CHAPTER 1

INTRODUCTION

1.1 Preliminaries

This thesis is related with anticipatory management for minimizing risk of implementing Business Process Reengineering (BPR) by measuring readiness using assessment approach in BPR efforts based on critical success and failure factors, using stochastic modeling and thereby, residuals of observed and estimated readiness for BPR by the selected enterprise in automobile industry in India.

BPR is an information technology based and customer-driven approach to organizational change, undertaken to enable superior performance, such as cost reduction, shorter cycle time, higher product quality and increased customer satisfaction. BPR is a management technique that can be used to radically transform organization for dramatic improvement (Hammer and Champy, 1993). However, besides being costly and time-consuming, BPR is a risky operation. Various surveys and assessments reported as many as 60-80 percent of BPR initiatives having been unsuccessful (Chiplunkar et al., 2003; Dennis et al., 2003). The risky nature of BPR has tended to detailed investigation of its critical success and failure factors (Adigun and Biyela, 2003; Reijers and Mansar 2005).

Therefore, it is important how to minimize the risks of implementing BPR by measuring readiness using assessment approach for readiness in BPR efforts based on the critical success and failure factors. The successful factors deemed most important for successful BPR in the organization includes items such as: top management support, commitment and understanding of BPR; communication; empowerment; and alleviation of downsizing fears. Abdolvant et al. (2008) too has pointed out various positive indicators viz.
Egalitarian leadership, collaborative working environment, top management commitment, supportive management, and use of information technology are positive indicators, whereas resistance to change has a negative role. Hammer himself acknowledged in his later book (Hammer and Stanton, 1994) that “ignoring the concern of people” is one of the top ten ways of failing at BPR.

The purpose of BPR is to find new ways to organize tasks, organize people and redesign information technology so that the processes support the organization’s goals. It means analyzing and altering the business processes of the organization as a whole. In the modern business world, global competition and increasing customer expectations require companies to achieve ever increasing levels of efficiency while maintaining flexibility to adjust to accelerating changes in the environment. This requires that companies streamline their operations and integrate business processes (BPs) across functional silos. The need for such cross-functional integration compels companies to adopt a process-oriented approach to managing their operations.

Today, considering intense competition and fast conversions, successful organizations are those that are able to adapt with updated traits. The organization that is not able to change and remain in static mode will disappear. Therefore, managers should create a set of basic transformations not only for themselves but also for their organization in order to survive and to be reflective in dynamic environment surrounding it. Efficiency, creativity and ability of the organization in attending demands and requirements of the customers need a basic review in implementation of activities and processes in the organization (Haghighat and Mohammadi 2012). Business Process Reengineering relies on a different school of thought. It believes in continuous process improvement, re-engineering assumes that current process is irrelevant and there is need to commence another one. Such a clean slate perspective enables the designers of business process to focus on new process. This is to project oneself on what should the process look like? How do my customers want it to be like? How do best-in-class companies do it? What we might be able to do with no technology? The idea of business-process reengineering (BPR) is that organizations need to go back to the drawing board and consider what they want to achieve, how they are currently achieving it, and how it can be most efficiently
organized. It is argued that there is often a gap between how things are currently done and how things should be done.

Primarily, BPR in the organization has been implemented to bring about radical changes not only in business performance, but also in management styles and patterns. Zairi and Sinclair (1995), Aggarwal (1997) and Mohanty (1997) have outlined a variety of benefits that companies achieve by pursuing BPR projects. BPR has great potential for increasing productivity through reduced process time and cost, improved quality, and greater customer satisfaction, but it often requires a fundamental organisational change. Spectacular and widely published success stories of business process redesign (BPR) efforts leading to improvements in the order of magnitudes have induced many companies to start similar projects (Hofacker and Vetschera, 2001). Literature is full with examples of how BPR has helped firms contain costs and achieve breakthrough performance in a variety of parameters like delivery times, customer service, and quality (Ranganathan and Dhaliwal, 2001).

1.1.1 Business Process

A business process can be described simply by a flow of business activities. Process is “a set of logically related tasks performed to achieve a defined business outcome, (Davenport and Short 1990). In the most general sense, a process can be defined as an activity or group of activities that take input, process that input to increase its value, and provide output (Harrington, 1991).

Processes are generally identified in terms of beginning and end points, interfaces, and organization units involved, particularly the customer unit. High impact processes should have process owners. Examples of processes include: developing a new product; ordering goods from a supplier; creating a marketing plan; processing and paying an insurance claim; etc. Each process is an independent unit that changes inputs into similar or different outputs but can interact with other processes (Sandhu and Gunasekaran 2004). Many definitions of business processes are given in the literature. Business processes are sequences and combinations of activities that deliver value to a customer (Coulson-Thomas 1996). The emphasis is on ‘value to the customer’ which is closely linked to
customer satisfaction. If the customers are dissatisfied with a product, the process associated with it, right from product design to after sales service, needs close scrutiny. A core business process usually creates value by the capabilities it gives the company for competitiveness. A limited number of such core business processes can be identified in any company, and enhancing those processes can lead to business improvement. A business process, according to Pall (1987), is a logical organization which gathers people, supplies, energy, equipment and procedures to produce the ultimate result, whereas Davenport (1993) depicts it as sequential business activities with clearly defined inputs, outputs, a beginning and an end. Omrani (1992), on the other hand, defines a business process as an activity cycle that is taken as a whole, and that realizes a business objective. Ferry (1995) as a definitive set of activities shaping a preset starting point, and Saxena (1996) as a set of interconnected business activities characterized by tasks which add value producing a certain input and output. Melao and Pidd (2000) have stated that business processes should be analysed from four main perspectives, specifically as deterministic machines, complex dynamic systems, interacting feedback cycles and social structures.

In a business process, outputs should produce values for the customers (Hammer and Champy, 1993). Companies have been forced to improve their business processes because customers are demanding better products and services. If consumers do not receive what they want from one supplier, they have many others to choose from (hence the competitive issue for businesses). In order to reengineer a business process, both internal and external process capabilities, such as product development, production, distribution, suppliers and markets, and inter-organizational relationships, especially in a global manufacturing environment, need to be integrated. Reengineering helps to achieve lean production through the integration of production activities into self-contained units along the production flow. Another definition of process is it is a collection of activities, which gets a set of input and raises a set of outputs, is referred to as a “process” (Temponi, 2006; Wu, 2003).

Yet, another definition is that it is a lateral or horizontal organisational form, that encapsulates the interdependence of tasks, roles, people, department and functions
required to provide a customer with a product or service (Earl, 1994); and a process is a system which interlocks cross-functional flows of resources and deals with tasks which were previously considered as isolated in an integrated way (Ahmed and Simintras, 1996).

Processes may be defined based on three dimensions (Davenport and Short, 1990)

- **Entities**: Processes take place between organizational entities. They could be inter-organizational (e.g. EDI), Inter-functional or Interpersonal (e.g. CSCW).
- **Objects**: Processes result in manipulation of objects. These objects could be Physical or Informational.
- **Activities**: Processes could involve two types of activities: Managerial (e.g. develop a budget) and Operational (e.g. fill a customer order).

Love *et al.* (1998) consider the technical and social dimension of a process and identify four enablers: quality management, technology, information and people. Tinnila (1995) summarizes a business process as a group of logically-related tasks that use the resources of organization to provide defined results in support of the organization’s objectives (Adesola and Baines, 2005).

According to Stoddard and Jarvenpea (1995) Business Process are simply a set of activities that transformed a set of inputs into a set of outputs (goods or services) for another person or process using people and equipments. Business process entails set of logically related tasks performed to achieve a defined business output or outcome. It involves a wide spectrum of activities procurement, order fulfillment, product development, customer service and sale (Sharma 2006).

In the BPR literature, Childe *et al.* (1998) argue that “there is substantial commonality of processes across industry types” and identify as the generic processes, which again appears to the traditional functions:
- Direction setting process (**corporate planning**)
- Order flow process (**production operations and distribution**)
- Service process (**service operations**)
Capital markets (*finance*)
Labor markets (*HRM*)
Technology markets (IT, maintenance services)
Factor markets, defined as the processes of make-or-buy decisions and supplier development (*purchasing*)
Product/service markets, defined as the process which maintains the awareness of potential customers (*marketing*). Some definitions of process drawn from recent experts’ works follow (Table 1). All of them suggest that a “process” is a set or a group of activities in their conceptual determination of a process.

Table 1. Definition of a process

<table>
<thead>
<tr>
<th>Source</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Ross and Moore (2006)</td>
<td>A Business Process is simply all about how work is done in an organization.</td>
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<tr>
<td>Temponi (2006) and Wu (2003)</td>
<td>A collection of activities, which gets a set of input and raises a set of outputs, is referred to as a “process”</td>
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<td>Davenport (2005)</td>
<td>The set of activities it pursues to accomplish a particular objective for a particular customer, either internal or external</td>
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<tr>
<td>Dhillon and Hackney, (2003)</td>
<td>Business Process is a set of logically related tasks performed to achieve a defined business outcome</td>
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<tr>
<td>Hammer (2002)</td>
<td>A group of activities that together create a desired result</td>
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<td>ISO 9000:2000</td>
<td>A system of activities that uses resources to convert inputs into outputs</td>
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<tr>
<td>Garvin (1998)</td>
<td>Collection of tasks and activities that together—and only together—transform inputs into outputs</td>
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<tr>
<td>Zairi (1997)</td>
<td>An approach for converting inputs into outputs</td>
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<tr>
<td>Coulson-Thomas (1996)</td>
<td>Business processes are sequences and combinations of activities that deliver value to a customer</td>
</tr>
<tr>
<td>Ahmed and Simintras, (1996)</td>
<td>A process is a system which interlocks cross-functional flows of resources and deals with tasks which were previously considered as isolated in an integrated way</td>
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<tr>
<td>Armistead (1995)</td>
<td>Conversion of inputs (resources) into outputs (goods and services)</td>
</tr>
<tr>
<td>Harrington (1993)</td>
<td>Any activity or group of activities that takes an input, adds</td>
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value to it, and provides an output to an internal or external customer.

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<th>Author(s)</th>
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<tr>
<td>Omrani (1992)</td>
<td>A business process as an activity cycle that is taken as a whole, and that realizes a business objective</td>
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<tr>
<td>Tenner and Detoro</td>
<td>Process is a single or combination of tasks that add value to inputs to convert them into outputs by the application of human interactions, methodologies and techniques.</td>
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<td>(1992)</td>
<td></td>
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<tr>
<td>Harrington, (1991).</td>
<td>A process can be defined as an activity or group of activities that take input, process that input to increase its value, and provide output</td>
</tr>
<tr>
<td>Pall (1987)</td>
<td>Is a logical organization which gathers people, supplies, energy, equipment and procedures to produce the ultimate result.</td>
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1.1.2 Basics of Business Process Reengineering

The Business Process Reengineering is a complete life cycle approach. It is a comprehensive method of assessing the current business processes and redesigning the methods and implementing them for business solutions. Many researchers and enterprises believe that rethinking and redesigning business processes tend to obtain dramatic and sustainable improvements (Revere, 2004).

Different definitions have been offered for re-engineering since its adoption and some of them are following-

- Reengineering means giving up existing processes and approaches and establishing new ways and significant improvement as a huge mutation in performance (Nazari, 1988).

- It is a radical and rapid re-designing of the strategic processes of organizations business, systems, policies, and structures for improving job processes and increasing productivity in the organization (Klein,M.A,1994)
Re-engineering is a structured approach that is used for analyzing and creating the continuous improvements in the basic organizational activities such as production, marketing, and communications (Elzinga, J. et al. 1995)

It is an improvement philosophy whose purpose is to achieve stage benefits in the performance by re-designing the processes. In these re-designing, the organization seeks to maximize its value-added efforts and minimize other activities (Rowland, P, and Repard,J, 1995)

Reengineering includes activities that the organization pursues in order to change its processes and internal controls so that its traditional vertical structures changes to the horizontal and flat ones based on the inter-functional teams. All of processes are done in such systems for satisfying the customer’s needs (Schniederjans, M.J. and Kim, G.C 2003).

The result of implementation of reengineering is accessing more speed and less cost in performance. Although, there are many authors with various definitions on these terms, all referring to process changes large and small, the BPR definition of Hammer and Champy (1993) is widely accepted today. Hammer and Champy define business process reengineering (BPR) As "the fundamental rethinking and radical redesign of the business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed". This definition comprises four keywords: fundamental rethinking, radical redesign, processes and dramatic improvements.

Fundamental rethinking:

Understanding the fundamental operations of business is the first step prior to reengineering. Business people must ask the most basic question about their companies and how they operate: “Why do we do what we do?” and “Why do we do it the way we do?” Asking these basic questions lead people to understand the fundamental operations and to think why the old business processes and assumptions are still able to exist in the
context of changing world. Often, old processes become obsolete when a change in the production line occurs.

Radical redesign:

“… In reengineering, radical redesign means disregarding all existing structures and procedures and inventing completely new ways of accomplishing work” (Hammer and Champy, 1993). Radical redesign seeks to identify the root cause of a problem or opportunity, and in most cases discards what is already set in place and starts with a clean sheet of paper (Pitman, 1995). Radical change is an outcome of taking a process view and departing from the old way of doing business through functional departments. Processes are horizontal while functions are vertical, processes cut across functions and functional activity feeds processes (Carr and Johansson, 1995).

Processes:

A process is a set of linked activities that obtains an input, transforms the input, and creates an output according to Carr and Johansson (1995). BPR focuses on the strategic, value-added business processes rather than on the functions, tasks, jobs, and people and product lines (Muthu et al., 1999). The strategic value-added processes deliver value to the customer (Choi and Chan: 1997) and directly touch suppliers (Carr and Johansson 1995).

Dramatic improvements:

Reengineering is not about making marginal improvements or modification but about achieving dramatic improvements in performance. There are three kinds of companies that undertake reengineering in general. First are companies that find themselves in deep trouble. They have no choice. Second are companies that foresee themselves in trouble because of changing economic environment. Third are companies that are in the peak conditions. They see reengineering as a chance to further their lead over their competitors (Hammer and Champy, 1993).
Other authors such as Talwar (1993) have focused on the rethinking, restructuring and streamlining of the business structure, processes, methods of working, management systems and external relationships through which value is created and delivered. Petrozzo and Stepper (1994) on the other hand, believe that BPR involves the concurrent redesign of processes, organisations, and their supporting information systems to achieve radical improvement in time, cost, quality, and customers’ regard for the company’s products and services. While Lowenthal (1994) describes the fundamental rethinking and redesign of operating processes and organisational structure, the focus is on the organisation’s core competencies, to achieve dramatic improvements in organisational performance, as BPR’s essential components.

Carr (1995) define Business Process reengineering as the technique that concentrates on the process to bring about radical change in the organization facilitating dramatic improvement in performance in core business processes critical for competitive advantage. This definition also captures the main idea of Business Process reengineering, reinventing the organization for increasing performance. Al-Mashari and Zairi (2000) suggest that reengineering of business processes involves changes in people (behavior and culture), processes and technology.

1.1.4 Concepts of Business Process Reengineering

BPR concept was embraced by industry in the early nineties. The purpose of reengineering is to make all business processes ‘best-in-class’. Frederick Taylor suggested in the 1880s that managers use process reengineering methods to discover the best processes for carrying out work, and that these processes be reengineered to achieve optimum productivity. In Taylor’s time, technology did not allow large companies to design processes in a cross-functional or cross-departmental manner. Specialization was the state-of-the-art method to improve efficiency, as per the technology of the time.

Successful organizations are envisioned to be networked across functional boundaries and business processes rather than functional hierarchies. However, it is pointed out in literature, that simply using the latest technology on existing processes, respectively procedures, is no valid solution to the problem. The solution is found in taking a step
further and rethinks and questions the business activities being a fundament for business processes. Effective redesign of business processes by removing unnecessary activities and replacing archaic, functional processes with cross-functional activities, in combination with using information technology as an enabler for this type of change will, according to the advocates of BPR lead to significant gains in speed, productivity, service, quality and innovation.

Several authors have provided their own interpretation about the concept of BPR. Davenport and Short (1990) have described BPR as the analysis and design of work flows and processes within and between organizations. This definition implies the discontinuity in the performance of an organization and enables Coulson-Thomas (1992) to argue that ‘incremental changes are no longer enough’ and that ‘transformation cannot be achieved without fundamental change’. Short and Venkatraman (1992) exposed the customer point of view when defining BP redesign as the company’s action to restructure internal operations by improving product distribution and delivery performance to the customer.

For Johansson et al. (1993), BPR is the means by which an organization can achieve radical change in performance as measured by cost, cycle time, service, and quality, using the application of a variety of tools and techniques that focus on the business, as a set of related customer-oriented core businesses rather than a set of organizational functions.

The reengineering concepts involve four dimensions that are stated below:

Innovative Rethinking: This is a process that is itself utterly dependent on creativity, inspiration and old-fashioned luck. Drucker (1993) argues that this paradox is apparent only not real most of what happens in successful innovations is not the happy occurrences of a blinding flash of insight but rather, the careful implementation of unspectacular but systematic management discipline.

Process Function: Taking a systematic perspective, Hammer and Champy (1993) describes process functions as a collection of activities that take one or more kinds of input and creates an output that is of value to the customer. Typical process of this
includes ordering of organizational structure, manufacturing, production, development, delivery and invoicing.

Radical change: In radical change, a key business process is the transformation of organizational element; it is essential to an organization survival. Change leads to new ideas, technology, innovation and improvement. Therefore, it is important that organizations recognize the need for change and learns to manage the process effectively (Pamela et al. 1995).

Organizational Development and Performance: It takes a look at the firm’s level of efficiency and way to improve its current activity level in order to meet up to standards and survive the competitive pressure.

1.1.5 Principles of Reengineering in an Organization

From the work of Abolo (1997) and Thomas (1996) cited by Ezigbo (2003), the essential element or principles of reengineering include the following:

- Rethinking the theory of the business.
- Challenging old assumptions and discharging old rules that are no longer applicable.
- Breaking away from conventional wisdom and the constraints of organizational boundaries.
- Using information technology not to automatic outdated process but to redesign new ones.
- Externally focus on customers and the generation of greater value for customers.
- Internally focus on harnessing more of the potentials of people and applying it to those activities that identify and deliver values to customers.
- Encourages training and development by building creative work environment.
- Think and execute as much activity as possible horizontally, concentrating on flows and processes through the organization.

1.2 Objectives
Proposed objectives related with Business Process Reengineering are as follows:

(i) Assessing readiness for business process reengineering in selected enterprise to minimize the risks of implementing BPR.

(ii) To examine the possible factors that influence managers intentions towards adopting BPR in selected enterprise.

1.3 Scope of the Study

A study pertaining to business process reengineering in enterprise: methodology and empirical issues will contribute broadly in the following ways

It will provide guidelines/feedback to the management to minimize the risks in the implementation of BPR within the organizations.

It will provide feedback to the organization that what factors act as an impediments in adopting BPR within the organization.

Present study is limited to the determinants namely age, education, gender, work experience, post, style of management, leadership

The study is limited to senior level managers as they are involved in taking decisions regarding implementation of BPR projects.

The study is planned to obtain data from automobile industries only as known from the literature for their mature experience with BPR were intentionally selected.

The study is limited to human perspective and implementation of BPR within the organization.

1.4 Rationale of the Study

Business process reengineering is a combination of the adoption of a process view and the application of advanced Information technology in planned efforts in organizational change. Due to the potential impact on key performance criteria such as delivery speed, low cost per output unit, and high process quality. BPR is on the agenda of many large and mid-sized companies in many industries, with manufacturing and banking/finance
being the predominant sectors. The overall objective is to attain permanent customer satisfaction as a secure basis for future growth.

Major BPR efforts represent an organization’s commitment of millions of dollars for redesigning internal organizational processes, changing fundamental product delivery and customer service procedures, and often reexamining and repositioning corporate strategy (Clemons, 1995; Hammer, 1990; Senn, 1991; Venkatraman, 1989). Enabled by information technology and emphasizing customer-driven, process oriented management, BPR has delivered dramatic gains in quality, cost, speed and efficiency to many enterprises. Paradoxically high failure rates also indicate that BPR is risky if undertaken improperly as transformation involves a complex system of people, IT and new skills etc.

As a top-management issue, business process reengineering projects are typically initiated from the top down and implemented from the bottom up, within the hierarchy of a given corporation. BPR if implemented successfully not only transforms processes, but also ensures that the structure, the work-place and the culture of the organization successfully assimilate the improved processes. Due to amount of potential change affecting people and their work environments, business process reengineering projects are often accompanied by a considerable amount of resistance from the organization’s members and outside forces.

BPR offers a series of tools for identifying the necessary change and rebuilding the organization in a new image. However, it has little to say about human factors such as problems of conflicting values, coercion, and resistance (Oram and Wellins, 1995). Hammer and Champy (1995) go so far as to argue that the underlying reason for failure is invariably inadequate understanding or leadership from management. Even in this statement, the problem is reduced to a technical task that can only fail if there is poor workmanship on the part of managers. To the reengineering team, this will sound like a variation of ‘blaming the victim’. Cyert and March(1992) , among others, point out that conflict is often driving force in organizational behavior.
BPR has been a high-risk, high-reward proposition. BPR has the potential to significantly improve business performance, but as many as 70 percent of all BPR projects have failed (Dennis et al., 2003). Biggest obstacles that reengineering faces are: (i) Lack of sustained management commitment and leadership; (ii) Unrealistic scope and expectations; and (iii) Resistance to Change. Based on the BPR consultants' interviews, Bashein et al. (1994) outline the positive preconditions for BPR success as: Senior Management Commitment and Sponsorship; Realistic Expectations; Empowered and Collaborative Workers; Strategic Context of Growth and Expansion; Shared Vision; Sound Management Practices; Appropriate People Participating Full-Time and Sufficient Budget.

With the advent of liberalization, privatization and globalization (LPG) of the Indian economy, there is a tremendous pressure for change on Indian industries. Such continuous pressures for change have not only demanded the fitness of organizations to compete, but have created imperatives to reengineer the age-old ritualistic management systems. Although reengineering is very much necessary for Indian business organizations, the mind sets of most executives are not conducive for implementation. A total systems intervention is called for to critically re-examine the existing business processes both in terms of depth and width by focusing upon competition, customers and change.

Thus, a comprehensive study to investigate BPR efforts and anticipatory management of BPR, i.e. assessing readiness of BPR to minimize the risks are important issues of success of enterprises.

1.5 Plan of Thesis

The second chapter is updated review of literature on various aspects of BPR. However, in accordance with specific objectives of this thesis the review is particularly more devoted to success and failure factors/determinants of assessing readiness for BPR in enterprises. The review has been helpful in identifying the determinants of assessing readiness for BPR. Some of the researchers have applied multiple regression, and this methodology has been adopted in the present thesis with appropriate hypotheses and in
innovative way; having concepts of multicollinearity, heteroscedasticity and use of residuals in empirical analysis for assessing readiness for BPR in selected enterprises.

In the third chapter hypotheses related with relationships of determinants and readiness (Perceived Ease of Use and Perceived Usefulness) for BPR have been framed. In order to have remedy of small sample size the hypothesis of multicollinearity has been tested in order to refine the causal model of readiness for BPR. Test of heteroscedasticity also improves the validity of the estimates. And finally an innovative approach of residuals (of observed and estimated readiness for BPR) is clearly helpful in assessing readiness for BPR, ranking of selected enterprises and relevant policy implications.

Fourth chapter is on database. It includes research design, questionnaire, raw data file and edited data file. The dependent variable (readiness for implementing BPR) and determinants, viz. education, style of management, leadership style, project management, cross-functional cooperation, top management commitment have been measured with Discrete Fuzzy Logic (0, .2, .4, .6, .8 and 1), whereas age and work experience in years of the respondents are having numerical values as reported.

Chapter fifth is an attempt for empirical analysis that tests the hypotheses and clearly reports the assessment for implementing BPR in selected enterprises. In the peer group of six enterprises the residual approach is able to shed light on bench marking of the enterprises. The best enterprise in this connection suggests optimum value/levels of determinants to achieve an appropriate high level of readiness for BPR as important policy implications.

The last chapter is briefly devoted to conclusion and policy implications with an approach of anticipatory management in order to minimize risk for implementing BPR in the selected enterprises, after carefully examining and assessing the determinants.