the previous methodologies and referencing to the practical experience of several famous consulting firms, we put forward a new six-stage BPR implementation methodology which had been taken into action in the BPR project of KK Company (See Fig.1).

Fig. 1 New BPR implementation methodology proposed



Preparation

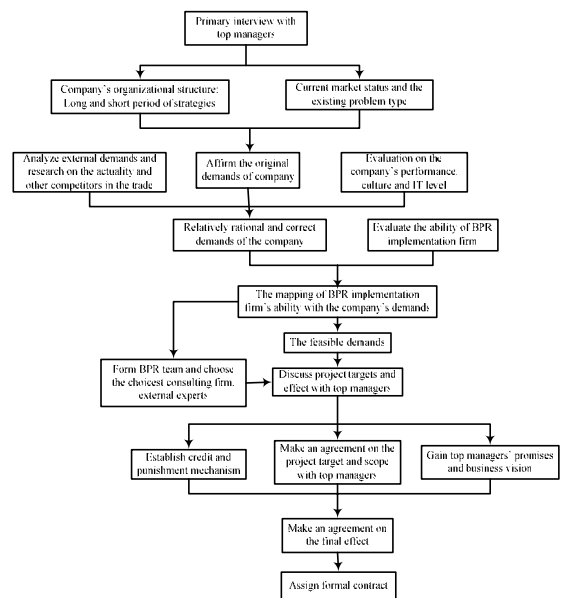
Before the start of BPR project, some prophase preparation should be done, such as collecting the basic information and demands of its client. Only if the client has the belief that the BPR consulting firm has truly understood its problems and requirements, it will be interested in further communication. Otherwise, it will not engage the firm to do the project. Accordingly, the implementation firm can also evaluate if its resource may meet the client's requirements correctly. Only with plenary capability can the BPR consulting firm ensure the quality of the project.

Another task in the preparation stage is winning top managers' support. As BPR is a long strategic innovation which has a far-reaching influence on the company, the top

managers' understanding seems so critical to the successful of the project. In this stage, BPR team should make the top manager fully understand the importance and necessary of BPR, and be on to BPR is an inevitable direction that the success has direct relationship with his own career development. On this precondition, we can remove their uneasy caused by the change of management process and their resistance to the reformation of human resource. If the top managers are eager to the success of BPR instead of embarrassing it, they will delegate power to the BPR team and support their work. The agreement on the aim, business vision, and final effect of the BPR project is also necessary other than winning the trust of top managers. BPR is not a heal-all and its effect can't appear immediately. Therefore, the agreement on the effect and vision of BPR project is propitious to the fair evaluation of the BPR effect made by top managers latter. Certainly, the top managers we have mentioned here must be the one has absolute authority in the company who own the final Power to make decision of the BPR project.

Table 3 summarized the main targets, needful information, expected results, and the tools and techniques available in this stage. The detailed implementation approach is also displayed in Fig. 2.

Fig. 2 detailed approaches in preparation stage



Initiate Meeting

Initiate meeting is very important in BPR implementation. It's the first meet between project members and the company members involved. There are several important tasks in this meeting including interpreting the cause and targets of the project, propagandizing the foreground of BPR, representing the detailed implementing methodology and approach, lessening the resistance of related people and winning support, and establishing the reliability of the BPR team.

During BPR implementation, the most pivotal factor is

people. Whether the employees in the company support BPR and are willing to provide relevant information is of great

importance. It is dangerous to implement BPR without

Table 3 summarization of the preparation stage

Main targets	Input information	Expected results	Tools and techniques
<ul style="list-style-type: none"> ◇ Win the support of top managers 	<ul style="list-style-type: none"> ● Organizational structure ● Long and short periods of strategic target ● Type of currently encountered problem, e.g. the change of government's policies or competitors' strategies. 	<ul style="list-style-type: none"> ● Make an agreement on final project effect ● Assign reengineering team ● Choicest consultants and external experts 	<ul style="list-style-type: none"> ● Fast Cycle Full Participation Change Methods ● Search Conference ● Visioning
<ul style="list-style-type: none"> ◇ make agreement on the final effect of BPR 	<ul style="list-style-type: none"> ● Current demands, e.g. for survive, develop or expand? ● Company's market status ● External demands of the Co. ● Evaluation of the company's performance, culture, and IT level 	<ul style="list-style-type: none"> ● Gain the promises and business vision of top managers ● Make an agreement on the scope and targets with top managers 	<ul style="list-style-type: none"> ● Persuasion Technique ● Team-Building Techniques ● Project Scheduling Techniques
<ul style="list-style-type: none"> ◇ Form BPR team and subscribe contract 	<ul style="list-style-type: none"> ● Researches on trade actuality, e.g. surveys on competitors, suppliers, partners and customers ● The mapping of the ability of BPR implementation firms with the demands of company ● Basic research on other companies 	<ul style="list-style-type: none"> ● Win support of top managers ● Establish credit and punishment mechanism ● Assign the formal contract 	

Table 4 summarization of the initial meeting stage

Main targets	Main participants	Prepared materials	Tools and Techniques
<ul style="list-style-type: none"> ◇ Inform the project planning 	<ul style="list-style-type: none"> ● Top leaders who supervise the project directly ● Middle-level or top managers who participate in the project directly 	<ul style="list-style-type: none"> ● Company's background analysis ● Company's strategic aim ● Company's capability analysis 	<ul style="list-style-type: none"> ● Fast Cycle Full Participation Change Methods
<ul style="list-style-type: none"> ◇ Reduce the resistance of project 	<ul style="list-style-type: none"> ● The indirectly participant managers or employee deputies who can provide information or suggestions 	<ul style="list-style-type: none"> ● Trade's actuality analysis ● Competitor analysis ● Description of main problems ● Importance and urgency of main problem 	<ul style="list-style-type: none"> ● Search Conference ● Persuasion Technique
<ul style="list-style-type: none"> Establish reliability of the implementation team 	<ul style="list-style-type: none"> ● Employee representations who have influence on and can communicate with other employees 	<ul style="list-style-type: none"> ● Project targets and expectant result analysis ● Implementation approach of project ● Schedule of project ● Introduction of team members 	

sufficient support of employees. Therefore, the importance of initiate meeting in BPR project can't be ignored.

The BPR consulting firm should inspire the related people of the company with proper exciting methods, such as putting forward the fascinating foreground of BPR and reasonable reengineering approach. By this way, employees can understand that BPR can bring continuous development to the company and also benefits to himself indirectly. Thereby, the inimical psychology of the employees who are afraid of the short-term loss caused by reengineering can be lessened. Besides, top managers' support and delegation can also remove the BPR objectors' gaingiving and can make for the following work greatly.

Finally, the self-introductions of the team members in this initial meeting can set up the team's prestige and trust by making all the employees know each team member's ability and specialty, which is of great benefit to solve problems during the reengineering implementation.

In table 4 we have summarized the main participants in the initial meeting, as well as the materials prepared beforehand and usable tools and techniques in this stage. Also, the detailed approaches are presented in Fig. 3.

Process Analysis

The next stage is describing and analyzing current process after the initial meeting. Company always has its own written process and the posts for running the process.

Therefore, BPR implementation team should understand and summarize the written process and its corresponding posts. After that, team members need to arrange a meeting with the charges in the company for further communication and try to find out the difference between the process in action and the process in documentation, and the reason for it. The profound understanding about current process will provide the team members with feasible and innovative ideas for the process redesign.

On the basis of understanding current process, team members have to find out which process should be improved. The feasibility of improvement must be analyzed carefully and the impossible ones should be eliminated. Afterwards, the importance of the candidate processes need to be sorted for solving the most important problem with the limited resources and promoting the competitiveness of the company furthest.

The main targets, needful information, expected results, useful tools and techniques are indicated in table 5 as well as the detailed approaches presented in Fig.4

Process Redesign

In this stage, a new process which should meet strategic objectives and operable is developed as well as corresponding organizational structure, IS and social system. Firstly, the principles and benchmark of BPR should be reaffirmed with the top leaders in the company, because BPR

principle and benchmark varies with different companies and different targets. For example, if A Company pursues quick response ability and B Company pursues high precision of the process not response ability of process, then even the same project team will adopt different methods. Certainly, the new processes designed are different. Afterwards, BPR team has to further analyze the improve space of process and carry through the process redesign by using innovative ideation and advanced reengineering techniques.

Hereon, the fundamental of business reengineering -- ESCRI can be utilized. Namely, Eliminate: eliminate needless functions and no value-adding activities; Simplify: simplify the complicated process; Combine: consider combining the irrevocable tasks; Rearrange: whether the order of tasks can be rearranged; Increase: increase the functions needed but have not been in existence.

The main targets, needful information, expected results, and useful tools and techniques are also summarized in table 6 as well as the detailed approaches of this stage presented in Fig. 5.

Fig. 3 detailed approaches in initial meeting stage

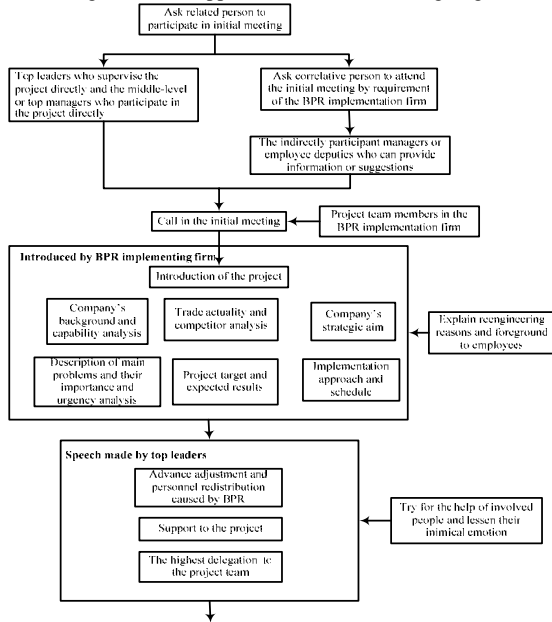


Fig.4 detailed approaches in process analysis stage

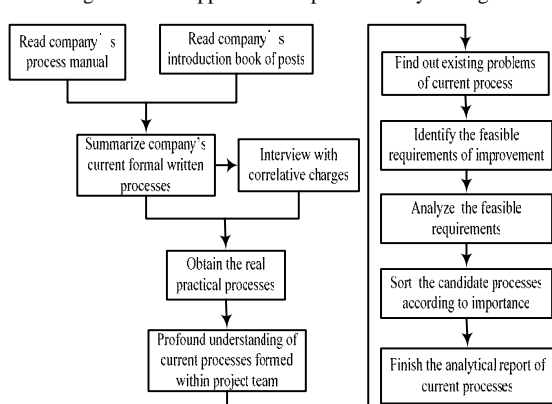


Fig. 5 detailed approaches in process redesign stage

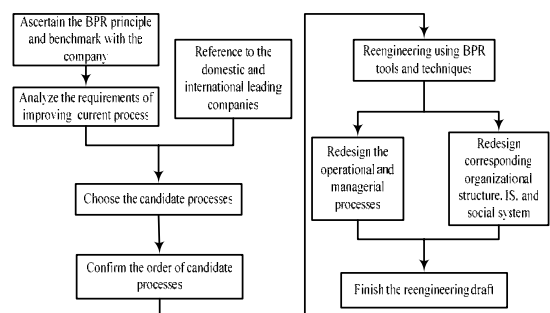
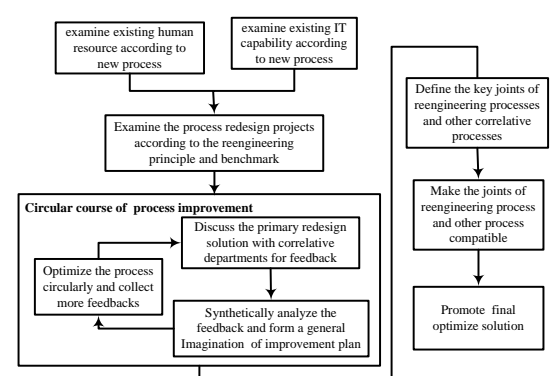


Fig. 6 detailed approaches in the evaluation stage



Feedback & Improvement

The elementary checkout and melioration of the new designed process should be done in this stage. BPR team will estimate whether the new process fits well with the company's manpower and technical level, and achieves expectant targets. Then, according to the real condition, the preliminary revise solution should be developed and be checked in terms of BPR principles and benchmark. Whereafter, the following steps should be repeated by 3 or 4 times.

- 1) document the revised process and distribute the documentation to the related people in the company
- 2) the project team members make an interview with related directors and all the managers in the company to collect feedbacks
- 3) Collection and analyze of feedback and identify valuable ideas which will be used to optimize the new process once again.

After tree or four times' repeat, project team should find out and check the compatibility of the pivotal joints of the new processes and the existing processes. The final process optimization is finished after solving the problem of compatibility.

Table 7 summarizes the main targets, needful information, expected results as well as the available tools and techniques, and Fig. 6 presents the detailed approaches of this stage.

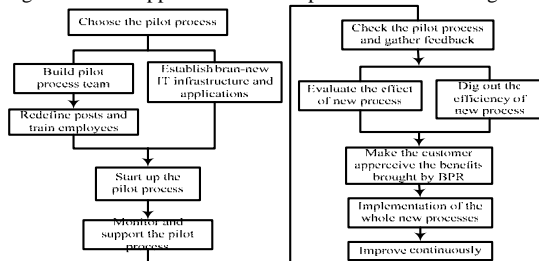
Pilot & Monitor

How to put the new process into action is an important question after advancing the final BPR solution. Usually, the

project team has to choose a pilot process from the reengineered processes. Given the urgency, the pilot process should be the one that has the least changes of posts and the employee training can be finished in short periods. Besides, the IT structure and applications needed for running the pilot can be set up quickly. Once the pilot process has been chosen, the project team starts to go about forming a pilot team, defining posts, training employees, and designing new technical platform. During the pilot experiment, the pilot team should monitor its status as well as its backup process, and collect feedbacks. Making use of the pilot, the effect of the new process can be evaluated and its efficiency can be further spotted. Furthermore, the client also can appreciate the benefits brought by BPR and be confident of the implementation of all the new processes. Thus, the whole new processes can put into action and be further ameliorated if the pilot process rolls one's hoop.

The main targets, expect results, and tools and techniques available in this stage are summarized in table 8 and detailed approaches are presented in Fig. 7.

Fig.7 detailed approaches in the pilot & monitor stage



IV. Discussions Based On a Hands on Project

Project Background

KK Co. is one of the leading companies in domestic household appliances trades. Its products such as DVD, telephone, language repeater and so on have been dominant in market. In order to making the most of its previous customer base, brand priority and channel management, KK Company launches new product ranges continuously for further development. Recently, KK Co. has launched a series of middle-level products, and prepares to promote the sales of them in next phase. It wants to become a leading company in domestic mini-music center market by further consummate its product structure. In order to be better customer orientated, the company engaged a consulting firm to reorganize the process of new product development and marketization for solving the current profit bottleneck ASAP. In sum, KK Co. wants to improve the following aspects.

- 1) identify the demands of the target customers
- 2) develop vision of new products and annual plan
- 3) the basic way for improve new product design
- 4) examine and approve the new products development

- 5) design and develop according to the concept of new product
- 6) identify the marketing and selling solutions
- 7) market popularize and track record analysis.

Discussion of the Project Results

This suit of new processes has been used by one of KK Company's new products—mini- acoustics. Employees in the company generally consider that the orientation of products is more accurate now. It has gotten rid of embarrassments caused by eyeless development and produce, and has been truly customer oriented.

The practice of the BPR project in KK Company has proved the feasibility of this innovative BPR implementation methodology which integrates both the distillate of previous BPR theories and the experience of the consulting companies. It assures the feasibility of implementation and the correctness of the BPR results by following innovative methods and steps:

- 1) understand the actuality and demands of the company clearly before the start of the project
- 2) definitely determine the targets of the project and its evaluation standards with the top managers of the company before the start of the project
- 3) win the support of the top managers of the company before the project starts
- 4) gain the support of the whole employees in the company at the initiate meeting
- 5) delegate power to the project team at the initiate meeting
- 6) choose appropriate analysis tools and methods according to the current condition of the company
- 7) choose proper reengineering solution on the basis of practical condition of the company
- 8) obtain continuous improved redesign solution by a closed loop of circular feedback
- 9) settle the contradictions and problems of new process by using the pilot

Though the time needed in this BPR methodology, it is quite feasible for some steps can be abridged or adjusted in different situations. For example, if the company has strong self-awareness and knows the direction of BPR and evaluation method clearly but with an urgent time requirement, then the first, second and the fifth step can be eliminated, besides, the step of running the pilot in the sixth step can also be eliminated if time limited. Thus, the BPR implementation methodology is similar with the simple three-step mode recommended before. The implementation is quick as the convenient and simple steps. Using the model introduced before (see table 2) to evaluate this new BPR implementation methodology. We will have the following table (table 9).

V. Conclusion

Nowadays, there are numerous theories and methodologies in management science, but have few revolutionary ones, while BPR is an outstanding one among them. Many enterprises win great success by business process reengineering. However, the high rate of failure indicates the huge risks in BPR implementation. The failure of BPR usually leads to quite turbulence of the company, some time even collapse. But it is a crag-fast situation that if doesn't carry out BPR the rigescent company will also be devoured by rivals in the competitive market. Various BPR implementation methodologies have been put forward by scholars which aim at enhance the success rate of BPR. But many of them are incomplete and lake of practical experience. However, the implementation methodologies in the consulting firms which have plenty practical experience are always lack of systematization and theorization. The new model for implementing BPR advanced in this paper combines both previous valuable BPR theories and practical experience in the consulting firms. It has a strong theoretical and practical proof. Especially, it is quite forceful for its good production in the practical BPR project of KK Company. It is believed that if implementing the BPR according to this methodology and choosing proper implementation team, it will greatly enhance the success rate of BPR project. We hope that this new BPR implementation methodology will be supported and further perfect by researchers, who are interested in this domain, and have made a certain contributions for the revolution of modem enterprises.

References

- [1] Hee-Woong Kim, Young-Gul Kim. "Dynamic process modeling for BPR: A computerized simulation approach," *Information & Management*, 1997, (32), 1-13
- [2] C. Ranganathan, J.S. Dhaliwal. "A survey of business process reengineering practices in Singapore," *Information & Management*, 2001, 39(2), 125-134
- [3] K.-H. Kim, Y.-G. Kim. "Process reverse engineering for BPR: A form-based approach," *Information & Management*, 1998, (33), 187-200
- [4] T.H. Davenport. "Process Innovation: Reengineering Work through Information Technology," *Harvard Business School Press*, Cambridge, MA, 1993.
- [5] M.G. Martinsons. "Radical process innovation using information technology: The theory, the practice and the future of reengineering," *International Journal of Information Management*, 1995, 15(4), 253-269
- [6] Ing-Long Wu. "A model for implementing BPR based on strategic perspectives: an empirical study," *Information & Management*, 2002, (39) 313-324
- [7] William J. Kettinger, James T.C. Teng, S. Guha. "Business Process Change: A Study of Methodologies, Techniques, and Tools," *MIS Quarterly*, 1997
- [8] D. Wastell, G. White, P. Kawalek. " A methodology for business process redesign experiences and issues, Technical Report, Information Process group," *Department of Computer Science*, university of Manchester, UK, 1996.
- [9] Hammer M, Champy J. "Reengineering the Corporation—A Manifesto for Business Revolution," *Nicholas Brearley Publishing*, 1995
- [10] Peppgaard J, Rowland P. "Business Process Reengineering," *New York: The Free press*, 1998: 40-45
- [11] Wei Mingcheng. "A Research on the BPR Application of New Product Development Process," *bachelor dissertation of Fudan Univ.*, 2005

Table 5 summarization of the process analysis stage

Main targets	Input information	Expected results	Tools and techniques
<ul style="list-style-type: none"> ◇ Understand and describe current processes ◇ Find out the problems of current process 	<ul style="list-style-type: none"> ● Company's process manual ● The introduction book of the Company's posts ● Real processes described by correlative charges and their suggestions 	<ul style="list-style-type: none"> ● Documentation of company's processes ● Real processes of the company ● Requirements of process improvement ● Feasibility analysis of the candidate processes ● Importance analysis of the candidate processes ● Analytical report of current processes 	Core Process Analysis, Brainstorming, Competitive Analysis, Critical Success Factors, Delphi Technique, Cultural Assessment analysis, Nominal Group Technique, Value-Chain Analysis, Cost/Benefit/Risk Analysis, Process Prioritization Matrix, Activity-Based Costing, DFD, Process Flowcharting, Computer-Aided Software Engineering, IDEF0-3, Petri Net, Speech Interaction Modeling, Job Analysis, Survey, fishbone Analysis, Pareto Diagramming, Information Control Net, Assumption Surfacing, Out-of-the-Box Thinking, Role Activity Diagramming, Cause and Effect Diagramming, Business Systems Planning, Analytical Hierarchy Process, Cognitive mapping

Table 6 summarization of the redesign stage

Main targets	Input information	Expected results	Tools and techniques
<ul style="list-style-type: none"> ◇ Redesign the process by a certain standard 	<ul style="list-style-type: none"> ● The final reengineering requirements of the company ● The Processes in domestic and international leading companies ● Compare the advantages and disadvantages of different BPR modeling methodologies 	<ul style="list-style-type: none"> ● Principle and benchmark of BPR ● Process needed to be redesigned ● Redesign the candidate process ● Redesign the organization structure, IS, and social system 	Critical Success Factors, out-of-the-box Thinking, Cost/Benefit/Risk Analysis, Process Prioritization Matrix, Activity-Based Costing, DFD, Process Flowcharting, Computer-Aided Software Engineering, IDEF0-3, Petri Net, Speech Interaction Modeling, Delphi Technique, Job Analysis, Job Design, Team-Based Organizational Design, Software Reengineering, Database Design, Workflow Design, Benchmarking, Analytical Hierarchy Process, IS Systems Walkthrough, Information Control Net

Table 7 summarization of the evaluation stage

Main targets	Input information	Expected results	Tools and techniques
<ul style="list-style-type: none"> Optimize the new designed process Solve the problems of compatibility in the process joints 	<ul style="list-style-type: none"> The Structure and diathesis of the employees, the strategy of human resource department Company's IT level and strategy in IT dep. Acceptance and suggestions of managers of all ranks Pivotal joints of processes 	<ul style="list-style-type: none"> Processes which fit well with the strategies of human resource and IT Three or four alternative optimize solutions. Final optimize solution The illumination of the joints between the new process and old process 	Brainstorming, Critical Success Factors, Out-of-the-Box Thinking, Cost/Benefit/Risk Analysis, Process Prioritization Matrix, Activity-Based Costing, DFD, Process Flowcharting, Computer-Aided Software Engineering, IDEF0~3, Petri Net, Speech Interaction Modeling, Delphi Technique, Job Analysis, Job Design, Team-Based Organizational Design, Software Reengineering, Database Design, Workflow Design, Business Systems Planning, Analytical Hierarchy Process, IS Systems Walkthrough, Information Engineering

Table 8 summarization of the pilot & monitor stage

Main targets	Expected results	Tools and techniques
<ul style="list-style-type: none"> Run the pilot process Implement whole new processes Sustaining improvement of new processes 	<ul style="list-style-type: none"> Pilot reports (grading) Pilot evaluation report Implementation report of the improved process Implement evaluation of the improved process Sustaining improvement records 	<ul style="list-style-type: none"> Assumption Surfacing, Socio-Tech System Design, Team-Building Techniques, Skills Inventory Analysis, Instruction-Based Training, Exploratory Training Methods, Activity-Based Costing, Auditing, Time Motion Study, Survey, Fishbone Analysis, Statistical Process Control, Instructed Interview, Pareto Diagramming, Total Quality Management Programs, Value Analysis, Quality Function Development, Role Playing, Focus Group, System Testing Technique, Effect Factor Analysis, Visioning

Table 9 Evaluation model of the new proposed

BPR implementation methodology

Basic Principles	New BPR implementation methodology proposed
Clear reengineering targets	Excellent
Extent focused on IT	Excellent
Reliability of project team	Excellent
Proper evaluation standards	Excellent
Top managers' support	Excellent
Reduce the resistance of related person	Excellent
Resistance in internal company	low
Choice of the candidate processes	Excellent
Solve the problem of compatibility pilot process	Excellent
Time needed	elastic
Feasibility of the implementation	Excellent