

**DEVELOPING A ROADMAP FOR SUCCESSFUL REENGINEERING IN
TELECOMMUNICATIONS INDUSTRY**

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Abstract

Service competition becomes stronger than ever due to the rapid technological innovation. New services are also being created every day in telecommunications industry. Customers want higher quality services at lower costs. Providing the low price and high quality services became essential for survival in industry. Most telecommunications company has undertaken reengineering projects in order to change internal processes into customer-driven ones. However, only a few enjoyed benefits as a result of carrying out such project successfully. Such companies could identify and eliminate non-value added work, reduce corresponding costs and improve profit margins while maintaining service quality levels. There existed some key common factors behind the success of the project.

Key success factors were determined both from literature review and the best practices of such advanced companies as AT&T, BT and GTE. Based on those factors, the paper will analyse some reengineering projects carried out by a Korean telecommunications company over the last seven years. The problems of managing such projects will be described with the detailed analysis of their causes. A clear road map will be suggested for implementing a reengineering project successfully. It will break down a reengineering project into several sequential phases following the change of the telecommunications environment. In particular, the roadmap will be described in detail in relation to organisational management, project selection and evaluation, IT, performance management, education and training, compensation, etc.

BPR in telecommunications industry

Business process re-engineering (BPR) pursues to change the working processes radically in order to gain greater productivity increases and cost reductions (1). Several basic principles should be observed to benefit from the BPR projects. BPR requires an organisation to think from the zero-base, targeting customer satisfaction. It prefers total optimisation to sub-optimisation (2).

The advanced telecommunications companies have customer-oriented organisations in common. Each business division or unit is aligned with the corresponding customers and businesses. This enables each organisation to be responsible for planning and implementing business, and for managing its performance. CEO forced to accelerate speed of change using the BPR program. They showed strong commitment to the BPR programmes by supporting sufficient budget and manpower. Senior managers played a role of project owners who had clear objectives for improvement. As a champion of the reengineering

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program, CEO also monitored its performance by using the well-established performance management tools, for example BSC (balanced score card), quality costing and six sigma. Some motivation and compensation schemes promoted employee's voluntary participation in the BPR project.

Advanced companies implemented both gradual and innovative improvement programs. For example, BT first standardised their business processes using ISO 9000 and then accelerated speed of change with a BPR program for almost two years (3). BT is well known as the biggest company that has acquired ISO9000 certification company-wide.

On the other hand, AT&T (4) is applying PQMI (process quality management & improvement) that includes both TQM and BPR approaches. Reengineering is used to improve a particular process that is not easily attacked through TQM. GTE is famous for selecting some reengineering process deliberately. A large number of employees were involved in choosing one hundred of business processes for improvement. They carried out sufficient interview and monitoring in the field (5).

Three companies experienced massive change in the areas of customer management, facility management, information system and organisational management. First of all, the customer services were designed and supplied considering the characteristics of each segment. Customer interface and the relevant facility were operated to maximise the customer's satisfaction and convenience. The timing of billing was flexibly determined with different discounting systems applied.

For this, interface with customer was minimised in number and all facility was subject to the central control by constructing national integrated management systems. The marketing and repair activities are managed via the online computer system. The advanced companies are operating the customer-oriented service organisation. In particular, BT abolished both regional and functional organisational structure to react to the customer's requirements rapidly (6).

Analysis of the case company's BPR Programs

The company's business performance was much lower compared to that of the advanced telecommunications company. First of all, the company needed to keep the leading position in the domestic market. Its business performance did not reach five hundred admired companies culled across the world by *Fortune*. The company is much lower than either AT&T or BT in the business excellence model score based on Malcolm Baldrige (7) or European Quality Awards (8). Marketing activities were not flexibly carried out because of the fixed billing system applied regardless of customer's needs. Operating many customer interfaces for each service caused customers inconvenience. Information system was individually operated for each service. The functional and regional organization still prevents the company from doing the speedy business.

The business environment is also getting worse as the industry becomes globalised. The sources of revenue will move to the mobile and data services from telephone and voice

in the near future. The super-highway Internet market is being saturated. The late entry into the new service markets may result in the loss of the market leader's position, decreasing profitability.

Some reengineering projects were company-wide undertaken as a means of coping with these difficulties and meeting the customer's needs. They can be chronologically categorised into three stages as seen in Table 1. The first BPR programme (1994 ~ 1996) was undertaken to promote the development of ICIS (integrated customer information system), aiming to computerise marketing and customer management.

Table 1. Some problems encountered at each reengineering stage and their causes

Stage	Problems encountered	Analysis of Cause
BPR (94 ~ 96)	- Operated as employee's suggestion - Focus on documentation - Misunderstanding of BPR	- Lack of awareness of crisis - Lack of competition - Focus on developing IT system
PINTOK T (97 ~ 99)	- Focus on investigating processes - Focus on short-term performance - Unclear authority & responsibility	- Focus on financial performance - Insufficient support of resources - Lack of performance management
HEART (00 ~)	- Focus on supplying facility on time - Lack of project management	- Lack of systematic approach - Lack of analysis and feedback

However, the first BPR program was undertaken similar to employee's suggestion program or quality circle. The company focused on managing employee's ideas collected bottom-up. The reengineering programme was far from improving the complex business processes. Most employees did not recognise importance of customer-oriented services due to duopoly of telecommunication markets. The company targeted to constructing ICIS system without improving relevant processes in advance. On the contrary, this caused to develop ICIS behind the schedule.

The company initiated the second program called PINTOKT (1997 ~ 1999) to cope with the competitors' strong challenge. Fierce competition began following about ten years of duopoly. Meeting customer's diverse needs quickly was the best way of defending the existing market share, which will contribute to increasing the company's turnover and profit. EVA (economic value added) was improved after changing the business structures based on profitability. The company was able to secure its footing to survive in a tough and fast-moving business. In addition, the company enabled to escape from the IMF economic crisis from which most of Korean companies were suffering.

The appearance of the Internet heightened necessity of change in the telecommunication industry. The competitor led the ADSL (asymmetric digital subscriber line) service market by acquiring ten times more than the company by 2000. Top management also set ambitious targets such as increase of two million in number of ADSL subscribers for one year. This promoted the company to launch another innovation program called HEART with the purpose of catching up the leaders.

During the implementation of HEART, part of internal regulations was ignored to shorten

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the procuring period of the ADSL facility. Strategic alliance and outsourcing were also introduced. The local vendors directly supplied and installed ADSL facility in their provinces. This resulted in reducing total supply period of facility from the existing six months to one. The company succeeded in overachieving a given objective. As a result, employees became confident that they could cope with any difficulties or problems. Senior management learned the way of managing the large projects effectively and efficiently.

Roadmap for implementing a new reengineering program

Despite some visible outcomes in the last two reengineering programs, performance of the BPR program was not appropriately managed. The project owners did not have sufficient authority and responsibility. The performance of individual project was not analysed at each developing stage due to lack of the clear objective or target. Instead, the top management forced to finish the projects in a planned time without providing any improvement tools or training programmes.

The financial performance was mainly analysed due to lack of measure associated with both process improvement and employee learning. The reengineering programmes focused on accomplishing the investment objectives of digitalizing the switching systems.

As a result of analysing the last three programmes, it was recognised that the systematic approach needed to manage the BPR program efficiently. More detailed methodology was developed in the areas of organisational management, project selection, initiatives rollout, performance management, and feedback and communication.

Project team organisation

The reengineering teams are set up both in headquarter and divisions. The corporate team develops the overall guidance of the BPR program and communicates implementation of process improvement initiatives company-wide. The vice president is championing the overall teams whereas the chief director of the strategic planning division has a project ownership of the corporate team.

On the other hand, the divisional reengineering team is organised in each business division. The team is involved in undertaking the real BPR project in each division. The managing director of each division is responsible for supporting the team and the director has the ownership of each project. Each project owner has clear objective of the reengineering project, its detailed activity plans, performance standard, etc. Each team's performance is evaluated at each stage of undertaking a reengineering project.

The members of the divisional team consist of the internal experts associated with the reengineering project. However, the corporate team comprised both internal and external experts. This aims to harmonise the latter's knowledge in reengineering project management and the former's familiarity in the company's organisational culture and business environment.

The steering committee was set up to play a sponsoring role and to provide guidance

regarding project rollout. Its members consisted of president, vice president, strategic planning director, chief financial officer (CFO), managing directors from marketing division and network, chief information officer (CIO), and consulting company's project director. In particular, the steering committee focused on balancing different projects undertaken by different divisions with purpose of increasing the corporate values, not the divisional ones. The managing directors both from marketing and network divisions have played an important role because they produce and sell key products or services. The steering committee approves the objective and schedule of each project that is allocated to the relevant division.

Reengineering project selection

The decision to reengineer a process is typically taken by senior managers. Major reengineering projects are sponsored and reviewed by a steering committee subject to a standard approvals process. A consensus is required from all influenced divisions and the financial departments along with an agreement on performance standard for the improved process and the benefit accruing from the change. The steering committee makes sure that the improvement projects are appropriately matched to business priorities.

The reengineering project is selected by analysing the challenges of the company and surveying some valuable opinions from customer and employees. The more detailed analysis is carried out by integrating economic value added (EVA), customer value added (CVA), voice of customer (VOC), supplier information, people value added (PVA), etc. In particular, BSC is used as a valuable tool to determine priorities of undertaking the projects and review improving progress for key processes such as Provision, Repair and Billing.

Best practices are collected through diverse benchmarking activities that are continuously carried out by each division. Such benchmarking information is supplied to the central database system called data processing system. This aims to identify significant opportunities for the company to improve and gain competitive advantage, to support objective and target setting, and to develop and implement best practice processes as means of achieving objectives.

Initially, the company arranged around forty projects but it was felt impossible to carry out all of them in a short period of time. Such projects were individually analysed in terms of benchmarking results, urgency for action, improvement effect and availability of the required investment and resources. The projects were categorised into four groups considering such factors as return on investment, annual turn over, cost, duration, man-hours and trade union's resistance. The first group required the smaller time and effort but produced the most powerful improvement effect. For example, developing the network management system will enable to save several hundreds of employees.

On the other hand, relatively minor projects are classified into the divisional normal business improvement whereas the strategic issues requiring more than one year are developed into the reengineering projects. Introducing business excellence model based on Malcolm Baldrige award (1999) made it possible to select the project systematically.

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All projects requiring expenditures or producing benefits over a specified limit are subject to the steering committee's business case approval.

Improvement initiatives rollout

After developing new process, the reengineering teams prepare a way to implement change at each division. A project management standard is also used to ensure that implementation of change is well managed and controlled. The standard includes the purpose and objectives of the project, detailed implementation activities and time frames, contacts for questions. Permission to exclude some parts of the standard is given to smaller changes. All major changes are subject to the standard prior to their rollout. If major changes are being made to a process affecting customers, representatives are invited at an early stage to undertake technical evaluation trials.

A test-bed is available to experiment radical change in a real environment. Once satisfactory, proposals are reviewed through the normal piloting process. At this stage, marketing and product line managers collect survey information from the customers. This helps to identify the possible impact of the new process and to consider tariff, marketing, internal communications and advertising implications.

The company operates financial controls on all major projects as well as a hierarchical system of approvals based on benefit and expenditure level. Technical audits are also undertaken to ensure new processes are being operated to the required specification. Reengineering team members move back into their normal business after change is rolled out.

The project owners have faced cultural challenge of identifying how to motivate the team members. The level of effort is evaluated in terms of benefit to overcome this and effectiveness of various implementation tools is checked. The corporate reengineering team encouraged each division to report their time frames, saving estimates, and implementation plan and feedback into the data processing system.

In particular, data processing system deals with some hurdles encountered and their coping experiences. Each employee can gather some ideas of improving their implementation process from the different cases. Each division reports the managing director's attention in the reengineering project and field visits to the corporate reengineering team in addition to the saving plan and achieved results. The recently developed KMS (knowledge management system) also caused to make it easy to collect valuable customer information.

Performance management

The company focused on improving the performance management system of the BPR project. It was felt that the existing reengineering projects failed due to lack of the well-established performance system. The performance based compensation was therefore intensified, for example five percent of the achieved benefits was attributed to the project team members with fifty thousands dollars at the maximum.

The balanced scorecard was also introduced to assess the progress or impact of the BPR project (see Table 2). It focuses on the four key quadrants beginning with the customer and market, followed by internal processes, organisational learning, and finally shareholder and financial (9). This status report is submitted to the steering committee for review and action every month.

Table 2. BSC performance measures associated with reengineering project

Quadrant	Performance measures
Customer/ market	<ul style="list-style-type: none"> - Market's revenue and contribution as a % of total - Market share (total, segment) - Customer value added (CVA) (total, service, segment)
Shareholder/ financial	<ul style="list-style-type: none"> - Planned and actual cost saving or revenue growth - Gross margin and profit improvement - Total or target benefit (division, stream, project)
Internal processes	<ul style="list-style-type: none"> - Process cycle time - Time of developing products or services - Decreased fault rates - Overtime and headcount reduction - Obsolete inventory reduction
Organisational learning	<ul style="list-style-type: none"> - Aggregate leadership score - People value added (PVA) - % of agreed personal development plans and being implemented - % of required skills/competencies to actual levels in critical areas - % of line managers satisfied with education and training

The reengineering programmes put the most emphasis on customer/market focus. CVA (customer value added) and market share are measured in each segment to put more weight on customer management. This stimulated each division to introduce state-of-the-art marketing tools that would be important for ongoing growth in the future. Measuring capability of each segment using CVA helped to build new targeting skills, which caused to prevent the loss of considerable revenue.

The relevant measures to internal processes were directly designed to improve the way of doing business. Some of them are process cycle time, fault rates, time of developing products or services, etc. In particular, this contributed to improving network operations in the areas of network plan and provision, customer fault handling and network management.

Shareholder and financial stakeholders stand to gain substantial benefits from the reengineering projects. Therefore benefits were included as key performance measure in terms of totality, division and project. The majority of remaining benefits were down to some projects, half of which were network-related improvements. BSC helped a reengineering team to refocus organisational attention on learning. The company now benefits from creating new capabilities that support business success.

Feedback and communication

A variety of media and channel are used to communicate planned change to the pro-

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cesses. The company tailors these messages both for customers and the people who are affected by the change. For major changes, a communications package is developed in alignment with the overall project plan. Smaller changes are briefed through team meetings to promote direct feedback to employees.

Two corporate reengineering team members are visiting each division as a group. They interview each divisional reengineering team to make sure that they are undertaking the BPR project based on the corporate guidelines. The results are reflected in the performance evaluation of the relevant project owners. They collect best practices from the excellent divisional reengineering teams. Such information is also sent to the document processing system, which promotes to spread to all of the divisions quickly.

A post implementation review including the key people involved in the project and the client is carried out following the introduction of a change to analyse the reasons for successes and problems in our project management.

The steering committee regularly discusses the progress of the implementation phases through monthly meeting. They assess the progress of the project and strategize how to facilitate implementation and overcome some hurdles encountered during the project. The teams with high performance are admired for their achievements. Such performance is set as the performance targets of other teams that were lower to realize results.

Regular communication is undertaken through daily publishing newsletter and internal broadcasting. This deals with best practices gained as a result of carrying out a reengineering project, some valuable experiences and senior management's support. Everyone can approach the document processing system to get some valuable information like market share, competitor's information, customer satisfaction level, stock level, customer complaints, etc.

The training packages are designed according to the rollout plans and then delivered through CD-ROM, email or intranet. They are extremely user-friendly format based on the nature of the change and the requirements of the individuals affected. The most common training is carried out through either coaching from the line managers or mentoring from the professional experts. This learning result is communicated through our project review and closure reports.

Conclusion and discussions

This paper discusses a way of efficiently managing the reengineering project at a telecommunications company. In particular, the paper focuses on describing a reengineering roadmap that comprises five areas such as organisational management, project selection, initiatives rollout, performance management, and feedback and communication. A systematic approach caused to intensify implementation of change and its feedback management by data. The existing bad practice of just establishing improvement plans without any action disappeared by applying a well-established roadmap. At the same time, different innovation programmes undertaken by each division were integrated with the

purpose of increasing corporate value.

The BPR programme was a success because of the centrally coordinated improvement efforts of the reengineering teams that worked together as a team. Fifteen percent of operating costs reduced company-wide and such performance will be maintained for the time being. In addition, some invisible benefits were achieved from updating customer database, marketing programmes, customer service tools, etc. The managers were able to develop their own competency such as project management and leadership skill. BSC measures were also improved in the areas of internal process and organisational learning, which enabled to precisely evaluate the corporate value in each business division.

The reengineering programme can be successfully carried out only when both the direction for change and the benefits gained from them are clearly explained. This will contribute either to reducing employee's resistance against changes or to converting their complaints into positive attitudes. Therefore it is necessary to analyse employee's expected reaction in advance. Communication programs should be prepared as a standard form company-wide.

Sufficient authority and responsibility should be given to the project owners. Budget and resources should be also allocated for innovation project. The performance measures should be determined to a level that reflects the right situation of the project. It is however felt that if the functional and regional organisational structure is changed and aligned with the responding customer and service, some portion of complicated problems would be removed at one time. After that, change will be accelerated through a BPR programme.

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