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# Process re-engineering for effective implementation of projects

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Time, cost and quality are the prime objectives of any project. Unfortunately, today's project management does not always ensure the realisation of these objectives. The main reasons of project non-achievement are changes in scope and design, changes in Government policies and regulations, unforeseen inflation, under-estimation and mis-estimation. An overall organisational approach with the application of appropriate management philosophies, tools and techniques can only solve the problem. The present study establishes a methodology for achieving success in implementing projects using a business process re-engineering (BPR) framework. Internal performance characteristics are introspected through condition diagnosis that identifies and prioritises areas of concern requiring attention. Process re-engineering emerges as a most critical area for immediate attention. Project process re-engineering is carried out by eliminating non-value added activities, taking up activities concurrently by applying information systems rigorously and applying risk management techniques throughout the project life cycle. The overall methodology is demonstrated through applications to cross country petroleum pipeline project organisation in an Indian scenario. © 1998 Elsevier Science Ltd and IPMA. All rights reserved

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## Introduction

The progress of science and engineering is manifested by increasing numbers of major projects. Many of them are large scale, with characteristics of long duration, huge capital investment and usage of varied advanced technologies with participation of various agencies. These characteristics of a project lead to managing projects with the application of various tools and techniques that have been developed through years of experience and research. The success parameters for any project are in time completion, within specific budget and with requisite performance (technical requirement). Unfortunately, today's project management does not always ensure success in these dimensions. The major maladies with project planning and implementation have been cost and time overrun and quality non-achievement, the main contributing factors being:

1. Expansion of scope and subsequent quantity increase of input resources;
2. Engineering and design change;
3. Underestimation and mis-estimation;
4. Unforeseen inflation.

The other prominent causes of these maladies are:

1. Project size and complexity;
2. Unforeseen technical difficulties;
3. Schedule changes;

4. Tight schedules and excessive concurrence of project phase;
5. Poor contract administration and policies;
6. Poor project definition;
7. Labour problems and poor industrial relations;
8. Changes in government policies and regulations;
9. Non involvement of project staff in planning stage;
10. Project staff not working full time on the same project.

The problem multiplies with the size of the project as uncertainties in project outcome increases with size. *Figure 1* shows a conventional project planning model. This suffers from following short-comings.

- Present planning mechanism does not allow identifying risk inherent in projects in a structured way.
- Today's project management is technique oriented. Philosophy is missing.
- Changes are part and parcel of any project. Hence, changes are to be accommodated throughout the project life cycle. However, appropriate techniques of project change control is missing.
- Though materials constitute a major portion of project costs, still the project materials management gets less emphasis in overall project planning.
- Logical base for contract type selection is missing.
- Awarding works to lowest cost bidder among technically qualified bidders.

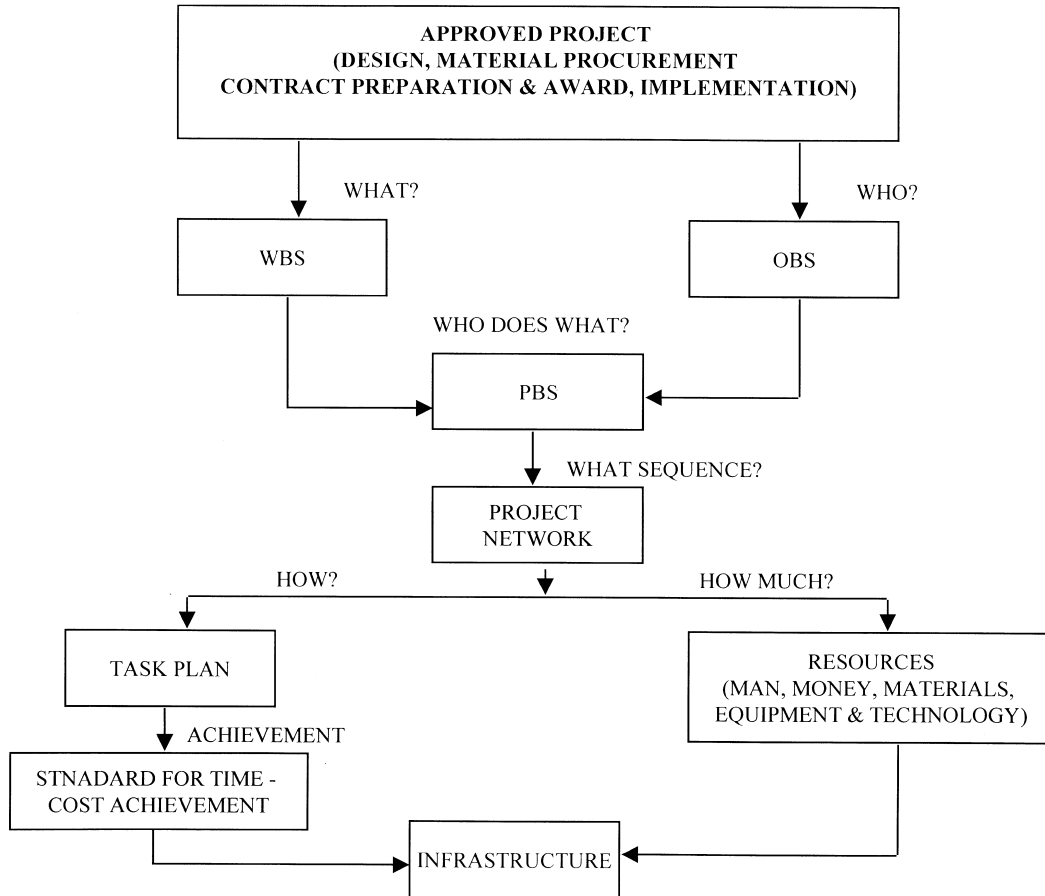


Figure 1 Conventional project planning model

- Time and cost are seen separately in modelling a project plan through LP.
- Information system is not integrated. Hence, feed forward system is poor and feedback system is absent (only experience of personnel).

An overall organizational approach with an appropriate integration of available techniques can only solve the problem. A constant challenge faced by today's management is change. On the one hand change represents growth, opportunity and development. On the other hand, it represents threat, disorientation and upheaval. In such a context, restructuring alone is proving to be increasingly inadequate in achieving and sustaining the improvements needed to remain competitive. The business world today has acquired an aggressive momentum and has entered an era of fundamental and accelerated changes. Sustaining growth and remaining competitive are the greatest problems to the management. In today's business environment, the customer needs to evolve at an extremely quick pace due to increased mobility of the resources and development of media and technology. In this circumstance, slow improvement in an organisation's system is not sufficient even for keeping it in existence. Much of the motivation for this rethinking seems to arise from the observation that many current business practices are outdated and are no longer either suited to today's competitive situation, or matched to the capabilities offered by current technology.

As organisations strive to be more competitive in today's challenging business environment, more of

them are taking a radical look at what makes them successful. Business Process Re-engineering (BPR) as introduced first by Hammer and Champy<sup>1</sup> is becoming a philosophy for success. According to Hammer, BPR is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed.

Devenport *et al.*<sup>2</sup> have defined BPR as the analysis and design of work flows and process within the organizations.

According to Talwar,<sup>3</sup> it is to rethink, restructure and streamline the business structures, process, methods of working, management systems and external relationships through which we create and deliver value.

The tools for re-engineering are process visualization, operational research/method study, information change management, benchmarking, industrial re-engineering, process and customer focus. Most of the authors incorporated a mixture of tools from the above list, although the nature of the mix recommended depends on the focus of the author concerned, whether it be technological or involve the management of people.

In summary, therefore, BPR can be seen to represent a range of activities concerned with the improvement of processes. While some authors appear to suggest that tools and techniques are the key, other authors suggest that a strategic approach to BPR, and the development of BPR strategy is the key to success. There seems little doubt that efforts on the scale of

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