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**DEVELOPMENT AND ASSESSMENT OF A
METHODOLOGY FOR BUSINESS PROCESS
IMPROVEMENT**

SCHOOL OF INDUSTRIAL AND MANUFACTURING SCIENCE

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**DEVELOPMENT AND ASSESSMENT OF A METHODOLOGY
FOR BUSINESS PROCESS IMPROVEMENT**

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Abstract

There appears to be an ever insatiable demand from markets for organisations to improve their products and services. In response, the concept of Business Process Improvement (BPI) has been developed in recent years as a useful aid. Unfortunately, there is no robust methodology that practitioners can use to apply this concept. Therefore, the intention of this research is to provide a generic and practical methodology to support the implementation of business process improvement within organisations.

The research described in this thesis has set out to form a BPI methodology through a structured research programme. A pilot methodology was formed on the basis of existing contributions in the literature. This was initially refined through discussion with experts in the field, and a primary field trial. After refinement, the methodology was more thoroughly tested through case studies at three companies. The fully tested and refined methodology is presented as a workbook in the appendix of this thesis.

The outcome of this research is a structured step by step methodology which is an aid to BPI. This methodology takes the practitioner through such steps as; understanding business needs, understanding the process, redesigning the process, implementing the new process, and reviewing the new process. The outcome of executing the methodology is a documented business process.

The work described in this thesis has made a significant contribution to the knowledge on methodologies for BPI. It has also demonstrated that such methodologies can be formed and tested rigorously in an industrial context.

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Abbreviations

There are number of acronyms used, the meanings of these are indicated below.

Term	Explanation
ABM	Automated Business Model
BEM	Business Excellence Model
BPI	Business Process Improvement
BPM	Business Process Management
BPR	Business Process Re-engineering
BVR	Best Value Review
CPI	Continuous Process Improvement
EFQM	European Foundation for Quality Management
EM	Enterprise Modeller
IDEF0	Integrated Definition Language
KPI	Key Performance Indicators
MIPIM	Model-based and Integrated Process Improvement Methodology
PDC	Process Design Centre
TQM	Total Quality Management
XPat	<i>Xpert Process Capture and Analysis Tool</i>

Chapter 1

Introduction

Today's business environment is complex, almost everywhere organisations are undergoing rapid and significant changes driven by customer expectations, new technologies, and growing global competition. As a result, many business processes within organisations are dynamic and constantly changing. In order to survive in such dynamic environments, practitioners are forced to continually revise their business processes to respond quickly to changes. There are some methodologies and tools available to help businesses improve their processes, however, none of these adequately support the practitioner through all stages in the business process improvement activity. Therefore, providing such a structured methodology for business processes is the purpose of this research. Hence, the research aim has been to develop a generic and practical methodology to support the implementation of business process improvement within organisations; and to evaluate its effectiveness in industrial practice (Chapter 3):

1.1 The Challenge of the Sponsoring Organisation

This research is sponsored by the Benefits Agency (BA), an executive agency of the Department for Work and Pensions (DWP), formerly known as Department of Social Security. DWP was created in 2001 by the merger between the Department of Social Security and parts of the former Department for Education and Employment to implement the Government's welfare to work strategy. Since April 2002, the department delivers support and advice through a network of services to people of working age, families and children, pensioners and disabled people. The Process Design Centre (PDC), a division of the BA supports the Agency's drive to improve the benefit delivery process as part of the Modernising Government' initiatives. PDC's stated vision and mission statement is to promote the adoption of process design techniques as a way of understanding, analysing and improving outcomes to the benefits of Ministers, service users and staff. PDC aims to achieve this through a programme of implementing

Automated Business Model (ABM) across the Agency. The ABM programme provides a powerful engine for key drivers to BA business in ‘joined up’ government, business excellence model and programme protection.

PDC is responsible for the ongoing design, development and change management of the business model. The business unit has grown in the last two years as a result of the government’s drive for increased efficiency in benefit design and delivery process. In common with the increasing challenges of the public sector to continuously improve service delivery, the demand by the Benefits Agency for good practice in business improvement is has matured, hence increased competition demands that design, modelling and management of business processes is improved. PDC is taking forward good practice improvements in the BA services, by seeking to appreciate the contribution that modelling can make to improving operational and strategic processes through the development of an effective and efficient structured methodology for business process improvement. Therefore, providing such a structured methodology for business process is the purpose of this research.

1.2 Research Solution

To achieve the aim, a structured research programme has been developed. A pilot methodology termed the “Model-based and Integrated Process Improvement Methodology” (MIPIM) has been formed on the basis of existing work provided in the literature. This methodology was initially refined through structured discussion with academia, practitioners and consultants in the field to seek leading practice, and subsequently applied in a primary field trial in the public sector by means of case study with researcher intervention. This intervention involved the researcher acting as the user of the methodology in a real life project. After refinement, the methodology was further tested through case studies without intervention at three companies within the service industry to determine its wider applicability. The fully tested and refined methodology is presented as a workbook in Appendix D.1 of this thesis.

MIPIM is intended to be a generic step-by-step workbook-based methodology, containing procedures and guidelines to aid the implementation of Business Process Improvement within organisations. It comprises of seven steps:

1. Understand business needs, which are or may be of importance to the business.
2. Understand the process to generate current operations of the business.
3. Model and analyse the process for detailed understanding and identification of non-value adding activities.
4. Redesign the process for streamlining.
5. Implement the new process.
6. Assess new process and methodology for performance.
7. Review new process for continuous improvement.

This methodology is related to other BPI models that have been proposed for business process improvement such as: Harrington, (1991); Davenport and Short, (1990); Childe et al, (1996); and Vakola and Rezgui, (2000a), but they all differ in the detailed and operational application.

The purpose of the methodology developed in this thesis is to guide the practitioner through a series of structured steps necessary to make informed, consistent and efficient improvements to business processes. It brings together a series of tools and techniques, and provides a holistic approach to analyse, improve, implement, evaluate and review processes. This methodology has been shown in this research to be feasible, usable and useful. Such a methodology has been lacking in previous research, and hence, is the contribution of the work described in this thesis.

1.3 Structure of the Thesis

The thesis structure is illustrated in Figure 1.1 and contains the following principal sections:

Chapter 2 Reviews the literature in order to define the concepts of Business Process Improvement, establish the different change management initiatives, and

discuss its value and application. Current research issues are also reviewed to establish limitations of applying this concept.

- Chapter 3 Develops the research aim, objectives and the programme. Individual stages of the work are identified, and for each stage, a suitable research method is identified.
- Chapter 4 Reviews the literature in order to identify existing approaches to business process improvement. Existing methods are also reviewed to establish the requirement definition and the most appropriate for the purpose of forming a pilot methodology. The chapter presents the similarities, differences and gaps in the current BPI methodologies.
- Chapter 5 Develops the pilot BPI methodology from literature sources. It presents the development process, overview and the structure of the methodology. It also discusses the operational application and delivery medium for the proposed methodology.
- Chapter 6 Reports on the initial study of validating the pilot methodology from a series of structured interviews with practitioners, who are intimately involved in the practical aspects of business improvement, consultants, who carry out business process improvement assignments, and academia, who provide purely theoretical viewpoints. It also discusses the execution of the pre-pilot validation, the results and findings.
- Chapter 7 Reports the primary application of the BPI methodology by the researcher as the user, to a single case study within the public sector, demonstrating the feasibility, usability and usefulness of the proposed methodology and identifying areas for improvements. It describes the tactical research methods and evaluation design adopted for conducting the assessment.
- Chapter 8 Reports the results of three case studies into the use of the methodology across a wider application in the service industry. The results of the test

provide confirmation of the feasibility, usability and usefulness of the methodology and demonstrate its wider applicability.

Chapter 9 Presents and describes the final methodology. It presents the formation process and further describes the structure, overview and relationship between the methodology and the key issues identified from the case studies.

Chapter 10 Concludes this thesis with a discussion of the principal research findings against research aim, contributions to knowledge, and limitations of the research programme and findings. It finally discusses the future research directions that could follow from this research.

This chapter has provided an overview of the research background and the thesis structure. In the next chapter, an overview of literature review in the area of business process improvement is presented.

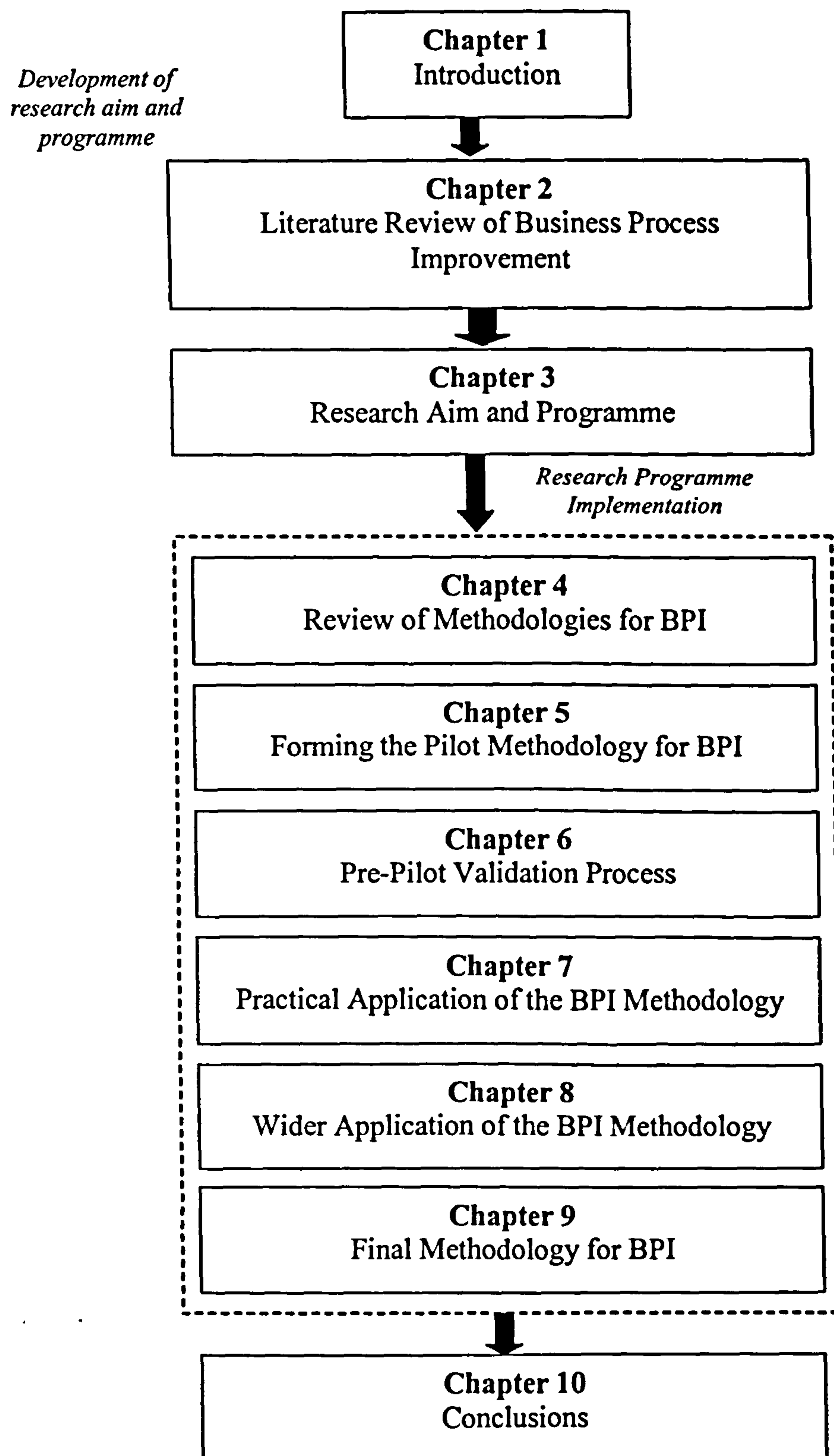


Figure 1.1: The Structure of the Thesis

Chapter 2

Literature Review in Business Process Improvement

The motive of this research is to provide support for organisations in the development, implementation and assessment of Business Process Improvement (BPI) initiatives. The purpose of this chapter is to give an overview of the BPI concepts and to explore the issues that currently constrain the application of this concept. To achieve this, the following questions are addressed.

1. What is Business Process Improvement (BPI)?
2. How does BPI differ from other change management initiatives?
3. Why is BPI important?
4. How should BPI be applied?
5. What are the current research issues that limit the application of this concept?

2.1 The Concepts of Business Process Improvement

The intention of this section is to answer the question, “What is business process improvement?” The key to this understanding is in the differences between the concepts of ‘process’, ‘business process’ and ‘business process improvement’. This section therefore seeks to explore these core elements. A description of each concept and their definitions are presented in the next three sub-sections.

2.1.1 Definition of Process

The key to this research is the concept of a process, therefore this section develops a definition of process that is used throughout the thesis. This is carried out by examining the literature, exploring interpretations, and from this, drawing out a representative definition. The challenge to provide a definition of process is not straightforward. This subject has received a great deal of attention and many interpretations by various

authors in the last few decades (Childe et al., 1994; Harrison, 1995). The Collins Concise Dictionary and Thesaurus provides a general layman's definition; namely:

1. *"a series of actions or change"*. For example, a process of delegating authority to a subordinate. This definition describes *process* as a 'course of action' or a 'procedure'.
2. *"a series of natural developments which result in an overall change"*. For example, the process of growing old. This definition describes *process* as 'evolution' or 'growth'.
3. *"a method of doing or producing something"*. For example, an effort to bring two parties together to form a relationship.

Harrington, (1991) directly addresses the question, 'what is a process?' and defines it as "any activity or series of activities that takes an input, adds value to it, and provides an output to an internal or external customer". In his observation, there is no product or service without a process, and no process without a product or service. Process has traditionally dominated the work of operations management community (Armistead, 1990; Armistead et al., 1995; Harrison, 1998). This community has attempted to define process as "a conversion of inputs (transformed resources) through adding value to produce outputs (goods and services)". These definitions assume process is all about production of goods and services.

The significance in these definitions lies in the similarities and weaknesses. Key similarities are that processes have inputs, outputs and customers. To harmonise these different interpretations, a representative definition is formed that integrates different contributions. Therefore, process is defined here as:

"the transformation of inputs into outputs; the inputs can be resources or requirements, whilst the output can be products or results. The outputs may or may not add value and could be an input to another process."

2.1.2 Definition of Business Process

The previous section has established a general definition for the term process. In this section, process is set in the context of a business. This section therefore describes and defines business process and draws out a representative definition.

There is a lot of confusion in describing the concept of business process. A number of definitions of a business process are provided in the literature. Table 2.1 shows definitions taken from Tinnila, (1995). This author categorised these definitions into operational and organisational perspectives as shown in the third column of Table 2.1. The operational perspective deals with operative processes with definite inputs and outputs. The organisational perspective focuses on the core processes extending over different functions, customers and suppliers. The terminologies in the definitions marked as italics form the basis of each aspect. For example tasks, input, output and activities are categorised as operational aspects whilst recipient, customers and suppliers are categorised as organisational aspect.

This categorisation suggests that definitions provided by Johansson et al. (1993), Hammer and Champy (1993), and Davenport, (1993a) only cover operational and organisational aspects based on the analysis of Tinnila, (1995). Tinnila argued that whilst there are differences in scope of definitions, these two aspects are the most common in business process definitions. He also recognised a third perspective, the strategic aspect, which is concerned with strategic process using resources to meet service needs, and that these “seem to have been ignored” from the definitions available in literature. Tinnila argues that ignoring the strategic aspect from business process definition amounts to ignoring core processes.

What is required is a definition of a business process that focuses on strategic, operational and organisational aspects. Harrington’s (1991) definition covers all these perspectives, and therefore, is adopted in this research. In this definition, “*tasks, resources and organisation’s objectives*” imply operational, strategic and organisational perspectives.

Business process is therefore defined here as:

"a group of logically related tasks that use the resources of the organisation to provide defined results in support of the organisation's objectives."

2.1.3 Definition of Business Process Improvement

This section develops a definition of BPI, sets out the issues and provides a representative definition.

Business Process Improvement (BPI), originally coined in 1991 by James Harrington, has been regarded as the basis for some world class organisational development approaches (French and Ball, 1990). There are however, many terminologies that are loosely associated with BPI. There are two schools of thought in modern management initiatives. Business Process Improvement, and Business Process Reengineering (BPR) (Hammer and Champy, 1993; Davenport, 1993). These two schools of thought suffer from having unclear definitions. There are three contrasting definitions presented in the literature for BPI and BPR.

First, the most referred to definition in literature for BPI is Harrington, (1991), who defines this concept as “a systematic methodology developed to help an organisation make significant advances in the way its business processes operate”. The focus of Harrington’s definition is on “systematic methodology”, that is, simplifying and streamlining operations whilst making sure that internal and external customers receive a “good output.” This suggests an orderly and efficient method is required to assist organisations to make meaningful improvement in the way business processes operate. Harrington’s (1991) definition suggests a structured and gradual approach to improving business processes, but it appears that BPI stops at the process redesign stage. Instead, the emphasis lies on refinement to ensure that future business objectives are met.

Second, for BPR the most referred to definition in the literature is Hammer and Champy, (1993) and Davenport (1993). Hammer and Champy (1993) define BPR as “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.”

The emphasis is on implementing radical change, which often involves job and role change, cultural review and significant overhaul of the information system. BPR is

Table 2.1: Definitions of business process (source Tinnila (1995))

Author (s)	Definition	Aspects defined
Pall (1987)	Business process is the logical organisation of people, materials, energy, equipment, and procedures into <i>work activities^a</i> designed to produce a specified <i>end result^a</i> (work product)	Operational
Davenport and Short (1990)	Business process is a set of logically related <i>tasks^a</i> performed to achieve a defined business <i>outcome^a</i>	Operational
Johansson et al (1993)	A process is a set of linked activities that takes an <i>input^a</i> and transforms it to create an <i>output^a</i> . It should add value to the input and create output that is more useful and effective to the <i>recipient^b</i>	Operational and organisational
Scherr (1993)	Business process is a series of <i>customer-supplier relationships^b</i> that produces specific results at specific points in time	Organisational and operational
Davenport (1993a)	Business process is a specific ordering of work activities across time and place, it has a beginning, an end, and clearly identified <i>inputs^a</i> and <i>outputs^a</i>	Operational
Davenport (1993a)	BP is a structured, measured <i>set of activities^a</i> designed to produce a specified <i>output^a</i> for a particular <i>customer^b</i> or market: a structure for action	Operational and organisational
Hammer and Champy (1993)	Activities that take one or more kinds of <i>input^a</i> and create an <i>output^a</i> that is of value to the <i>customer^b</i>	Operational and organisational

Note. ^aOperational aspects ^bOrganisational aspects

viewed as a deliberate and planned change in business processes to achieve breakthrough improvement in performance (Teng et al., 1996). It is observed that BPR has many internal contradictions, which has led to much confusion (Jones, 1995).

Table 2.2 presents a list of other definitions that support these two schools of thought. None of the definitions in the table however explicitly cover both BPI and BPR activities. Other authors such as Stoddard and Jarvenpaa, (1995) and Davenport and Stoddard (1994) have subscribed to BPI as a conservative incremental step change, and have not considered it as a radical clean slate change approach. It is claimed that redesign is a modest approach to process improvement, whilst reengineering requires a dramatic improvement (Grover et al., 1995). Redesign in this context is therefore a modest and focused approach on improvement.

Third, what is required is a definition that distinguishes BPI from BPR without confusing *redesign* with *reengineering*. One way to overcome this confusion is to specify BPI to incorporate redesign (focused improvement) and reengineering and separate activities that enable or drive improvement. Through this amalgamation, the definition is able to give a choice between redesign and reengineering for an improvement initiative. One definition that is close to achieve this incorporation is, Harrington et al., (1997). Their definition assumes that focused improvement, process benchmarking and process reengineering are approaches within BPI. The only problem with this extension is that the authors distort the original understanding of BPI definition (Harrington 1991). Hence, BPI is defined and adopted for the purpose of this research as:

“a methodology that is designed to bring about step-function improvements in administrative and support processes using approaches such as fast, process benchmarking, process redesign and process reengineering.” (Harrington et al., 1997)

The definitions adopted in this research for process, business process and business process improvement are summarised in Table 2.3.

Table 2.2: Sample Definitions of BPI and BPR

Term used	Author (s)	Definitions
Business Process Improvement (BPI)	Crosby, 1979	An ongoing systematic effort to designing business processes to conform to requirements.
	Davenport and Short, (1990)	The analysis and design of workflow and processes within and between organisations.
	Manganelli and Klein (1994)	Relates to how organisations naturally deal with small, incremental change, the object is to improve on what an organisation currently does.
	Morrow and Hazell (1992)	BP redesign is the examination of the flow of activities and information that make up the key business processes in an organisation with a view to simplification cost reduction or improvement in quality or flexibility.
Business Process Reengineering (BPR)	Davenport, (1993a)	One-time process innovation effort to achieve radical business improvement
	Talwar, 1993	To rethink, restructure and streamline the business structures, process, methods of working, management systems and external relationships through which we create and deliver value.
	Loewental (1994)	The fundamental rethinking and redesign of operating processes and organisational structure focused on the organisation's core competences, to achieve dramatic improvements in organisational performance.

Table 2.3: Adopted Definitions of Process, Business Process and BPI

Author	Definitions
Process	<i>"the transformation of inputs into outputs, the inputs can be resources or requirements, whilst the output can be products or results. The outputs may or may not add value and could be an input to another process."</i>
Business Process	<i>"a group of logically related tasks that use the resources of the organisation to provide defined results in support of the organisation's objectives."</i>
Business Process Improvement	<i>"a methodology that is designed to bring about step-function improvements in administrative and support processes using approaches such as fast, process benchmarking, process redesign and process reengineering."</i>

2.2 BPI and other Change Management Initiatives

The purpose of this section is to answer the question, “how does BPI differ from other change management initiatives?” Literature is overwhelmed with different management initiatives for managing process changes in organisation (Grover et al., 1995; Zairi and Sinclair, 1995; O’Neill and Sohal, 1999). In order to understand these differences, this section gives an overview of four management initiatives:

- Business Process Benchmarking
- Process Redesign (Focused Improvement)
- Business Process Reengineering (BPR)
- Continuous Process Improvement

A comparison of these four management approaches is discussed in section 2.2.5.

2.2.1 Business Process Benchmarking

One of the most powerful methodologies for measuring and improving business performance is benchmarking (Clarke and Manton, 1997). This section sets out its origin, develops the definition, locates its relationship with BPI and the general use.

Historically, Cordon, (1997) recorded that process benchmarking emerged to be applied in the 1980s with the advent of Xerox benchmarking programme on its product development process. Essentially, the practice was designed to rigorously examine and compare business practices with the “best in class”, and aimed at creating and sustaining excellence. Benchmarking has been defined by Camp, (1995) as a “continuous process of evaluation and performance improvement of products, services and practices with respect to those of the strongest competitors or of the enterprises recognised as leaders”.

Camp, (1995) argues that process benchmarking is the basis for BPI and should be an integral part of an overall improvement initiative. According to Harrington et al., (1997), process benchmarking is a way to identify, understand and create a superior process to improve performance based on a study of how other organisations are performing. Whilst organisations employ this technique to compare business processes across other organisations, the primary intention is identifying areas for improvement

(Rolstadas, 1995; Talwar, 1993; Klein, 1993; Furey, 1993). Its link with BPI helps to ensure that complete redesign is required and identifies which areas are to be prioritised. The two concepts are said to be compatible for effective change implementation (Zairi, 1995). The author states that this powerful tool can be used to help organisations decide whether to opt for the evolutionary process (BPI) or to introduce revolutionary change (BPR). As a result of benchmarking, many critical processes are made important and, sometimes, big improvements (Cordon, 1997).

2.2.2 Process Redesign

A second common management initiative is Process Redesign. Process Redesign focuses on improving present processes that are not working well (Harrington, 1995; Harrington et al., 1997). The objective of Process Redesign is to optimise a single process rather than transformation of the enterprise itself (Davidson, 1993). The technique can be applied to make positive changes in:

- process effectiveness
- efficiency
- adaptability

This is realised by streamlining and removing bureaucracy, duplication, waste, reducing cycle time and cost (Harrington, 1995). This incremental change approach promises a 30-60% result in process performance (Harrington et al., 1997). Process Redesign is intended to streamline both the process and the management structure that support it (Harrington, 1991).

2.2.3 Business Process Re-engineering (BPR)

Re-engineering, first introduced in 1990 by Hammer, is the most radical of the four approaches. Reengineering has also been described as Process Innovation where information technology is used as a driver for change (Davenport, 1993). BPR as defined in section 2.1.3 by Hammer and Champy (1993), focuses on “fundamental rethinking and radical redesign.” Teng et al., (1996) view BPR as a deliberate and planned change in business processes to achieve breakthrough improvement in

performance. The authors argue that reengineering projects may differ in scope, depth and breadth. Candidates for re-engineering are processes:

- that are facing a radical change in the industry;
- that have clear inefficiencies;
- that have not changed in the last 10 years;
- where the current process is out of date and is not worth improving or redesigning; or
- the current process has already been improved and there is little to gain from further refinement (Cordon, 1997; Harrington, 1991).

2.2.4 Continuous Process Improvement

Continuous Improvement (CI) represents the fourth type of change management initiative. The objective of CI is to implement a Continuous Improvement Process. This approach can be a follow up from a BPI programme. Hence, Harrington, (1991) considers that even when the process becomes the very best, this is not the end of BPI cycle; it is the beginning of the ongoing, continuous improvement phase. Bessant et al., (1994) defines CI as “a localised and company-wide process of focused and continuous improvement innovation.”

Historically, CI originates from the Total Quality Management (TQM). Examples of CI work in the quality movement include Deming, (1986), Imai, (1986), Juran, (1989), Crosby, (1979), Oakland, (1995). According to Broadbent et al., (1999), process improvement and customer focus have been highlighted as the two properties of the BPI initiatives from the quality movement. Candidates for CI are processes supporting critical activities to gain business advantage (Condor, 1997). The result from the CI programme, which is confined to a single departmental boundary, is to stabilise and optimise the operational processes and achieve incremental improvements about 15-20% yearly (Harrington et al., 1997).

2.2.5 A Comparison of Change Management Initiatives

Several terms have been used interchangeably and the problem encountered is in differentiating between various initiatives (Cordon, 1997). These concepts have important differences in terms of scope, risk, results, level of change and time required. Some of these differences shown in Table 2.4 are discussed below:

- *Scope*

A major difference between these four approaches is the scope of change by its depth (procedural vs organisational change) as well as breadth (intra-functional to inter-functional and inter-organisational), (Davenport and Stoddard, 1994; Hall et al., 1993; Teng et al., 1996). BPR tends to be broad and cross-functional, whilst the less ambitious Process Improvement deals with single functional processes.

- *Risk*

Risk is a major differentiating factor between the approaches. Reengineering has a relatively high risk because it targets very high improvements in a short time. Continuous Improvement relies on cultural change in an organisation; however, it has a low risk compared to BPR and Focused Process Redesign. CI requires both time and effort on the part of management to change corporate culture (Cordon, 1997).

- *Level of change*

Process Innovation is a radical change designed to achieve significant improvements in business performance, whilst Process Improvement, Benchmarking and Continuous Improvement take the incremental approach.

Despite the differences in emphasis in these approaches, both BPR and CI share some common themes; for instance, they both recognise the importance of processes that start by considering the needs of the customer, and the need to improve both their performance and design. Furthermore, there is general consensus in the literature, that its scope should be the organisation in its entirety, and its primary focus should be on the core business processes, upon which the success of the organisation ultimately rests (Doherty and Mistry, 1996).

The four approaches have been described and compared, and it has emerged that despite their similarities and differences, that organisations that attempt BPR initiative often take an incremental approach in implementing the new process. This is due to political, organisational and resource constraints (Stoddard and Jarvenpaa, 1995; Burlton, 1998; Davenport, 1993).

2.3 The Importance of Business Process Improvement

With so much emphasis on the concept, it is useful to address the question of, “Why is BPI important?” This section therefore discusses key drivers for change supporting why BPI is important, explores empirical cases for undertaking BPI, and provides a summary to support evidence for the BPI concept.

2.3.1 Drivers for change

Organisations have embarked on BPI for different reasons (Harrington et al., 1997). Drivers for change are the motivations that force organisations to want to take a different direction.

The driving force for change has centred on the need to improve competitive advantage (Porter, 1985; Coulson-Thomas, 1995). O’Neill and Sohal, (1999) state that customers today are characterised by their relentless demands for quality, service, and price; by their willingness to act on default of contract and by their disloyalty. Hence, managerial assumptions of the early management revolution have to change to address today’s competitive environment (Drucker, 1994).

The range of levers and mechanisms for achieving change in organisations discussed by both the academic literature and the less academic prescriptive literature is vast (Balogun, 1998). Talwar, (1993) splits motivations into the globalisation of business, economic pressures, operational challenges, competitive learning, continuous change and past management failures. Kallio et al., (1999) distinguished three drivers and tracers of business process changes: internal inefficiency changed customer/supplier requirements and external changes uncontrollable and unpredictable to the industry. In

Table 2.4 Comparison of change management initiative

Characteristics	Business Reengineering	Continuous Process Improvement (CI)	Process Redesign	Business Benchmarking
Level of change	Radical	Incremental	Incremental	Incremental/Radical
Starting Point	Start with 'clean sheet'	Start with what you have	Existing Process	Existing Process
Frequency of Change	Intermittent/One-time	One-time/Continuous	One-time/Continuous	Continuous
Time Required	Long	Short	Short	Long
Participation	Reengineering Project Team/Top-Down	Everybody/Bottom up	Improvement Project Team/Top-Down, Bottom- Up	Benchmarking Team Top-Down
Typical Scope	Broad, cross-functional	Narrow, Single/functional	Single, Independent Dependent processes	Single/Dependent
Risk	High/Concentrated	Moderate/Spread	Low	Low
Primary Enabler	IT	Statistical Control/People	Enabled by IT	
Results	60-90%	15-20%	30-60%	30%
Type of Change	Culture & Structure	Culture	Culture and Structure	Process

Grover et al., (1993) and the CSC Index, (1994) a number of external motives were cited including: the increasing level of competition, the changes in customer needs, IT changes and changes in regulations. Other drivers such as real or imaginary crisis (Dixon et al. 1994), severe economic downturns (Teng et al., 1994), and outdated working practices that no longer satisfy stakeholder expectations (Ayers, 1995) amount to threat. Al-Mashari and Zairi (2000) identified internal drivers leading to changes in both organisational strategies and structures.

From the perspective of competitiveness, common drivers for BPI in academic literature are split between internal and external factors. Internal factors cover process, product and people issues in organisations, whilst external issues cover stakeholders. However, the issue of understanding business process to achieve sustainable business excellence has received less attention in the BPI field. Organisations use the Business Excellence Model (BEM) as a driver to achieve integration and performance improvement. By understanding the business process, which is a key element of the BEM, organisations can benefit from benchmarking their business processes against the industry standard. Through this exercise, areas for improvement can be identified, and appropriate steps can be taken towards the achievement of overall BPI.

2.3.2 Empirical case for undertaking BPI

To supplement the above, this section provides empirical evidence from field observations to support the reasons why BPI is important. Maull et al., (1995) have recognised that few empirical studies have been reported in the field of BPI. However, many cases largely focus on BPR (Chan and Peel, 1998; Kallio et al., 1999; Belmiro et al., 2000).

There is a small number of in-depth case studies undertaken to investigate the argument for process-based change in general (Glasson, 1994; Grover et al., 1995; Hamilton and Atchison, 1996; Maull, et al., 1995). The argument remains that as the business environment continues to change, new methods, programme, and equipment need to be evaluated. People within organisations develop knowledge and capabilities that can be used for process improvements (Harrington 1991). In a survey by Drew (1994),

candidates' response to reasons for undertaking improvement initiatives were listed in order of importance below:

1. major customer service improvements
2. cost savings
3. importance of process to overall strategy
4. need to repair an ineffective system
5. management desire to re-engineer

In a further survey of large UK companies, Doherty and Mistry, (1996) reported there is a strong level of belief and support for the BPR philosophy. At least 68% of respondents support the view that BPR is a valuable technique if managed well, whilst a further 30% are of the opinion that BPR is essential for the long-term prosperity of their organisations. Only two respondents had reservations about the benefits of BPR. In a study conducted on behalf of Highams Group, Skinner and Pearson, (1993) found evidence to support the importance of BPI as a competitive weapon. They reported that 65% of the survey respondents were already involved in some form of BPI projects for a number of reasons including: the need for continuous improvement; increased customer expectations; increased competition and changing market needs. In their study of 37 companies for understanding the causes and impact of reengineering, Chan and Peel, (1998) found that the internal and external reasons for reengineering seemed to be to increase efficiency and improve customer service.

The section has discussed why BPI is important. The key motivations for change have been identified, gaps addressed, and supported by empirical cases. In summary, the findings suggest that the production of goods and services depend on there being a business process. By continually improving and redesigning business processes, organisations are in a better position to support the products and services and hence, ensure process excellence is achieved and competitive market is maintained.

2.4 How Business Process Improvement Can Be Applied

Management researchers have a variety of approaches from which to apply BPI. In the literature, there are two paradigms, namely the structured and the unstructured approaches. Klein, (1994) associates the structured approach to the methodologist, and unstructured to the intuitive approach. This section sets out to understand the theoretical foundations that underpin these two paradigms. Details of individual methodology are discussed in Chapter 4.

2.4.1 The Structured Approach to apply BPI

BPI can be applied using the conventional structured approach to solving problems. A structured approach can help in many BPI projects where the boundaries, objectives and work scope are well defined and described (Levene and Braganza, 1996).

Structured method provides working plans to deal with various activities in the BPI process and provides milestones for implementation (Al-Mashari and Zairi, 2000). According to Klein, (1994) the methodologists favour structured approach which tend to be mechanistic, linear, iterative progression, prescriptive and follow a step by step procedure (Davenport and Short, 1990; Guha et al., 1993). It has been pointed out by Jayaratna, (1994) that an explicit and structured methodology ought to show *what* steps to take and *how* to perform these steps, but most importantly *why* the user must follow those steps in the suggested order.

These three questions emphasise the requirement of a structured approach to apply BPI. Jayaratna's statement suggests that a structured approach is prescriptive, a view shared by Davenport and Short, (1990). From the point of view of what steps to take, clearly a methodology must indicate input and output of the process; this serves to guide the user in the activities and actions to take. In terms of performing these steps, a methodology must lay down the requirements and the consequence of deviating from each step which act as principles underlying the approach. Hence, a structured approach is a logical step-by-step framework with attention to distinct phases for the improvement project.

2.4.2 The Unstructured Approach to apply BPI

From the above, it appears that the methodologists favour a structured approach. The extent of BPI initiative will determine the direction of application of the methods. An unstructured approach is where the initial goals and project objectives are ill-defined. In such a situation, if the organisation has poor project skills, it is unlikely that they will be able to put a structured approach in place (Levene and Braganza, 1996). If an unstructured approach is followed for BPI implementation, the outcome of such initiatives will be a high level focus and shallow link between the achievements of project objectives and the BPI goals.

Mintzberg et al., (1976) defined 'unstructured' as "decision processes that have not been encountered in quite the same form and for which no predetermined and explicit set of ordered responses exists in the organisation." Unstructured methods are fragmented and piecemeal, but flexible, and tend to follow an organic and do-it-yourself process; this is what Klein, (1994) termed the intuitive approach. Evidence from the intuitive approach such as Hammer and Champy (1993) considers BPI as contextual and believes that a structured approach is impossible to achieve radical change.

Soft Systems Methodology (SSM) is an example of the unstructured approach. SSM is a problem solving technique to aid decision making particularly if little is known about the problem situation (Checkland and Haynes, 1994, Peppard and Preece, 1995). A number of methodologies have been developed based on the SSM, such as Wastell et al., (1994); Povey, (1997). Another example of unstructured approach is Socio-Technical Systems (STS). Davenport and Stoddard (1994) for example, have traced the root of BPR in Socio-Technical Systems design theories for work design (Mumford and Weir, 1979; Mumford, 1994), developed by researchers at the Tavistock Institute of Human Relations in the 1950s. An example of using STS for BPI methodology is Wastell et al (1994).

Given the need for an approach to apply BPI, it is important to have a generic methodology which can be applied in practice. Arguably, both structured and

unstructured approaches are employed in practice; however, it is safer to have a structured approach as indicated by most authors in the methodologist paradigm.

2.5 A Review of Current Research Issues

In the previous sections, the concepts of BPI have been discussed, its importance has been justified, and various approaches to applying BPI have been explored. The intention of this section is to address the key issues of this research. This section will address the general issues in the field of BPI. The most important issues for further investigation will be highlighted, and the focus for this research will be concluded.

2.5.1 Current Research Issues associated with BPI

There are a number of research issues associated with BPI in the literature. These issues are important to determine the success or failure of a BPI project, and to establish the area of focus for BPI research.

Several authors have criticised BPI for attacking structures that provide organisational identity (Bailie, 1995; Grint et al., 1996); and for increasing unemployment and disempowering staff (Willmott, 1994; Grey and Mitev, 1995). Despite the claims of organisations achieving up to 90 per cent savings on time and costs by improving and redesigning business processes (section 2.2.1 and section 2.2.2), studies of BPI projects have also reported failure rates of up to 70 per cent (Hammer, 1990; Bradley, 1994; Willcocks and Smith, 1995). Some of the reasons can be traced to implementation problems.

A number of researchers have attempted to identify the success factors which are associated with BPI implementation, and strategies for implementing redesign (Hall et al. 1993, Drew, 1994; Grover et al. 1995; Teng et al., 1998). Much of this research has used the factor research approach to identify those factors which have the greater influence on BPI success (Larsen and Myers, 1999). Implementation factors are variables that should be taken into account when implementing a change or may be factors that are associated with implementation success (Lucas et al. 1990). The

assumption seems to be that if the practitioner is aware of these factors and addresses them during implementation, then the BPI project is more likely to be successful.

The collation of implementation factors shown in Table 2.5 illustrates that, within the change management factor, the research need includes: effective use of teamwork, human involvement, communication, training and education, leadership and cultural change (Hammer & Champy, 1993; Zairi and Sinclair, 1995; Talwar, 1996). In the attempt to provide proper planning and management throughout the BPI process, one issue has emerged, the BPI application and methodology. Many researchers have called for an effective, systematic and planned methodology to guide the successful implementation process (Davenport, 1993; Robb, 1995; Vakola and Rezgui, 2000). Few researchers have addressed the importance of assessment for a successful BPI implementation. Areas of research needs suggested in the literature include the assessment of methodologies, readiness assessment and project performance assessment in the early stages of BPI efforts.

The other area of implementation requiring further investigation is process focus. Researchers have argued for a more effective process understanding and orientation, identification of process owners, determination of scope of change and adoption of a process mentality (Hammer & Champy, 1993; Grover et al., 1995; Paper, 1998). From the information technology factor, it appears that more research is needed into the effective use of software tools (Davenport and Short, 1990; Grover et al. 1995; Childe et al., 1996). The analysis on performance measures suggests that process measures need to be defined and supported with integrated measurement systems. On risk management, some researchers have proposed a continuous risk assessment throughout the implementation process, as well as anticipating and planning for risk handling (Remenyi and Whittaker, 1994; Carr and Johansson, 1995; Clemons, 1995).

Based on the above broad implementation factors, this research focuses on two categories; project planning and management (that is, BPI application and methodology), and assessment in practice. The BPI methodology and assessment have been specifically selected as the two areas for close observation. There is an agreement in the literature (see 2.4.1) and practice supporting the importance of having an effective

Table 2.5: BPI Implementation Factors

Category Factors	Author	Research Need
Change Management	Talwar, 1997; Bashein et al, 1994; Carr and Johansson, 1995; Harvey, 1995; Davenport, 1993; Jackson, 1997; Zairi and Sinclair, 1995; Hall et al, 1993; Hammer and Champy, 1993; Morris and Brandon, 1993;	<ul style="list-style-type: none"> • Effective use of teamwork and empowerment • Human Involvement • Effective communication • Training and education • Commitment and leadership • Create effective culture for organisational change
Project Planning & Management -	Berrington and Oblich, 1995; Zairi and Sinclair, 1995; Hagel, 1993; Guha et al, 1993; Hall et al, 1993	<ul style="list-style-type: none"> • Proper planning with adequate time frame • Proper management throughout the BPI process • Setting performance goals and measures • Measurement of project progress
<i>BPI Application and Methodology</i>	Guha et al, 1993; Berrington et al, 1995; Klein, 1994; Coulson-Thomas, 1994; Levene & Braganza, 1996, Davenport & Short, 1990; Davenport, 1993; Klein, 1994; Dichter et al, 1993; Tapscott & Caston, 1993; Vakola & Rezgui, 2000; Kim, 1996; Talwar, 1993; Paper, 1998; Manganelli, 1993; Kettinger et al, 1997; Earl, 1994; Lee & Chuah, 1999; Wastell et al, 1994; Archer & Bowker, 1995; Motwani et al; 1998; Paper, 1998; Robb, 1995	<ul style="list-style-type: none"> • Establishing a disciplined and sound methodology • Need for an effective and planned methodology and planning to guide the successful implementation process. • Need for a systematic and integrated process improvement methodologies • Need for a flexible and adaptable methodology • A practical framework for a successful BPI project • Evaluate alternative approaches. • Adoption and implementation of a systematic methodology
Assessment in Practice	Vakola and Rezgui, 2000b Guimaraes, 1997; Larsen & Myers, 1999; Armenakis and Fredenberger, 1997; Davenport and Short, 1990; Hall et al, 1993, Jackson, 1997	<ul style="list-style-type: none"> • Need for an assessed methodology is crucial. • Readiness assessment • Assess project performance in the early stages of BPI efforts to provide feedback
Process Focus	Hammer and Champy, 1993; Furey, 1993; Grover et al, 1995, Hall et al, 1993; Hagel, 1993; Champy, 1995; Maull et al, 1995; Davidson, 1993; Paper, 1998	<ul style="list-style-type: none"> • Effective process understanding and orientation • Identification of process owners • Adequate determination of scope of change • Adoption of a process mentality as part of the corporate culture
Information Technology	Davenport and Short, 1990; Grover et al, 1995; Klein, 1994; Kettinger et al, 1997; Guha et al, 1993; Teng et al, 1994; Childe et al, 1996	<ul style="list-style-type: none"> • Effective use of software tools
Performance Measures	Guha et al, 1993; Rummler and Brache, ; Kaplan & Norton; Maull et al 1995	<ul style="list-style-type: none"> • Definition of process operating measures • Integrated performance measures encompassing all the business processes.
Management of Risk	Carr and Johansson, 1995; Towers, 1994; Clemons, 1995; Remenyi and Whittaker, 1994	<ul style="list-style-type: none"> • Continuous risk assessment is needed throughout the implementation process • Anticipating and planning for risk handling

and structured methodology for the successful implementation and management of BPI programme. Based on the experience of consultants sampled by Archer and Bowker, (1995), structured methodology was seen as critical, important and useful. There are other issues yet to be addressed in BPI, for example the confusion surrounding different terminologies (see section 2.1.3 and 2.2). The various definitions used for the same term in different studies make it difficult to compare studies (Childe et al., 1994). Whilst there is a call for more in-depth case studies specifically for BPI, the work reported by Bisson, (2000) on how to do a BPI, lacks critical appreciation of literature.

This section has discussed the generic factors for successful implementation of BPI and other issues relating to the unclear terminologies and empirical evidence. In the next section, detailed specific issues on application of BPI methodology are addressed.

2.5.2 Important Research Issues Associated with BPI

Methodology

The intention of this section is to discuss aspects of specific issues of importance associated with the BPI methodology success factor.

The most frequently asked question among BPI practitioners is "How to do it"; "What do we do next"; "What methodology do you follow" or "What model do you use?" (Burke and Peppard 1995; Vakola and Rezgui, 2000). One of the causes of failure of BPR and Process Improvement is that the methodology was misused (Harrington, 1998). As with most project processes, many authors have addressed the issue of lack of an effective methodology for the implementation of BPI change programme (Talwar, 1993; Klein, 1994; Robb, 1995; Alavi and Yoo, 1995; Motwani et al., 1998; Vakola and Rezgui, 2000a). Vanhoenacker et al., (1999) observed that the effectiveness of a vast number of pure improvement methodologies has been taken for granted, lacking transparency, or facing methodology overload. The authors further assert that if such methodological support is missing, it will be a critical weakness in any business improvement effort.

A key issue found in the research undertaken by IMPACT (1991) is that there is no single universal methodology to implement BPI. However, there appears to be a movement towards organisations creating their own methodologies (Levene and Braganza, 1996). Within the scope of BPI methodology, many authors have acknowledged the idea of a Do-It-Yourself, flexible, and structured methodology (Davenport and Short, 1990; Harrington, 1991; Childe et al., 1994). Both Dichter et al., (1993); and Tapscott and Caston, (1993) have provided a 'road map' and a broad set of guidelines for achieving a successful BPI initiative.

Table 2.6 shows areas of detailed research issues drawn from BPI methodology that cause success and failure of BPI application. These methodology issues have been categorised into planning, modelling and analysis, evaluation, risk management, competence of users and delivery mechanism.

Methodology planning considers issues such as prescriptive/structured, flexible and 'do it yourself' type approach or a combination of both. Opinions differ as to which approach to adopt, but a large part of the research agrees that there is a lack of guidelines to support BPI. Much of the research have subscribed to planned, structured, broadly based, phased methodologies for implementing BPI (Davenport and Short, 1990; Kaplan and Murdoch, 1991; Harrington, 1991; Childe et al., 1994; Morris and Brandon, 1993). In contrast, supporters of reengineering argue that prescriptive structured models are inappropriate to achieve radical change (Hammer, 1990; Belmonte and Murray, 1993). Instead of a road map, Hammer puts forward eight principles for re-engineering and states that: "re-engineering cannot be planned meticulously and accomplished in small and cautious steps." His view suggests that an intuitive approach is more appropriate to BPR.

The modelling and analysis step of a BPI methodology provides another issue in the literature. Kawalek, (1991) remarked that existing approaches lack adequate integration of modelling techniques and user involvement. This was later followed by an extensive work carried out by Wastell et al., (1994) to implant process modelling techniques as part of the BPI methodology and to encourage more active participation in the

Table 2.6: Elaboration of Issues on BPI Methodology Success Factor

Areas in the methodology	Authors	Issues Addressed
Planning	Hammer, (1990); Belmonte and Murraray (1993)	<ul style="list-style-type: none"> • DIY approach
	Davenport and Short, 1990); Kaplan and Murdoch, (1991); Harrington, (1991); Childe et al. (1994); Morris and Brandon, (1993); Choi and Chan, (1997)	<ul style="list-style-type: none"> • Structured step Approach • Lack of guidelines to follow
	Dichter et al, (1993); Tapscott and Caston (1993)	<ul style="list-style-type: none"> • Structured and DIY approach
Modelling and Analysis	Valiris and Glykas, (1999) Wastell et al. (1994); Kawalek, (1991)	<ul style="list-style-type: none"> • Little attention on the modelling and analysis of the business. • Some of the methodologies miss analysis and redesign • Incorporation of process modelling techniques in the methodology. • Better user participation and a process of learning.
Evaluation	Hagel, (1993); Heygate, (1993); Vakola and Rezgui, (2000b); Childe et al. (1994)	<ul style="list-style-type: none"> • Should methodology include evaluation? • Should we be assessing BPI methodologies? • Existing approaches lack critical evaluation • Self- diagnostic assessment as a change to the DIY approach
Risks Management	Klien, (2000); Kallio et al. (1999)	<ul style="list-style-type: none"> • Risks of BPI project
Competence of users	King, (1994); Preece & Peppard, (1996)	<ul style="list-style-type: none"> • Success of methodology depends on the people • Skills of the practitioner
Delivery mechanism	Bradford et al. (1999)	<ul style="list-style-type: none"> • Workbook- based • Multimedia based

modelling exercise. Latest research such as Valiris and Glykas, (1999) confirmed the less attention paid to the modelling and analysis of the business process.

In the area of risk management, most of the expected risks in BPI are related to project management and change management (Grover et al., 1995). It appears from surveys conducted, that most risk factors are related to the change projects, less focus is paid to the risks in the methodology (Kallio et al., 1999; Klien, 2000). To date, no single research has been conducted on risks relating to the adoption of a BPI methodology in an organisation.

On a soft side, users' competence in using BPI methodology further raises attention. It is acknowledged that success of methodology depends on the people (King, 1994) and the skills of the practitioners (Preece and Peppard, 1996), particularly when choosing a facilitator or a champion. Other less complex matter raises the issue of how the methodologies have been disseminated. Research has observed that few methodologies exist that are deployed through the medium of workbook or multimedia (Bradford et al., 1999).

The specific detailed research issues associated with the BPI methodology have been highlighted. The section below will now discuss research issues associated with BPI evaluation.

2.5.3 Important Research Issues Associated with BPI Evaluation

Assessment has been identified as one of the success factors for BPI implementation. However, this topic has received little or no attention in the literature, hence, this is the subject of this section. The intention is to address ways in which evaluation could become an integral part of BPI process.

Work on BPR assessment has been written on the importance of evaluating BPI project success in organisations, and little on assessing methodologies. Table 2.5 above highlights a few examples of work supporting assessment in practice: Jackson, (1997) on readiness assessment, and Gumaraes, (1997) on empirically testing the factors of

BPR success. In their empirical study of success and failure factors in the financial sector BPR projects, Larsen and Myers, (1999) focused on participants' evaluations of the success or failure of the project and suggest that success depends upon the time when the evaluation is carried out. The limitation of this view is that it is subjective on the various stakeholders of the process. In other cases, self-diagnostic methodology assessment has been proposed to assess whether a proposed methodology will deliver BPI initiative (Hagel, 1993; and Heygate, 1993). However, this presupposes a readiness assessment and not a rigorous assessment of application.

Table 2.6 identifies two key evaluation questions that need to be addressed in the literature for an effective methodology. First, "should BPI methodologies include evaluation?" This means having an evaluation step in the methodology. Second, "should we be assessing BPI methodologies in practice?". Both issues determine the 'what' question and it is believed the time has arrived to consider evaluation of methodology as part of the whole BPI process.

The evaluation of BPI methodology application is critical and yet understudied. Childe et al., (1994) remarked that existing approaches lack critical evaluation, whilst Vakola and Rezgui, (2000b) stress the crucial need for the assessment of BPI methodology to deal with the commercial pressures, information technology and the evolution of the field itself. Although few researchers have incorporated the first issue within the change process, there is a wider room for improvement in the way these methods are evaluated during application. Many methodologies have been developed and applied without a systematic and rigorous assessment to determine if the tools and methods are of use by practitioners.

Evaluation has been considered from three perspectives: BPI project assessment, incorporation of evaluation as a step within a methodology, and evaluation of the BPI methodology itself. The focus of future research is the topic in the next section.

2.5.4 Important areas for future research

The importance of BPI research is understood, however, there are areas in the literature that have received less attention or have been largely ignored in the business process debate so far. There is a need for: first, a structured effective BPI methodology and second, a rigorous testing and evaluation of the methodology in practice. These aspects are most critical for this research.

First, a large part of the literature in the field agrees on having a logical and effective methodology to help practice (Alavi and Yoo, 1995; Robb, 1995). The studies by Gover et al., (1995) and Grover, (1999) revealed that lack of appropriate methodology was less severe than expected, but critical for achieving success. All researchers share common steps to operationalise BPI, however, many fail to provide explicit practical guides for users to follow. The advocates of the unstructured and intuitive approach may be criticised as focusing upon radical reengineering and ignoring practical planned solutions for focused improvement efforts on a smaller scale. In the context of this thesis, the intuitive approach is largely rejected by this research, and therefore this research is located in the structured approach and proposes a generic, structured and procedural methodology.

Second, in the direction for further research, Earl, (1994) suggested that "both academics and practitioners are likely to be interested in more evaluative research to test success." The author recommended the use of qualitative and quantitative assessments for both the process and outcomes of the strategies. In his writing, Giaglis, (1999) recommended that "the most important direction that future research should focus upon, relates to the development and empirical validation of methodological approaches to business engineering." The research takes these views: first, the BPI methodology ought to incorporate an evaluation step. Second, if the methodologies are to be used by practitioners, a rigorous testing of application is needed. This would ensure that the methods are not just usable by practitioners, but can lead to real improvement.

In summary, research is needed to develop a structured and practical BPI methodology, which is subject to rigorous evaluation in real case projects to determine its effective use

by the practitioners. The methods of achieving these are addressed below.

2.5.5 Guidelines on the Method of BPI Research

The research outlines the shortcomings in the current literature and set out methods of conducting future research in this field. Despite the considerable interest in BPI, current literature has identified gaps on the following shortcomings:

1. Low feasibility of application and theory testing of methodologies (Vakola and Reizui, 2000b).
2. Empirical research in BPI implementation lags behind (O'Neill and Sohal, 1999).
3. Lack of relevance to the real world (Susman and Evered, 1978; Lawler III et al., 1985).
4. Concept and terminologies of BPI vague and unclear (section 2.1).

Childe et al. (1994) and Vakola and Rezgui, (2000b), both in the field of BPR, criticise the lack of critical evaluation underlying methodology application in practice. Vakola and Rezgui observe that, although the theory behind the methodology development is well defined, the application of these methodologies is not feasible, due to cost, time limits or lack of information on potential savings. They consider that evaluation of BPR methodology is important for evolution of the field.

Alternatively, some practices in manufacturing decision process can be adopted for BPI research. According to Hill, (1987), research rigour must involve testing through application; this means direct involvement of the researcher, not just observation. Hill says academics should:

1. "Crystallise events through first hand involvement with the issues, not a process of observation.
2. Bring a body of knowledge which they have applied, not acquired by reading.
3. Advise businesses on the relevance of suggested approaches, the means for applying them and the methods of evaluation.
4. Create new knowledge and concepts from work undertaken."

A number of the problems currently cited in the field relate to the insufficient evidence of empirical research (O'Neill and Sohal, 1999). The empirical literature of Grover et al., (1994), on implementation factors provides inadequate evidence on the current practice of assessment and successful application of BPI methodology. Motwani et al., (1998) criticise the research method used in the field, stating that "more comprehensive and comparative case studies of successful implementation would be helpful, particularly studies elaborating good practices and detail steps undertaken towards change efforts."

Lack of research relevance to the real world is observed in the research methods. While searching for internal validity, relevance to organisations or external validity has been missed (McGuire, 1986). Susman and Evered (1978) summed up the situation: "as our methods and techniques have become more sophisticated, they have also become increasingly less useful for solving practical problems that members of organisations face." Lawler III et al., (1985), focusing on the issue of usefulness of organisational research, argue strongly that the study of change may be a particularly good opportunity to carry out research that is useful both practically and theoretically. They suggested that an intervention into an organisation's actual operating procedure might be one way of adequately testing new practices and theories. Clearly the implication is that research targeted at improving theory and practice needs to be guided by both practitioners and researchers to be considered useful to the real world.

Traditional research approaches of interviewing, short company visits and questionnaires have been criticised by Platts, (1993) as commercially inadequate and lacking relevance to the real world. Intervention and action research have been proposed as alternatives to undertake real time study of change process in their field settings (Van de Ven, 1992). Future research in BPI needs to embrace approaches from strategy and manufacturing process research fields to rectify these shortcomings. Future research could use Pettigrew's (1987) model of context, process and content to guide strategy research, and Platts, (1993) manufacturing process research methodology. Although Peppard and Preece, (1995) adapted the process research to study process change, no other author has taken such steps to study BPI research. Hence, it could be said that this approach is embryonic.

Traditional research in BPI has concentrated on 'knowing what', but in recent years, emphasis has shifted to the 'knowing how', in particular 'how' organisations identify the need for, plan and manage process based change. The issue is therefore, concerned with the methods that should be used in business process research and to seek to promote process research methodology to achieve relevance and rigour.

Based on Platts' (1993) framework to guide manufacturing process research, this research adopts these guidelines as directly useful in examining existing BPI methodologies and carrying out comprehensive testing, with some modifications. This framework has been developed and tested in Platts' (1990) earlier work and thus appears to be appropriate and useful in planning and implementing a methodology study on BPI. For BPI research, the framework requires focus on:

- Creating appropriate BPI methodology.
- Carrying out adequate empirical testing and assessment of the proposed methodology by application in practice.
- Investigating the wider applicability of the methodology.

The adoption of Platts' research method, which forms the basis of the research aim and objective in Chapter 3, will have strong implications for both practitioners and researchers. To BPI practitioners, the study of process change will provide useful and relevant guidelines on how to implement a change initiative. Researchers will find that through intervention in the organisational activities, new theory is tested through application and new practices can be used to direct theory building for intellectual contribution to knowledge. Further, researchers will find the approach to methodology assessment an important step in BPI research, as current research lacks empirical validation of the methodologies (Giaglis, 1999; Vakola and Rezgui, 2000b). By evaluating the effectiveness of a methodology, it is expected that a better understanding of BPI methodology and its impact on business process will become known.

On the basis of the guidelines presented in this section, it is hoped that application and testing of methodologies would become more feasible and relevant to practitioners.

2.6 Chapter Summary

Business Process Improvement, as a concept, is a broad generic label, which covers a wide range of improvement approaches. This chapter began by focusing on the BPI concepts, followed by a discussion of the four change management initiatives. The chapter discussed why BPI is important, and followed the various approaches for applying BPI in practice. Finally, this chapter has discussed the shortcomings, considered and suggested ways BPI should be researched and executed in future, by providing guidelines on the research process. The key findings from the literature analysis suggest two areas to direct the research: the need for a structured methodology, and a systematic and rigorous evaluation. The next chapter will establish the research aim and the methods of carrying out the activities in this research.

Chapter 3

Research Aim and Programme

Chapter 2 has established two areas in which to direct research. There is a gap in understanding the use of a methodology for business process improvement (BPI) and the subsequent evaluation of its effectiveness. This chapter discusses the research aim and objectives. It also includes a description of the research programme, the research methods chosen and reasons for selection. Finally, a conclusion of the chapter is drawn.

3.1 Research Aim and Objectives

The design and improvement of business processes is a constant and dynamic task within business environments. Practitioners are continually being pressurised to review their business processes to quickly respond to changes. The problem is that current methodologies and techniques provide inadequate support for the managers faced with this task, through all stages in the activity of BPI. There is an important need to expand the capability of BPI methodologies to include structured and procedural aspects. This will be a valuable aid to managers and practitioners involved with business process design and improvement.

The aim of this research therefore is *"to develop a practical methodology to support the implementation of business process improvement within organisations; and to evaluate its effectiveness in organisations."* Realising this aim will enhance the application of BPI methodology and provide practitioners with a structure for capability of dealing with business process change initiatives.

There are a number of research issues involved in the fulfilment of the research aim. Therefore, the following research objectives have been defined, to:

1. Review existing literature on BPI methodologies, discuss relevance to methodologies and identify shortfalls.
2. Develop a structured and procedural method for BPI.
3. Seek expert opinions to identify leading industry practice.

4. Rigorously evaluate and refine the methodology through practical application in industry settings.

The research aim and objectives have been set out. The next section proposes the research programme and methods available to execute the research.

3.2 Development of Research Programme and Methods

To realise the above aim and objectives, a strategic research programme was devised to direct the activities of this research in a sequence of stages. First, this section gives an overview of the research programme and the structure. Second, it describes each stage of the research programme, including the research method chosen and the rationale for each stage.

3.2.1 Overview of Research Programme

This research attempts to provide a practical aid in the activity of BPI. This section gives an overview and outlines the structure of the research programme.

There are many ways in which this research could be carried out, but it will be structured according to the need and purpose of the research (Field and Morse, 1991). The research aim and objectives suggested seven stages to achieve the delivery of the research programme. Stages 1 to 3 of the programme will concentrate on the formation of the BPI methodology. These stages will enable the researcher to review the relevant BPI methodologies, form the proposed methodology and identify leading practice from the experts in the field. The focus of stages 4 to 7 will be on the evaluation of the methodology in practice.

The research aim clearly requires a focus on the BPI methodology that will be relevant and rigorous to a wide range of business. The researcher recognised the need to work with companies to ensure its relevance. Case studies and participant intervention are two typical approaches appropriate for this type of research, because they combine research and practice (Yin, 1994; Robson, 1993; Gill and Johnson, 1997; Argyris et al., 1985). This will produce a richness of insight that cannot be gained in other ways (Rowan and Reason, 1981), and a mechanism of building theory from practice. The fact

that this research requires involvement of companies to make it industrially relevant suggests that a survey method will be inappropriate to produce real world experience (Robson, 1993).

The overall research programme is graphically illustrated in Figure 3.1, which also forms the basis for the layout of this thesis and is briefly outlined below. Within each stage, were tactical research methods discussed in the corresponding chapter for each stage. The research programme is briefly outlined below.

The first task will be to review and analyse existing literature on BPI methods, and from this form a pilot approach. This will form the basis of objectives 1 and 2. The next task will be to take the pilot methodology to the appropriate academic and practitioners in the field to seek opinions on leading practice. Following this stage, it will consider evaluating the pilot methodology in a few rather than many companies to test its application, and then use the feedback to refine it for a wider testing across industry sectors. This time to test whether the methodology could be generic and robust. Once validated, the final refinements will be made to enable the wider deployment of the methodology.

3.2.2 Stage 1: Review of BPI Methodologies

The first stage of the research programme intends to review and analyse existing methodologies in business process improvement, in order to establish the strengths and weaknesses. Many different approaches have been advocated in the literature by three communities namely, academics, practitioners and consultants. A review is planned to define the requirements of a BPI methodology, provide an overview of the various methodologies used for undertaking BPI initiatives, analyse them on the basis of their structure, contents and a set of requirements. The outcome of the review should be to identify the most appropriate to provide a good grounding for creating a new approach.

The search for methodologies will be conducted in the area of business process improvement, business process reengineering and management, change management, operations management and total quality management. The review would act as a basis for comparison of theory with practice.

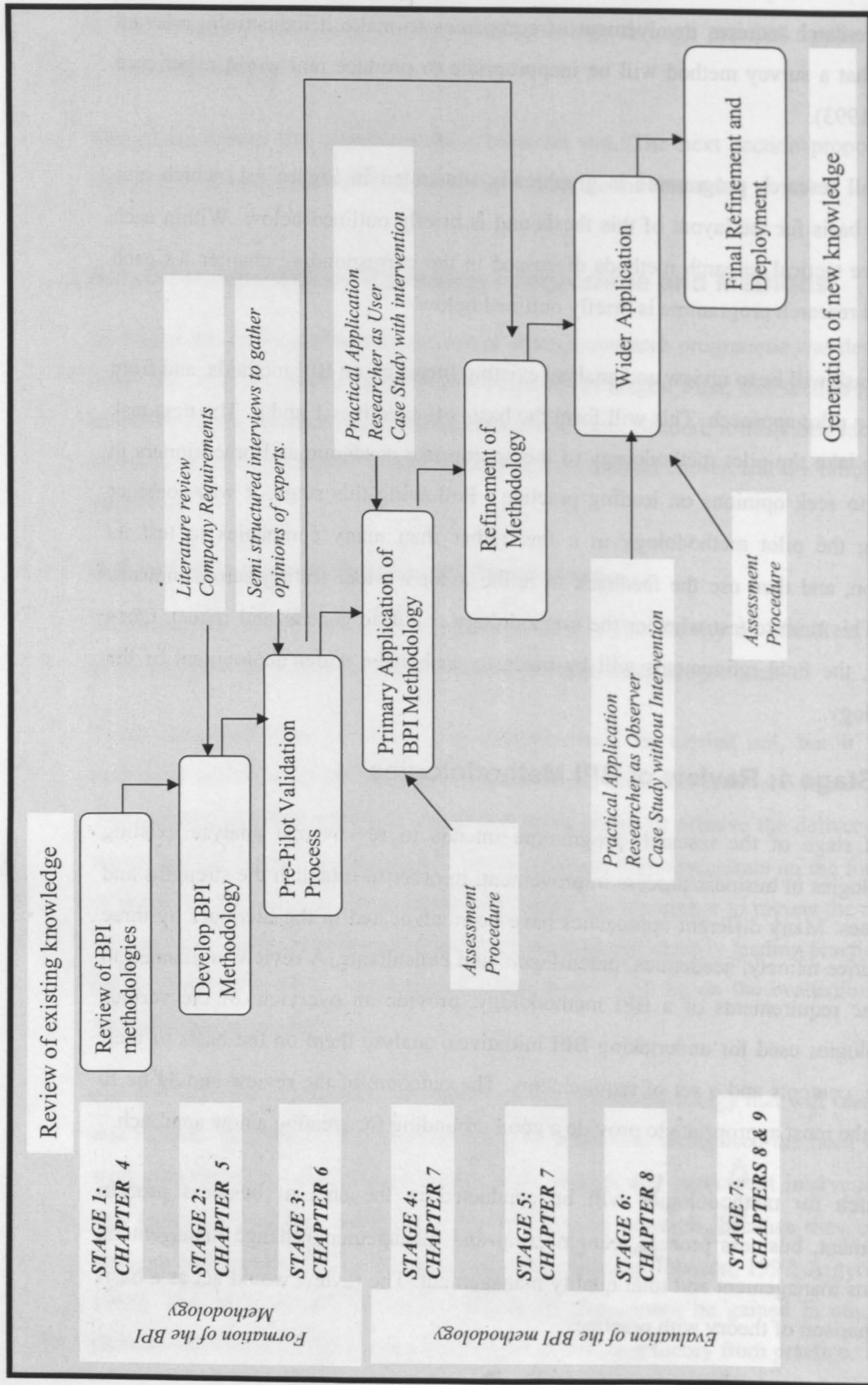


Figure 3.1: An Overview of the Research Programme

The results from this activity stage will be presented in Chapter 4.

3.2.3 Stage 2: Forming the Pilot Methodology for Business Process Improvement

The second stage of the research programme provides the opportunity to establish a view of how business process improvement methodology could be formed in theory. The objective of this stage will be to develop a structured and procedural method to aid the activity of BPI. Once the problem and the objectives have been set out, the stage is realised through a formation process.

To aid the discussion of possible solutions, the formation process first determines the structure, and then the contents of the new approach. Based on the structural framework, the most suitable methodologies and the common phases identified from stage 1 of the research programme will be mapped to generate a basis for the new approach. The contents will incorporate elements required in a BPI methodology, and focus on the activities that have received less attention in the literature in stage 1. The combined structure and content will form the pilot methodology as described in Chapter 5.

3.2.4 Stage 3: Pre-pilot Validation Process

This is the last stage in the formation of the BPI methodology. The objective of the third stage of the research programme is to seek expert opinions to identify leading industry practice. 'Expert' in this context means the academics, consultants and practitioners in the field of business process change and improvement. Opinions will be sought first, by investigating the methods and practices used by the experts, and second, by validating the pilot methodology formed in stage 2.

A number of ways are set to be employed to achieve this stage. A set of companies will be identified in the field of business process management and improvement. Several research methods will be considered such as, postal questionnaire surveys, the Delphi technique, case studies and semi-structured interviews. The strategy will be to employ a semi-structured interview method for guiding and focussing the discussion with key personnel in academic, industry practitioners and consultant firms, who are directly involved in business process change and improvement.

It should be noted that this stage of the research is not intended to produce rigorous studies, but is part of the methodological step in the forming of the BPI methodology. It is expected that this stage should allow the researcher to investigate industry practice, develop ideas, validate the pilot methodology and refine the methodology based upon comments obtained from the study. The study visits should also provide a wealth of information and knowledge about business process improvement and reengineering practices in general. Investigation of the methods, tools and techniques used by the practitioners, academics and consultants should help the researcher to develop further ideas based upon the feedback.

This activity should result in the formation of the BPI methodology. The outcome of this should be to build theory and modify the pilot BPI methodology, which would be used for primary testing at the sponsoring company.

3.2.5 Stage 4: Primary Application through Industrial Evaluation

This is the first part of evaluating the principles of the pilot BPI methodology. The objective of the fourth stage of the research programme is to observe the application of the methodology in practice in order to evaluate whether it is workable, and to determine whether the methodology provides a practical, procedural step in the activity of BPI.

This stage provides the opportunity to apply and test the pilot BPI methodology in the context of a training and development process within a business consultancy unit of a larger government agency. The evaluation plans to assess and explain the results of the intervention.

A case study method with participant intervention (Argyris, 1970) will be chosen as the appropriate research method to achieve relevance and rigour of the research aim. The case study method is good not only at investigating how and why questions, but is also particularly suitable for developing new theory, testing and refining theory (Voss et al. 2002). This case study formed the basis for the primary evaluation of the methodology to determine the relationship between the process used and the outcomes. Detailed information on the conduct of the case study and data collection methods is provided in Chapter 7.

The testing of the methodology will be undertaken by the researcher acting as the user, facilitator, and participant in the case research. As illustrated in Figure 3.2, the intervention in the case study organisation involved the researcher following the methodology to help generate the results and finding. In order to maintain control of the test, some form of assessment and research instruments of the pilot methodology are needed. A very useful research work will be adopted from Platts, (1990), who has provided a set of measures for assessing the success of a process (methodology). These research instruments, assessment criteria and indicators will guide the BPI methodology measurement as discussed in section 7.2.2.

The intervention method used by the researcher to carry out the activity in this primary evaluation may be referred to by some as action research. Although the word action research has not been used specifically in this study, the work done involved participant intervention, which was a form of action-oriented research. Action research is an important approach in management research contributing to existing knowledge and helping to resolve clients' problems (Gill and Johnson, 1997). Action research is described by Coughlan and Coughlan, (2002) as an approach to research that aims both at taking action and creating knowledge or theory about that action. Several authors have defined action research (Susman and Evered, 1978; Argyris et al., 1985; Eden and Huxham, 1996; Gummesson, 2000). Its characteristics have been summarised by Coughlan and Coughlan, (2002) as: research in action, rather than research about action; participative; concurrent with action; and a sequence of events and an approach to problem solving. The outcomes are solutions to the intended problems, intended and unintended learning and contribution to knowledge.

The role adopted by the researcher was that of a 'facilitator' who actively led the change project and applied the workbook methodology at the sponsoring company to the process being studied. One limitation of this type of involvement was that the testing was considered to be too person dependent resulting in lack of impartiality on the part of the researcher.

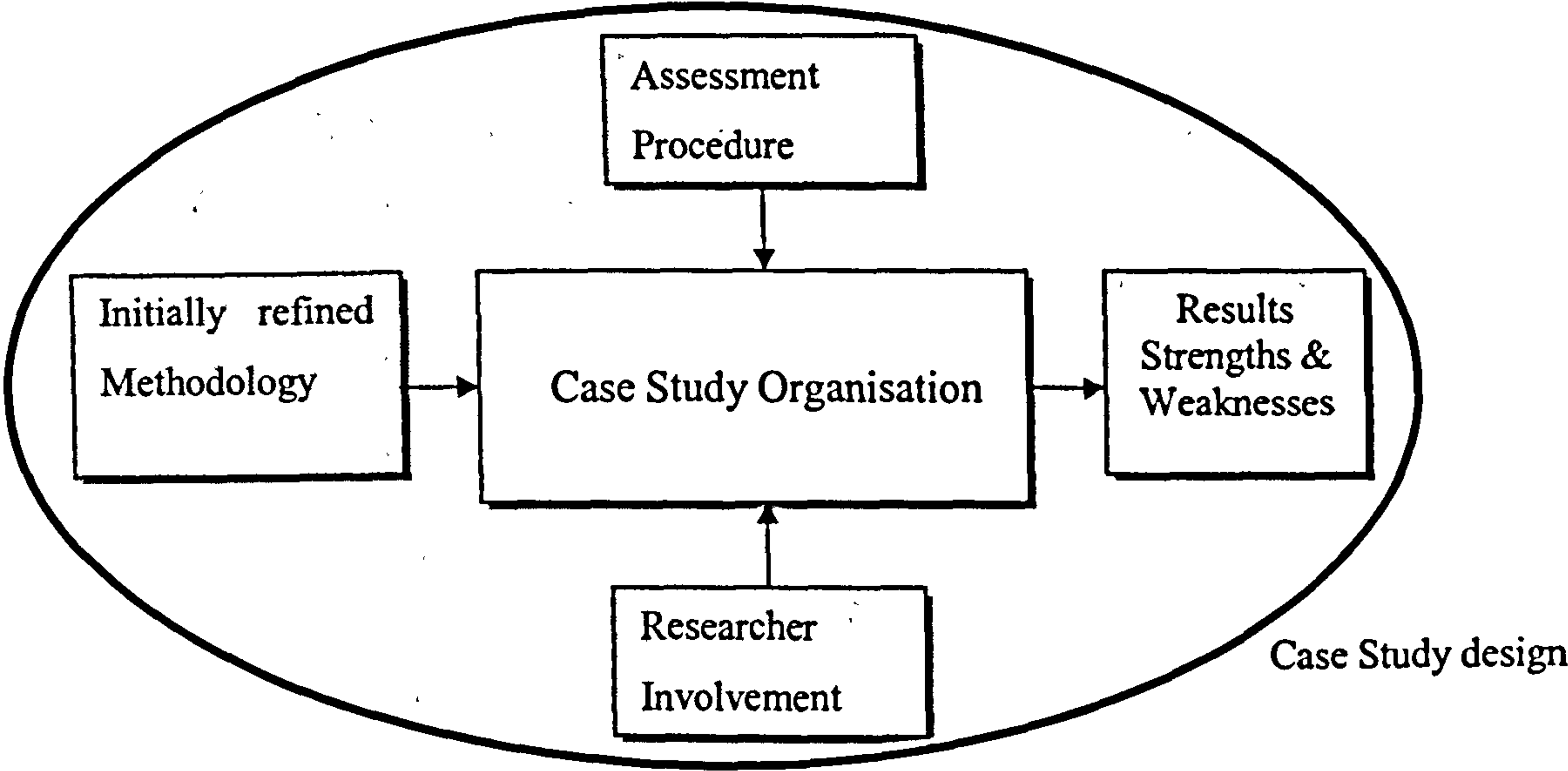


Figure 3.2: Top Level Evaluation Mechanism

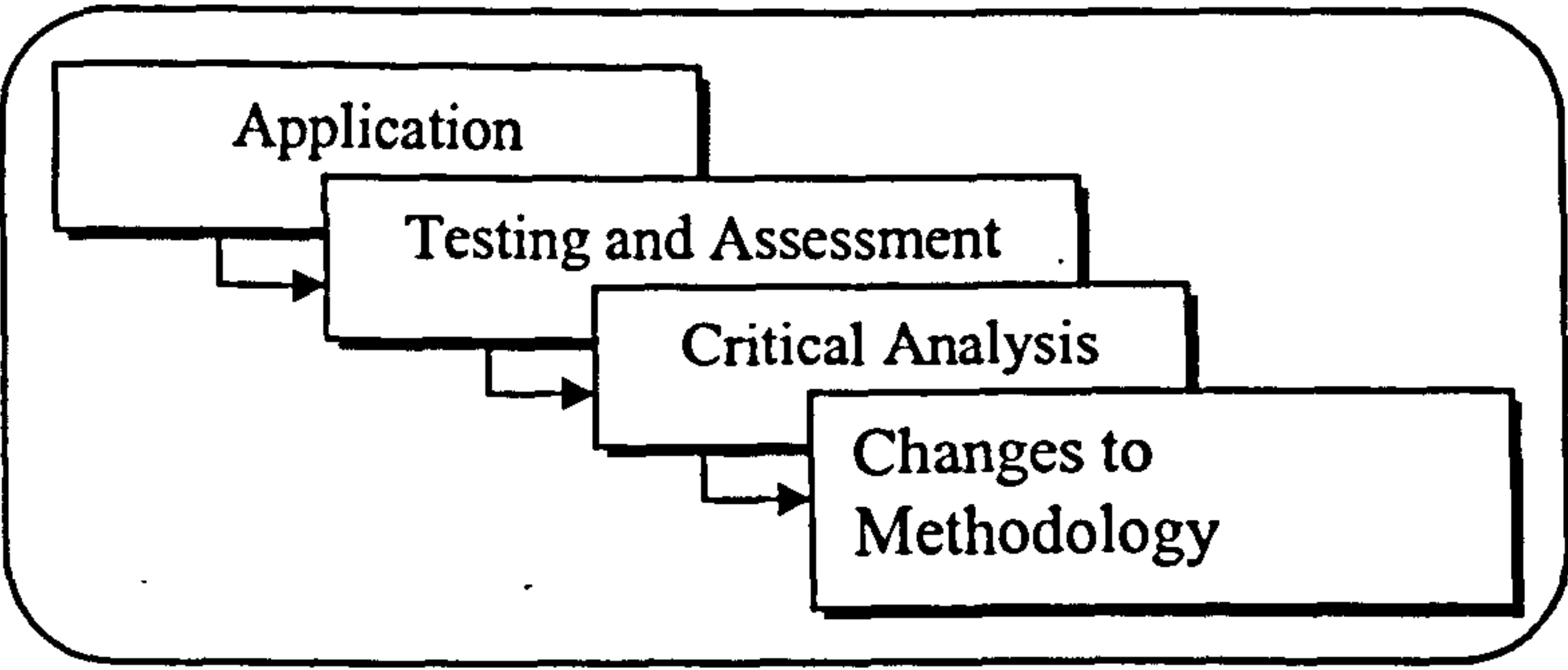


Figure 3.3: Methodology Refinement Process

3.2.6 Stage 5: Refinement of the Pilot Methodology

This is the fifth stage of the research programme. The purpose of this stage will be to use the feedback data gathered from the primary test to identify, refine and improve the pilot BPI methodology. The refinement process, as illustrated in Figure 3.3, reviews the changes suggested by the participating company. It will also review the research assessment procedure employed to evaluate the methodology, and whether it helps to generate the results. Suggestions for improvement will be used to modify the workbook methodology. This part of refinement is discussed in section 7.8.

The formation process for the refined BPI methodology and the structure are presented in Chapter 9. The resulting workbook methodology will be used for the wider application in Stage 6 of the research programme.

3.2.7 Stage 6: Wider Application of the Methodology

This is the second part of testing the BPI methodology in practice. In the primary evaluation stage, the testing will be conducted by the researcher being intimately involved in the development of the methodology, and acting as an external facilitator. According to Platts et al., (1998), this poses the danger that the facilitator achieves success by means of process consultancy skills. Drawing upon Platts' suggestions, the researcher felt a second test phase will be appropriate with the purpose of testing the methodology more widely using facilitators who were new to the workbook methodology; this way, the effect of assumed consultancy skills would be minimised.

The primary goal of this wider application stage is set to determine whether the BPI methodology could be generic and robust. At this stage, facilitators who are employees of the companies will be allowed to use the methodology closely to reflect the long-term aim of the research, namely to allow the methodology to be used independently of the author and to encourage use by managers. This confirms Platts', (1993) statement in his discussion of testing the manufacturing strategy audit:

"there is always a worry that the testing of the strategy process might be too person-dependent. One way around this is to carry out some case studies using different facilitators. Ideally facilitators should have little previous experience so that they

would rely on, and work within, the process (methodology) and not make intuitive leaps to solutions."

The participating companies will have to be selected by satisfying certain entry requirements, and the research may need to choose an appropriate data collection method. Once companies are selected, the case project team will be given a one to two days' training session in the use of the methodology, and be supplied with the comprehensive workbook methodology. A case study without participant intervention method will be adopted for this part of the research programme. The researcher expects to act as an observer-as-participant to the case projects and observe what goes on using different research instruments namely: questionnaire, diaries of meetings, telephone conversation, electronic mails and semi-structured interviews with the facilitator and participants of the projects. It is planned that each company will facilitate the methodology in their own organisation.

The results found in each company will be compared and subsequent cross-case analysis made with the primary evaluation. It is expected that this stage of testing will confirm the primary testing, and also result in a number of changes to the methodology to make it usable and useful for a much wider audience. This stage of testing is discussed in Chapter 8.

3.2.8 Stage 7: Final Refinement and Deployment

This will be the last time to find out whether the participating companies find the methodology useful, usable and feasible in their environments. The intention is to collate all the suggested changes from within and across the case studies, identify areas that need changing, refine and improve the methodology to make it easier to use for deployment to other interested companies. The final refinement will consider any reviews relating to the assessment procedure to determine their effectiveness in collecting measurement data as discussed in section 8.8. The final methodology and its structure will be documented in Chapter 9.

The discussion of stages 4 to 7 mark the completion of the second stream of the research aim, namely evaluating the effectiveness of the methodology in practice. The outcome of these stages will be a fully tested and refined BPI methodology.

3.3 Chapter Summary

This chapter has set out the research problem, and then proposed a solution to assist practitioners involved in the activity of BPI. This was followed by establishing the research aim and objectives for the thesis. The chapter then considered the overall research programme adopted to deliver the research work.

A seven-stage research programme had been proposed that would satisfy the academic rigour and industry relevance. Stages 1 to 3 have been planned to enable the researcher to review the relevant literature, discuss its relevance and identify gaps, with the aim of forming the pilot methodology for business process improvement. This will be followed by seeking leading practice from the experts through the pre-pilot validation process. Stages 4 to 7 will further enable the researcher to evaluate the proposed methodology in the real world problems through application. The overall study will employ case study method and intervention method to guide the research.

In the next chapter, Stage 1 of the research programme, namely the review of methodologies for business process improvement, is presented.

Chapter 4

Review of Methodologies for Business Process Improvement

In Chapter 3 the research aim, objectives and programme have been set out. The aim of this research is to develop a practical methodology to support the activity of BPI. This chapter deals with the first stage of realising this goal, by reviewing existing methodologies of Business Process Improvement. The chapter first presents the objective and method of this stage of research in section 4.1, followed by defining the requirements of a BPI methodology in section 4.2. An overview of the various methodologies used for undertaking BPI initiatives is then provided in section 4.3. These methodologies are then analysed on the basis of their structure, content and requirements in section 4.4 to determine their strengths and weaknesses. Finally, the limitations and gaps from the review are summarised in section 4.5.

4.1 Stage 1 Objective and Method

The objective of this stage of research is to establish the strengths and weaknesses of the existing methodologies. The first step in realising this objective is to establish comprehensively the capabilities of existing methodologies.

Many BPI methodologies can be found by searching through the literature. This topic covers the areas of; business process reengineering and improvement; process management; change management; total quality management; benchmarking and operations management. Suitable sources include journals, conference proceedings and published books on methods, tools and techniques employed.

To understand the methodologies proposed in the literature, three communities can be identified, namely, the academics, practitioners and consultants. The academic-based methods may be based on empirical research and experience gained in the field. The practitioners-based approaches may be developed primarily within the organisation, typically through previous experiences. Consultant-based methodologies may be

derived from personal opinion and judgement, experience in providing consultancy to organisations.

Defining the requirements of a BPI methodology is more difficult. There are a number of ways that can be used to establish the requirements; this could be done by collecting user requirements from the industry or from the literature. To provide a generic methodology, the most appropriate way is to explore the literature to see what has been discussed in this area. Given the limited research in the business process field, the researcher also investigates research in the information systems discipline, to extract information on requirements for a methodology for systems development. The combined requirements from the two fields are then used for defining the elements required of a BPI methodology.

There are therefore four parts to this stage of research. Firstly to define the requirements of a BPI methodology, secondly to provide an overview of existing methodologies, thirdly to analyse these methodologies against the structure, content and set of requirements in order to determine the strengths and weaknesses, and finally to summarise the gaps. A graphical illustration of the process is shown in Figure 4.1.

This section has set out how the first stage of the research programme is to be carried out. At the end of this part of the research, the strengths and weaknesses of the existing methodologies and the process of selecting appropriate methodologies against the requirements will be established. This chapter sets out to execute this structure in the sections below.

4.2 Defining the requirements of a BPI Methodology

In order to review existing BPI methodologies, it is necessary to understand what the methodologies are expected to do. An organisation thinking of adopting a BPI methodology has a number of considerations about what should be included in the methodology. This section sets out to define the requirements of a BPI methodology.

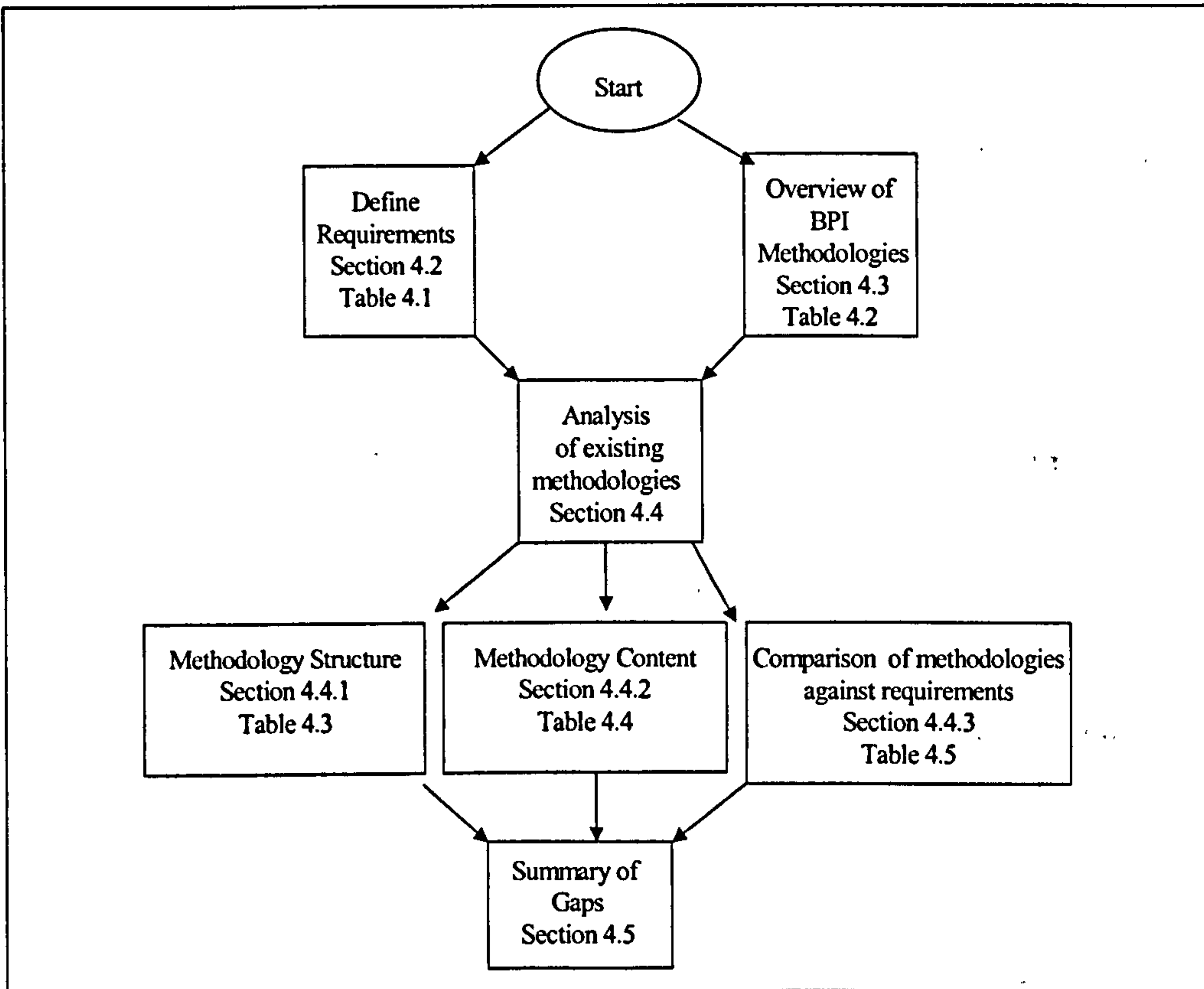


Figure 4.1: Method for reviewing existing methodologies for BPI

The term 'methodology' in this context is taken from Jayaratna, (1994) who describes a methodology as the steps to take, how to perform those steps, but most importantly why those steps should be taken. This description suggests that a BPI methodology should describe what steps to take, explain how each step should be performed and justify why each step is taken. This indicates that a structured approach to problem solving is required. A BPI methodology should therefore specify requirements to realise this structured approach.

There is limited research in the business process field on the requirements definition of a BPI methodology. Maniace, (1995) suggested the following basic requirements in a good BPI methodology.

1. Robustness and flexibility: A methodology should be robust and flexible enough to support the design, development and delivery of change.
2. Ease of use and understanding: A methodology should be easy to use and understand (use of standard procedure to guide users), with the clear potential for knowledge transfer to the client.
3. Step-by-step and modular: A good methodology should follow a step-by-step approach, modular and be facilitated through excellent documentation and supports roles and responsibilities.
4. Project Management: The methodology should provide project management, change process, group dynamics, analysis and design techniques.

Maniace's view is supported by Childe et al., (1994). In addition to robustness the authors emphasise that BPI methodology should be repeatable. In his study of methodologies for business improvement, McAdam, (1996) suggested that a BPI methodology should incorporate the following design requirements, namely, be generic, simple to use and follow, reflect best practice and be flexible.

In order to broaden the scope of requirements, the researcher investigates work in the area of information systems to extract alternative requirements of a methodology for systems development (Avison and Fitzgerald, 1988). Avison and Fitzgerald, (1988) provided a useful nine framework for comparing methodologies. The framework consists of objective, target, conceptual basis, scope, structure, tools and techniques,

participants, outputs and delivery mechanism. This framework has been adapted in defining the elements required of a BPI methodology.

The combination of the specific and general requirements are illustrated in Table 4.1. The first column lists the requirements, the second column describes them, and the third column groups each requirement into one of six key performance indicators. Group A for structured, B for generic, C for simplicity, D for flexibility, E for Model-based and F for Industry relevance. The importance of this is that the grouping is later used to compare the BPI methodologies against the requirements defined (section 4.5) in order to determine the appropriate methods to form the basis of the new approach.

The section has a defined set of requirements. The results reveal that a BPI methodology should be structured to guide its users, not only in terms of the steps to be undertaken, but also in terms of how the BPI project should be managed. Finally, a BPI methodology should be flexible and model-based. These requirements will form the basis for formulating a new methodology in the next chapter.

4.3 Overview of BPI Methodologies

This section presents an overview of nineteen BPI methodologies proposed under the BPI umbrella as presented in Table 4.2. These methodologies are split into academic, practitioner and consultant communities. These methods are described by reference to whether they fall within the following seven perspectives: organisation and methods; soft systems methodology; generic model; socio-technical; generic reengineering; contemporary; and proprietary methodologies. A brief description of these methodologies and their relations to the communities is as follows:

1. *Organisation and Methods (O&M) Approach* – This belongs to the academic community, and was developed by Anderson, (1973) and Webster, (1973) based on ‘human factors’ of work rather than the mechanistic approach. The primary focus of the improvement is based on processes and workflows within a department rather than the entire business. O&M made no attempt to acquire external knowledge of best practice. A six-stage baseline process improvement method proposed by Webster, (1973) is shown in Table 4.2.

Table 4.1: Requirements of a BPI Methodology

Requirements	Summary of requirement and relevance to the study	KPI*
Use of structured approach	Guidelines are provided in a step by step manner which assists the users to redesign and improve the processes	A
Break process into well-defined phases and steps	This structure can make it clearer to the user and facilitator of what is expected within this area of the application. This helps to structure the whole methodology from beginning to end.	A
Use project planning	The methodology used show how the different steps are affected by time	A
Break down to show level of detail.	This enables the user to show the process steps at different levels to different participants	A
Excellent documentation	The methodology should provide reference materials	A
Generic	Be widely applicable across industry sectors, giving it reputation and validity.	B
Robust	Here the methodology should be capable of use in all business improvement scenarios, be effective and efficient	A
Repeatable	Good for future reuse	D
Simple to use and follow	This helps the users to make progress in a cost effective manner	C
Reflect best practice in BPI	Good for benchmarking and users can see the quality in the methodology	F
Relevance to industry	This is a tool that large and small companies can use to accelerate their BPI implementation.	F
Flexible	The methodology should be flexible such that users can move freely within steps.	D
Integrate with process analysis and modelling techniques	Simple modelling and mapping techniques can be used to represent the process graphically. This should be presented in a practical easy to follow manner.	E
Modelling tool independent	Methodology should be independent of any prescribed modelling software	E
Objectives	This is defined as the intended outcome which would result from the application of the methodology (Smart et al. 1998). Additional objectives may result from the actual participation in the methodology.	A
Target	This is the area where the methodology is specifically designed to be applicable. This could be a type of problem, type or size of organisation or general purpose.	F

Cont. Table 4.1: Requirements of a BPI Methodology

Conceptual Model	This is the conceptual model used in the methodology. The conceptual model that forms the basis of the methodology is the business process.	E
Scope	This indicates the stages of the life cycle of BPI project which the methodology covers and should analyse the level of detail addressed. Scope may be interpreted in three ways: scope of the methodology, scope of application and scope of change. Scope of change relates to the improvements which are required from the BPI projects, these may be radical (Hammer and Champy, 1993) or incremental (Davenport, 1993; Harrington, 1991).	A
Structure	The ability to specify a step by step systematic structure, which dictates the order that participants encounter each step of the methodology.	A
Tools and Techniques	Ability to identify an appropriate set of hard and soft techniques to facilitate the improvement and redesign of business processes.	E
Participants	Describes the intended participants in the methodology, their roles and skill level.	D
Outputs	Describes what is actually produced in terms of deliverables from the methodology.	D
Delivery Mechanism	This is the medium used to present and disseminate the methodology to the intended target, for example workbook, consultant facilitation.	D

*KPI = Key Performance Indicators

A=Structured; B= Generic; C=Simplicity; D=Flexibility; E=Model-based; F=Industry relevance

2. *Soft System Methodology (SSM)* – This problem solving approach was pioneered at the University of Lancaster by Checkland, (1981). He proposed a seven-stage process and recognised that hard approaches are not always suitable, and that taking the ‘human activity system’ in problem solving can yield better results. Both SSM and Socio-Technical approaches have influenced the Wastell et al., (1994) methodology.

3. *Generic Model* – This is an academic model that adopts business process management as opposed to business process reengineering. The generic model encompasses general methods for the study and improvement of business processes. An eight stage generic model was developed by Elzinga et al., (1995) based on two national surveys about business process management practices in the USA. The author found that 72 of the ‘Fortune 500’ companies that responded to the survey shared some common process improvement practices.

4. *Socio-Technical Approaches* - A number of academics developed methodologies based on socio-technical philosophy. The Wastell et al., (1994) four-stage methodology focuses on analysis and design once a process or general business area has been identified. Kettinger et al., (1997) developed a comprehensive stage-activity (S-A) framework consisting of six-stages, each stage containing a number of activities. This framework is valuable in viewing a BPI project as a set of integrated and co-ordinated tasks to change organisational systems through business process change (Al-Mashari and Zairi, 2000). Within the practitioners’ community, Manganelli and Klein (1994) adopted a five-stage Rapid Re-methodology for reengineering using the socio-technical approach.

5. *Generic Reengineering Methodologies* – Motivated by the need for a common framework to achieve process change, several academics have adopted this perspective to develop their own methodologies. Authors include Smart et al., (1996) who identified five-stages of BPR methodology for smaller manufacturing companies. Johansson et al., (1993); Harrison and Pratt, (1993) and Furey, (1993) advocate structured methods that provide plans to deal with various activities in the BPI project. Within the generic methodologies, Kettinger et al., (1997) developed a comprehensive stage-activity framework consisting of six stages, each stage containing a number of activities

necessary for achieving large-scale organisational change. The authors produced a hierarchical map which relates techniques to BPR project stages and activities, and tools to techniques. The stages of their framework are shown below to provide an integrated and co-ordinated task to process change.

- i. Envision stage - BPI opportunities are identified and management support is secured.
- ii. Initiation stage - BPI team is organised and performance goals are set.
- iii. Diagnosis stage - elements of the existing processes are identified.
- iv. Redesign stage - alternatives are evaluated and the new process is planned and prototyped.
- v. Reconstruction stage installs the new system and process.
- vi. Monitor stage - performance is measured and linked to continuous improvement programmes.

6. *Contemporary* – This belongs to the practitioners' community. For instance, authors like Davenport and Short (1990) process innovation six-phases, Hammer and Champy (1993) four-phase reengineering methodology and Harrington, (1991) BPI five-stage methodology, provide key driving forces behind business process change and improvement. A well-structured approach with a good use of metrics for improving business processes is provided by Harrington, (1991). He demonstrates the importance of the preparation stages and benchmarking. The methodologies provided by these contemporary authors are examples of established process change approaches.

7. *Proprietary* – Grover and Malhotra, (1997) observed that most improvement methodologies are proprietary methodologies of large consulting firms (e.g. Accenture, CSC Index, McKinsey etc). A number of major consulting firms have their own particular approaches as some other organisations. Firms such as Coopers and Lybrand (1993) propose two methodologies: Sparks (four-steps) and Breakpoint Strategies (three-phase process); McKinsey & Co and Gateway all provided proprietary approaches. These approaches were selected to provide the views of the consultants and to provide a comparison between theory and practice.

An overview of the various methodologies and the stages has been discussed. The methodologies have been categorised into three main communities. It is observed that seven perspectives influenced the different stages of methodologies, each having a relationship with the three communities. These methodologies are analysed below in terms of their structure, contents and requirements.

4.4 Analysis of existing BPI Methodologies

A detailed analysis of the current methodologies proposed under the BPI umbrella is provided in this section. The analysis of the methodology structure is first discussed, this is followed by analysing the methodology contents in terms of the level of activities considered, and finally, a comparison of methodologies against the set of requirements.

4.4.1 BPI Methodology Structure

In the previous section, the different stages of BPI methodologies were discussed. Table 4.2 highlighted three BPI communities, methodologies and stages covered in the literature. The objective of this section is to draw out some common characteristics and differences from the structure of the methodologies.

In terms of the similarities of the stages covered, many BPI methodologies fall within the structured approach. Within the academic and practitioner communities, Checkland, (1981) and Hammer and Champy, (1993) are the two well-known methodologies that adopt unstructured/intuitive approaches. All the methodologies highlight the critical phases involved in BPI initiative. These include team formation, preparation and planning, process understanding, problem solving and goal setting, process redesign and implementation and monitoring performance (Grover and Malhotra, 1997; Choi and Chan, 1997; Lee and Chuah, 1999).

Whilst practitioners' methodologies are conceptual in approach and without any kind of methodological rigour, Motwani et al., (1998) remind us that their contributions to the field must not be dismissed because they speak from field experience. The approach by Davenport and Short (1990) is heavily design-oriented and gives little advice on how to implement the designed and prototyped process in the organisation. Even though the

Table 4.2: Methodologies Stages

Communities	Methodologies	Stages
Academic	<i>Generic Reengineering Methodology</i> Furey (1993)	Identify the process's customer driven objectives Map and measure existing processes Analyse and modify existing processes Benchmark for innovative proven alternatives Reengineer the processes Roll out the new processes
	<i>Generic Reengineering Methodology</i> Harrison and Pratt (1993)	Set Direction Baseline and Benchmark Create vision for future processes Launch problem solving projects Design improvement Implement change Embed continuous improvement
	<i>Generic Reengineering Methodology</i> Kettinger et al. (1997)	Envision Initiate Diagnose Redesign Reconstruct Evaluate
	<i>Generic Reengineering Methodology</i> Preece and Peppard (1996)	Problem structuring and definition Process analysis, diagnosis and redesign Implementation
	<i>Generic Reengineering Methodology</i> Johannson et al. (1993)	Discover Redesign Realise
	<i>Soft system methodology and Socio Technical</i> Wastell et al. (1994)	Process Definition Process Capture & representation Process Evaluation Target process design
	<i>Generic Reengineering Methodology</i> Smart et al. (1996)	Develop strategy for change Identify process Analyse process Redesign process Implement new process
	<i>Generic Business Process Management (BPM)</i> Elzinga et al. (1995)	Prepare for Business Process Management Process Selection Process Description Process Quantification Process Improvement Selection Implementation Continuous Improvement Cycle Benchmarking
	<i>Soft system methodology</i> Checkland (1981)	Real world unstructured problems Real world structured problem into issues Develop root definition Develop conceptual model Compare real and ideal worlds Identify feasible desirable changes Action to improve the problem situation

Contd Table 4.2: Continued: Methodologies Stages

Academic	O&M Webster (1973)	Determine the purpose and scope of the study Obtain facts relating to the existing situation Study the data and form conclusions Formulate proposals Obtain approvals Implement proposals
Practitioners	<i>Contemporary</i> Harrington (1991)	Organise for improvement Understand the process characteristics Streamline the process Measurement, Control & Feedback Continuous Improvement
	<i>Contemporary</i> Hammer and Champy (1993)	Mobilisation Focusing Redesign Implementation
	<i>Contemporary</i> Davenport and Short (1990)	Develop business vision & process objectives Identify process in need of redesign Understand and measure existing Process Identify IT capabilities Prototype new process design
Consultants	Socio Technical Klein (1994) Rapid Re	Preparation - organise team Identification - develop customer oriented process model Vision - select process to improve and design redesign opportunities Solution - define requirements of new process (technical and social design) Transformation - implement new process plan
	<i>Proprietary</i> Coopers & Lybrand (1993) SPARKS BreakPoint Strategies	Specify what the process currently is Validate the model of the current process & identify its strength and weaknesses Test alternative design and select the best option Implement the process Discover Redesign Realise
	Texas Instruments Ruessmann et al, 1994	Initiation and preparation [Customer Engagement] Understanding and diagnosis [Process Understanding] Redesign [New Process Design] Implementation [Process Change]
	McKinsey & Co (Kaplan and Murdoch, 1990)	Identifying processes Defining performance requirements Pinpoint problems Developing a vision Making it Happen
	Gateway-Rapid Re Methodology Manganelli and Klein	Same as in Klein (1994)

methodologies suggested by academia are detailed, the main criticism against the conceptual methods is that there has been little effort to use existing theory to develop a comprehensive integrated model on BPR (Motwani et al., 1998).

Within the consulting community, Archer and Bowker, (1995) discovered that whilst all consulting firms agreed that there cannot be a single methodology for BPI because of varied requirements, needs and culture, there exist many similar stages in the methods. The stages employed in consultancy approaches to BPI are shown in Table 4.3. The Table highlights the three most popular stages, which have the highest number of occurrences, and contains the three least popular stages.

The general observation is that there are five similar stages in every methodology. These stages can be categorised into the following five phases:

- (1) Initiation – The purpose is to understand the business.
- (2) Diagnosis – is about detailed analysis of the business process.
- (3) Design – is one of the three synthesis tasks essentially involved with designing the new processes. This is an iterative process that combines (4) and (5).
- (4) Implementing new process – is a process of implementing the new processes.
- (5) Process Management – this is about evaluating the new processes for the continuous improvement culture.

Despite the similarities, opinions differ on the order in which the various stages should be undertaken depending on the orientation towards process change (Grover and Malhotra, 1997). Among practitioners, some believe alternative options should not be recommended until the current processes have been documented and understood. These methodologies do not suggest ignoring the existence of the present states, but focus on redesigning existing processes (Davenport and Short, 1990; Klein, 1994 etc). Others argue passionately that examining the current operation can constrain people and their thinking. They advocate a radical approach, ignoring the present processes until creative thinking has led to the new process design (Coulson-Thomas, 1994).

The following differences from Table 4.2 are observed. The number of stages involved in BPI methodologies varies depending on the philosophy of the developers. Some

Table 4.3: Stages employed in consultancy approaches to BPI
(adapted from Archer and Bowker, 1995)

Name of Stage	Number of occurrences
Vision creation	7
Initiation/preparation	9
Process understanding/investigation analysis	19
Process redesign/design	23
Implement/transition/transformation/migration	27
Continuous improvement	8
Benchmark	6
Review/decide	4
Plan	4
Customer requirements	4

methodologies focus on the link between strategic goals of the organisation and process redesign, others focus on operational goals. Some methodologies are not explicit enough about the evaluation stage. The order in which process steps should be undertaken varies and emphasis on Information Technology (IT) differs depending on the motivation for change.

An attempt has been made in this section to draw out some essential common characteristics and differences in the way the methodologies are structured. The outcome of this analysis is the identification of the five similar phases prevalent in all methodologies. What is common amongst them is that they share the same objective and focus. In the next section, a detailed analysis of the BPI methodology contents is examined to evaluate the level of consideration given to activities contained in the stages.

4.4.2 BPI Methodology Content

The previous section analysed the structure of the BPI methodologies. This section examines the content in relation to the activities contained in the stages.

A major problem with many published methodologies is that they do not provide clear framework in which all stages are situated. For the purpose of evaluation, seventeen methods were selected from Table 4.2. The missing two represent other methodologies by consultants. These methods have been selected because they exhibit common characteristics and have received wide spread popularity in the business process field.

As Table 4.4 illustrates, the five common phases (section 4.4.1) have been decomposed into stages and activities. The activities are derived from a closer investigation of the methodologies. In each stage, activities are compared against four qualitative criteria. Each activity is determined according to the level of qualitative consideration provided by each methodology, by applying a rating scale of 1 to 4, where (1) no consideration, (2) less consideration, (3) more consideration, (4) full consideration. The measurement is interpreted by the number of occurrences of each level of qualitative consideration to each activity by each methodology. Where a given rating scale is allocated many times

in each activity, this suggests that methodologies provide more or full consideration for that given activity, as illustrated by examples from the Table below.

In the initiation stage, more consideration is given to strategies and goal setting, commitment and sponsorship, customer requirement definition and benchmarking. None of the methodologies specifically address risks related to BPI methodology.

In the planning and project management stage, the issues of resource planning, control, monitoring and project team received more consideration from all the authors. In the analysis stage, most methods investigated considered process definition and analysis more than the modelling activity. Most methodologies gave less consideration to assessment of the new processes post implementation. Similarly, a number of methodologies studied do not include a continuous improvement step as part of the BPI process.

This section has analysed the content contained in the BPI methodologies. In the next section, further comparison of these methodologies against the requirements will be considered.

4.4.3 Comparison of BPI Methodologies against Requirements

The purpose of this section is to compare the different methodologies against the six key performance indicators (KPI) used to group the requirements in Table 4.1. The objective is to measure their level of performance.

These six key performance indicators help to determine whether the methodologies are structured, generic, simple, flexible, model-based and industry relevant. As Table 4.5 illustrates, each of the six KPI has been analysed according to whether a given BPI methodology meets the criteria on a rating scale of 1 to 4. Scale 1 means no support, 2 for less support, 3 for more support and 4 for full support. As Table 4.5 shows, many of the published methods exhibit less support for the simplicity. Only a few of the published methods actually give full support to all the KPIs. The methods provided by the consultants indicate that they are not so flexible and simple to use, suggesting that

Table 4.4: Methodologies and Level of Detail

PHASES	STAGES	ACTIVITIES	Davenport & Short	Hammer & Champy	Harrington	Kettinger et al	Klein	Checkland	Furey	Harrison & Pratt	Elzinga	Webster	Wastell et al	Johannson et al	Preece and Peppard	Smart et al	Kaplan and Murdoch	Maganelli & Klein	Coopers & Lybrand
Initiation	Initiation	Strategies and goal setting	3	3	3	4	4	1	3	3	3	2	2	3	2	4	4	4	4
		Commitment and Sponsorship	3	3	3	4	3	3	3	3	3	3	3	3	3	3	4	4	4
		Customer Requirements Definition	3	3	3	4	4	3	3	3	3	2	3	4	3	3	4	4	4
		Benchmarking	3	3	3	3	4	3	3	3	3	2	2	4	3	3	3	3	3
		Risk Management	2	2	2	2	2	2	2	2	1	1	1	3	2	2	3	3	3
Diagnosis	Planning & Project Management	Resource Planning	3	3	4	4	4	2	2	2	3	2	3	3	1	4	4	3	3
		Control & Monitoring	3	3	4	4	4	1	3	3	3	1	3	2	1	4	3	3	2
		Project Team	3	3	4	4	3	3	3	3	3	2	3	4	2	4	4	4	4
		Process Definition, Analysis & techniques	3	3	3	4	4	4	3	3	3	3	4	3	4	4	4	3	3
		Modelling	2	2	2	3	3	4	3	2	2	2	4	2	2	4	2	2	2
Design	Redesign	Process Measurements	3	3	4	4	3	2	3	3	3	2	3	3	3	4	4	2	3
		Design To Be	3	3	4	4	4	3	3	3	3	2	4	4	4	4	3	4	4
		IT capabilities	3	3	2	4	3	2	2	2	2	2	2	4	3	4	3	4	4
		Implementation	3	3	2	4	4	3	3	3	3	3	2	4	4	4	4	4	4
		Change Management	3	3	3	4	3	3	2	3	3	3	3	3	3	4	4	4	3
Process Management	Evaluation	Methodology Evaluation	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1
		Process Assessment	2	2	2	2	2	1	3	2	2	1	4	2	2	3	3	2	2
		Establish Continuous Improvement	1	1	4	3	1	1	1	3	3	1	1	2	1	1	1	2	2

1= No consideration 2 = Less consideration 3 = More consideration 4 = Full consideration

companies would require additional training. This confirms the point that consultants are sales professionals.

From the analysis, four methodologies (shaded), appear to satisfy the requirements based on the stages and activities covered. These methodologies are: Harrington, (1991), Kettinger et al. (1997), Klein, (1994), and Smart et al. (1996). The methodologies have scored the highest points in the group and appeared to have given more and full support to making their methodologies structured, generic, simple, flexible, model-based and industrially relevant.

Neither of these four methodologies has however scored the maximum 24 points. This may be attributed to a number of factors. Despite the fact that these four approaches claim to be structured, flexible, simple etc, there is still room for improvement to make the BPI methodology more practical and procedural. This will assist practitioners in their decision process on what to do and how to carry out a BPI activity successfully inside an organisation. The other methodologies are less explicit tending to focus on high level issues and lack detailed information for application. This is the area that this research attempts to fill.

The analysis of the BPI methodologies has drawn out some strengths and weaknesses from the structure, contents and requirements that will be useful in the next stage of the research programme. The limitations and gaps identified through the review of BPI methodologies are summarised in the next section.

4.5 Gaps in existing BPI methodologies

In section 4.4 the BPI methodologies were analysed based on their structure, contents and requirements. The purpose of this section is to highlight the gaps identified during the review of BPI methodologies.

In terms of risks specific to BPI methodology, most methodologies have failed to identify the risk factor, they tend to focus more on evaluating BPI project risk. Failure to identify risk of the methodology may impact upon the overall success.

Table 4.5: Comparison of BPI methodologies against requirements

Methodology	Requirements	Structured	Generic	Simplicity	Flexibility	Model Based	Industry Relevance	Total	Ranking
Davenport and Short (1990)		3	4	2	3	1	4	17	9
Hammer and Champy (1993)		1	4	1	3	1	3	13	16
Harrington (1993)		4	4	4	3	3	3	21	2
Kettinger et al., (1997)		4	4	3	3	4	4	22	1
Klein (1994)		4	4	3	3	3	3	20	4
Checkland, (1981) SSM		2	3	2	3	3	4	17	8
Furey (1993)		2	3	2	2	2	3	14	14
Harrison and Pratt (1993)		2	3	3	2	2	3	15	13
Elzinga (1995)		2	2	2	2	2	4	14	14
Webster (1973) O & M		2	2	2	2	2	3	13	16
Wastell et al (1994) SSM and Socio Technical		2	2	2	3	4	3	16	9
Johannson et al. (1993)		3	3	3	3	2	2	16	9
Preece and Peppard (1996)		3	3	3	2	2	3	16	9
Smart et al. (1996)		4	3	3	3	4	4	21	2
Kaplan and Murdoch (1990)		3	3	2	2	3	4	17	8
McKinsey & Co									
Maganelli & Klein (1994) Gateway Rapid Re		3	3	2	2	3	4	17	8
Coopers & Lybrand (1993) – BreakPoint Strategies		3	3	2	2	3	4	17	8

Rating scale: 1 =No support; 2 =Less support; 3 =More support; 4 =Full support

The analysis shows that current process definition and modelling techniques tend to be covered rather superficially by most methodologies; however, there is room for improvement to provide practical use of process definition and modelling techniques.

It is observed that only few methodologies extend beyond the implementation phase. For example, many authors do not consider continuous improvement as part of their BPI methodology. A striking result shows that the evaluation stage is not being taken seriously. This is reflected on the methodology assessment where most methods studied had not considered evaluating the methods used for BPI project, to measure the benefits to the organisation. Few authors that addressed evaluation only focus on partial evaluation (Childe et al. 2001; Vakola and Reizui, 2000b).

It is assumed that, whilst the overall approach to the BPI project follows a generic methodology, the actual stages differ at the detailed level in each case. There is therefore a conflict between provision of a generic methodology that is widely applicable to a variety of business process problems and the need to provide detailed and task specific information to assist the business process engineers to plan and customise the BPI process.

A number of methodologies discuss their respective methods at a relatively high level, and hence provide little guidance with respect to application of these stages and activities. Many methodologies do not pay enough attention to the roles and responsibilities of the users that carry out the BPI activities and many do not recognise the importance of a diagnostic stage earlier on in the redesign process (Valiris and Glykas, 1999).

The results from the comparison of methodologies against the requirements, show that only few published methodologies provide full support to ensure their approaches are structured, generic, simple to use, flexible, model-based and industry relevant. This is an indication that more can be done to enhance the current methodologies to support the activity of BPI in general.

Based on the above, it appears that a lot of problems are thought to have arisen because of the focus on the "what to do" rather than "how to do what". The gaps highlighted in this chapter will provide a good grounding for the next stage of the research.

4.6 Chapter Summary

This chapter has reviewed various BPI methodologies in order to understand their strengths and weaknesses and to identify gaps. It has discussed the objective and method for undertaking the review, has identified and grouped requirements of a BPI methodology into six key performance indicators. Further, the chapter has established the phases, stages and activities in a methodology through analysing their structure and content. The comparison of the BPI methodologies has resulted in the identification of five common phases, and the selection of four methodologies, which will form the basis upon which a new approach is formed in the next stage of research.

Chapter 5

Forming the Pilot Methodology for Business Process Improvement

The analysis of the existing BPI methodologies in Chapter 4 provided an insight into the strengths and weaknesses of the various methods reviewed. This chapter deals with stage 2 of the research programme, namely, the formation of the pilot BPI methodology. The chapter starts with the objective and method used to form the pilot methodology. The content and structure of the BPI methodology are determined in sections 5.2 and 5.3. The subsequent sections describe the methodology and its structure. The selection of the delivery mechanism is further addressed and, finally, the chapter ends with a summary.

5.1 Stage 2 Objective and Method

The objective of the second stage of research was to develop a structured and procedural method to aid the activity of BPI. The first step in achieving this objective was to set out the problems, second to discuss the possible solutions and finally choose the most suitable.

Current methodologies are said to provide less guidance to practitioners involved in the activity of BPI. Faced with this challenge, a number of possible solutions can be employed to form a new approach. The existing BPI methods can either be adopted, or the best parts from these methods extracted. The least appropriate way is to adopt existing models, due to the limitations inherent in them. The most appropriate option is to adapt the best part from the current models to build a new approach. The latter option has been exercised in this chapter.

Five common phases have been identified through the review of methodology structure proposed in the literature (section 4.4.1). These include: initiation, diagnosis, design,

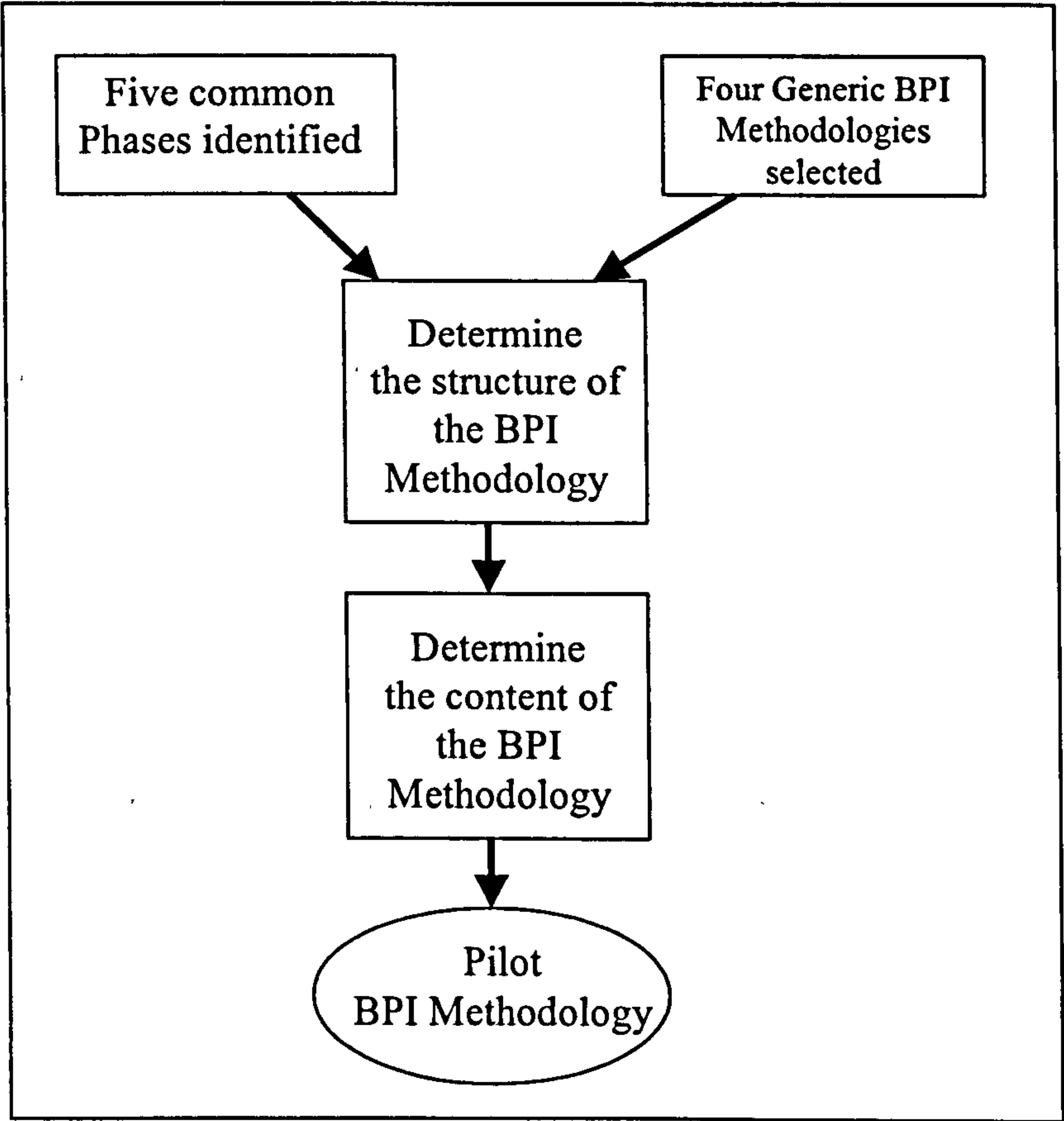


Figure 5.1: Formation of the Pilot Methodology

implementation and process management. Through the analysis, four methods have been selected from the comparison against the six groups of requirements. These include: Harrington, (1991) business process improvement methodology, Kettinger et al., (1997) stage-activity model, Klein, (1994) and Smart et al., (1996) BPR methodology. These ‘generic’ methodologies are chosen because they met some of the requirements set, and also provided avenues for filling the gaps. Both the phases and the selected methods have formed the starting points into the formation process of a new approach.

Determining the structure and content of a new BPI methodology is a challenge for conceptual development. The structure can be determined through mapping of phases and the selected methods, whilst the content can be defined by describing the elements to be included in the new approach. Having established the structure and content, these can then be combined to form the pilot BPI methodology, termed Model-based and Integrated Process Improvement Methodology (MIPIM).

In realising this stage of the research, there are three main parts. First, to determine the structure of the methodology, second to determine the content, and third to describe the new methodology. This structure is illustrated in Figure 5.1 and discussed in the sections below.

5.2 Determine the Structure of the BPI Methodology

This section sets out to establish the structure of the new BPI methodology. The structure is based on the identification of the five common phases drawn out of the review of existing BPI methodologies described in section 4.4. This section therefore illustrates how the phases are mapped with the generic methodologies to form a new structure.

The process of mapping the generic methodologies to the five phases is illustrated in Table 5.1. The Table demonstrates how the mapping was analysed to describe fully the generic structure. The top column of the table displays the number of stages covered by the selected methodologies and the pilot methodology. The left-hand side row outlines the generic methodologies, the phases, steps and the interpretation for mapping phases

to stages. The mapping is best described by using keys for shading as shown in the Table. The stage shaded white (D) illustrates that measurements straddle between the diagnosis and design phase. The rationale of the BPI phases to methodology stages is described in the Table.

This section has defined the structure of a new approach on the basis of the common phases and the generic methodologies. The next section sets out to determine the content.

5.3 Determine the Content of the BPI Methodology

The purpose of this section is to determine what should be included in the pilot methodology. The content of the pilot methodology has been determined by incorporating the elements required of a methodology, and the result of the content analysis of activities in section 4.4.2.

5.3.1 Methodology Elements

There are nine elements contributing to the content of the methodology. This is based on the adaptation of elements for comparing information system methodologies by Avison and Fitzgerald, (1988) and the group of six requirements of a BPI methodology identified in Chapter 4.

Objective: The objective of the methodology is defined as the intended outcome, which would result from applying the methodology. The main objective of the pilot methodology is to enable companies to improve and reengineer their business processes themselves.

Target: Target is concerned with the applicability of the new methodology. The target area for the approach is initially specified for the public sector and then later targeted for a general purpose. The methodology is designed for use in small and larger organisations. This reflects that the methodology is designed to be a generic and industrially relevant methodology.

Table 5.1: Mapping Selected Methodologies against MIPIM Common Phases

Stages Methodologies	1	2	3	4	5	6	7
Kettinger et al.,	Envision (a)	Initiate (a)	Diagnose (b)	Redesign (c)	Reconstruct (e)	Evaluate (f)	
Harrington	Organise for Improvement (a)	Understand Process Characteristics (b)	Streamline Process (c)	Measurement, Control & Feedback (d)	Continuous Improvement (f)		
Smart et al.,	Develop Strategy for Change (a)	Identify Process (b)	Analyse Process (b)	Redesign (c)	Implement (e)		
Klein	Preparation (a)	Identification (b)	Vision (a)	Solution (c)	Transformation (e)		
MIPIM Phases	Initiation	Diagnosis		Design	Implementation	Process Management	
MIPIM Steps	Assess Readiness	Outline Process under Review	Detailed Data Collection	Analyse & Redesign Process	Implement new Process	Review New process	
Interpretation and rationale for mapping phases to BPI methodology stages	Initiation assumes that the first step in a BPI methodology should focus on laying the foundation for the process improvement project, hence the use of the term.	Diagnosis assumes the stages described are analytical tasks covering identification, and structuring in order to understand the business process		Design assumes that the recommendations can be used to streamline and develop new solutions, hence the use of the term.	Implementation phase assumes that having designed the new process, a few important implementation issues are likely to remain in order to operationalise the new process.	Process Management assumes that the last phase in a BPI lifecycle should focus on process assessment, evaluation and continuous improvement	

Key for Shading: A=Initiation; B= Diagnosis; C= Design; D=Diagnosis & Design; E= Implementation; F=Process Management

Conceptual basis: This is the model that the pilot methodology adheres to. Business process forms the conceptual model of the methodology and is based on hard structured approach. The methodology is model-driven as it incorporates practical visual aids to support understanding of the business process.

Scope: This represents the number of stages of BPI process, which the methodology covers, and the level of detail. The scope of the new approach involves the end-to-end steps. The scope of application is concerned with the application of the methodology in a single site or small number of sites. The scope of change relates to the level of improvements required from the BPI project. The scope of the pilot methodology includes evolutionary process optimisation, revolutionary process reengineering and continuous improvements. Process optimisation, streamlining or redesign take an incremental view of improvement (Harrington, 1991), this may be regarded as the first type of process change. Process reengineering is much more radical (Hammer and Champy, 1993). After the new process is implemented, the last type of process based change is continuous improvement.

Structure: This specifies a systematic step-by-step structure, which dictates the order that the methodology should be followed. The selection of the four methodologies from the requirements and the identification of the five common phases from the literature indicated a combined generic structure consisting of seven steps as demonstrated in Table 5.1 and Figure 5.1.

Tools and Techniques: A key element of the new methodology is the identification of the tools and techniques that can be employed by the users in the methodology to provide a suitable support for BPI project. These techniques cover both management and process analysis techniques aimed at facilitating improvement and eliminating bureaucratic activities.

Participants: This element describes the intended participants who will carry out the BPI project using the methodology, their roles and skill level. The new methodology is intended to be applied by the users themselves without the need of an external consultant. The level of skills required varies, but it is expected that considerable

training and experience in BPI principles and the techniques are necessary for the change agent and the project team.

Outputs: The output from the new methodology concerns the deliverables and milestones at each step of the methodology; this is referred to as outcome in the methodology workbook. Each outcome forms an input to the next step in the seven-step methodology.

Delivery mechanism: This is the medium that is used to present the new methodology to the intended users. The methodology employs workbook and facilitation approach, and it may be necessary to supplement this with a training session.

The focus of the new BPI methodology is to provide a guide on how to go about improving and redesigning a business process activity within an organisation. The emphasis is to enhance the existing approaches by considering other areas that are less considered or untouched, such as process definition and modelling techniques, methodology and process assessments and continuous improvement. This discussion of the elements of the new BPI methodology is by no means comprehensive, but provides an illustration of issues included in forming the new approach.

5.3.2 The new Methodology

The creation of the new methodology is outlined in this section. Having established the structure and the content, these are then combined and synthesised to create the pilot methodology, called MIPIM. MIPIM stands for Model-based and Integrated Process Improvement Methodology. MIPIM is composed of the following concepts:

- **Model-based:** refers to the approach taken to develop the BPI methodology aimed at imitating an approach to problem solving. A model is a representation of the real world. The model is used as a common language to aid in analytical thought process (Miller and Schmidt, 1984). This is intended to create visual aids that support understanding of the organisation, as well as reflection about how to improve existing processes. This is achieved through the library of tools and techniques to support the methodology.

- **Integrated:** MIPIM provides a holistic and unified perspective of business process improvement. The approach integrates the use of improvement tools and techniques such as re-engineering, continuous improvement practices, change management and benchmarking.
- **Process Improvement Methodology:** MIPIM provides a structured, procedural aid, advice and guidance on the steps to follow to support the activity of process-based improvement project.

A pilot BPI methodology has been created in this section by combining the generic structure with the content. An overview of the methodology is provided below.

5.4 Overview of the Pilot BPI Methodology

The Methodology is described by examining the process in terms of the structure and the steps. An overview of the methodology and structure is presented in section 5.4.1. The seven-steps, and the tools and techniques used are described in sections 5.4.2 to 5.4.8.

5.4.1 Overview and Structure

A seven-step practical methodology has been developed as shown in Figure 5.2. The principal goal of the methodology is to guide a project in the improvement and redesign of a business process in achieving a better product or service. The pilot methodology consists of the following:

1. Assess readiness
2. Outline of the process under review
3. Detailed data collection
4. Form model of current process
5. Assess and redesign process
6. Implement new process
7. Review of new processes.

The new BPI methodology is embodied in a paper-based workbook for convenient presentation, dissemination and delivery. While the steps assume a linear progression from “assess readiness” to “review process”, the methodology also allows practitioners to adopt an iterative approach. In practice, there may be loops back from the model step to the detailed data collection, and also from the analysis and redesign step to the model step. The methodology addresses the 'what' through the steps and activities, and 'how' by providing well-defined guidelines. Whilst users are required to follow the steps consistently, there is however, flexibility built into the methodology within the steps.

With regard to its structure, the three key elements of the process are the phases, steps, activities and library of tools and techniques to assist practitioners in applying a BPI project. The five phases in the methodology (Table 5.1) embrace the project management implementation of BPI projects, whilst the methodology steps represent operational implementation. The initiation phase lays down the foundation for the process improvement project to assist organisations in the planning and envisioning process. The diagnosis phase is an analytical task covering the identification and structuring of problems in order to understand the business process. The design phase uses the recommendations to redesign and develop new solutions. The implementation phase is the process of operationalising the new process and finally, the process management phase extends the improvement cycle to the management of the new process.

Shown in Figure 5.3, each step of the Methodology is structured to include:

- aim
- actions
- people involved
- outcome/exit
- hints and tips, and
- tools and techniques.

For each step, the methodology defines the aim in terms of what should be done and why it is done. The actions give a series of activities to be carried out, and are linked to the relevant tools and techniques to apply. The people involved in each step identify

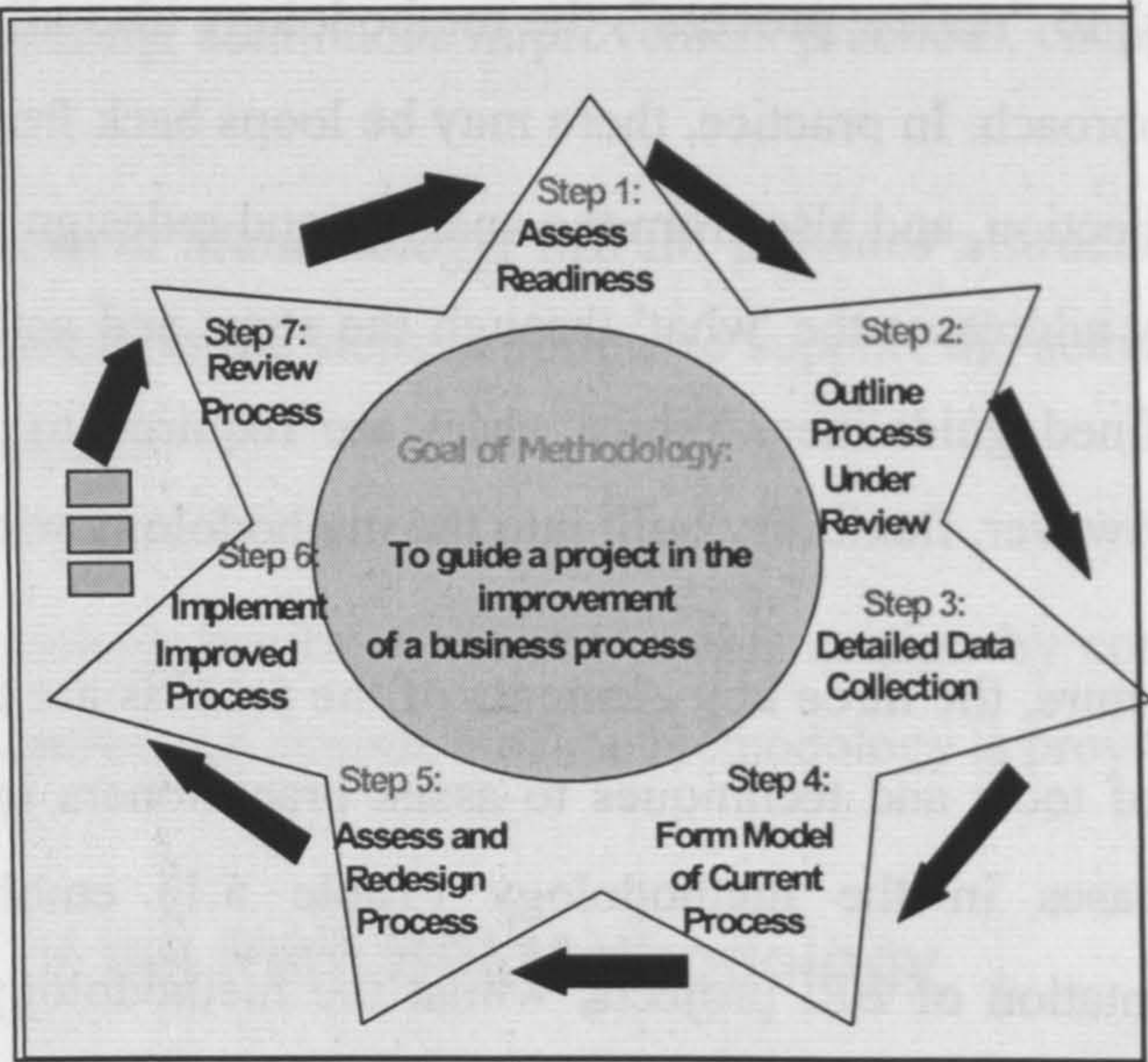


Figure 5.2: Top-level pilot MIPIM methodology
(taken from Adesola and Baines, 2000a)

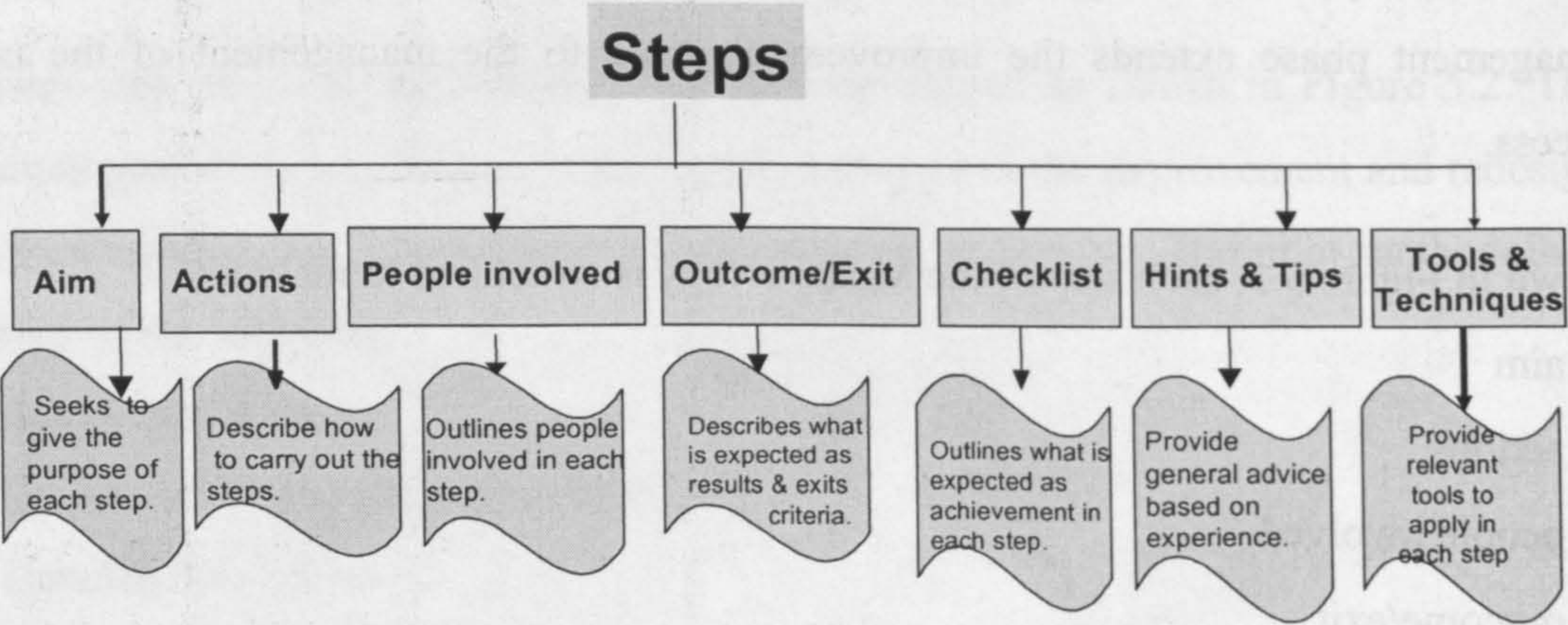


Figure 5.3: Hierarchical Structure of MIPIM methodology steps

stakeholders, actors and audience, and assign roles and responsibilities. The outcome describes what should be achieved and expected deliverables, and finally, some hints and tips based on general advice are provided.

Each tool and technique is structured into what, how, when, strength and weakness. Dividing a BPI methodology into several steps gives structure to the complicated project, makes BPI implementation more manageable, makes it easier for practitioners to define milestones and deliverables and to examine checklists and checkpoints (Kim, 1995). An outline of the pilot methodology is shown in Figure 5.4 showing the steps, key activities and examples of tools and techniques.

Due to the ongoing refinement to the methodology, a detailed description of the pilot methodology is not provided; this is available in Adesola and Baines, (2000). The final methodology will be fully described in Chapter 9. The sections below provide a brief overview of the seven-steps.

5.4.2 Step 1: Assess Readiness

This step aims to assess the readiness of the organisation to carry out business improvement project. MIPIM methodology starts by defining the goals and objectives of the BPI project and assessing the organisational readiness for change (Jackson, 1997), using a short audit questionnaire to check for example, whether resources are available, management support is obtained, and the team is selected.

5.4.3 Step 2: Outline process under review

The outline of process under review aims to establish process boundaries so that the project can be clearly focused and to determine appropriate metrics to analyse the chosen process steps. This step defines requirements from internal and external stakeholders, boundaries, interfaces and dependencies of the target process and other processes. Candidate business processes are identified.

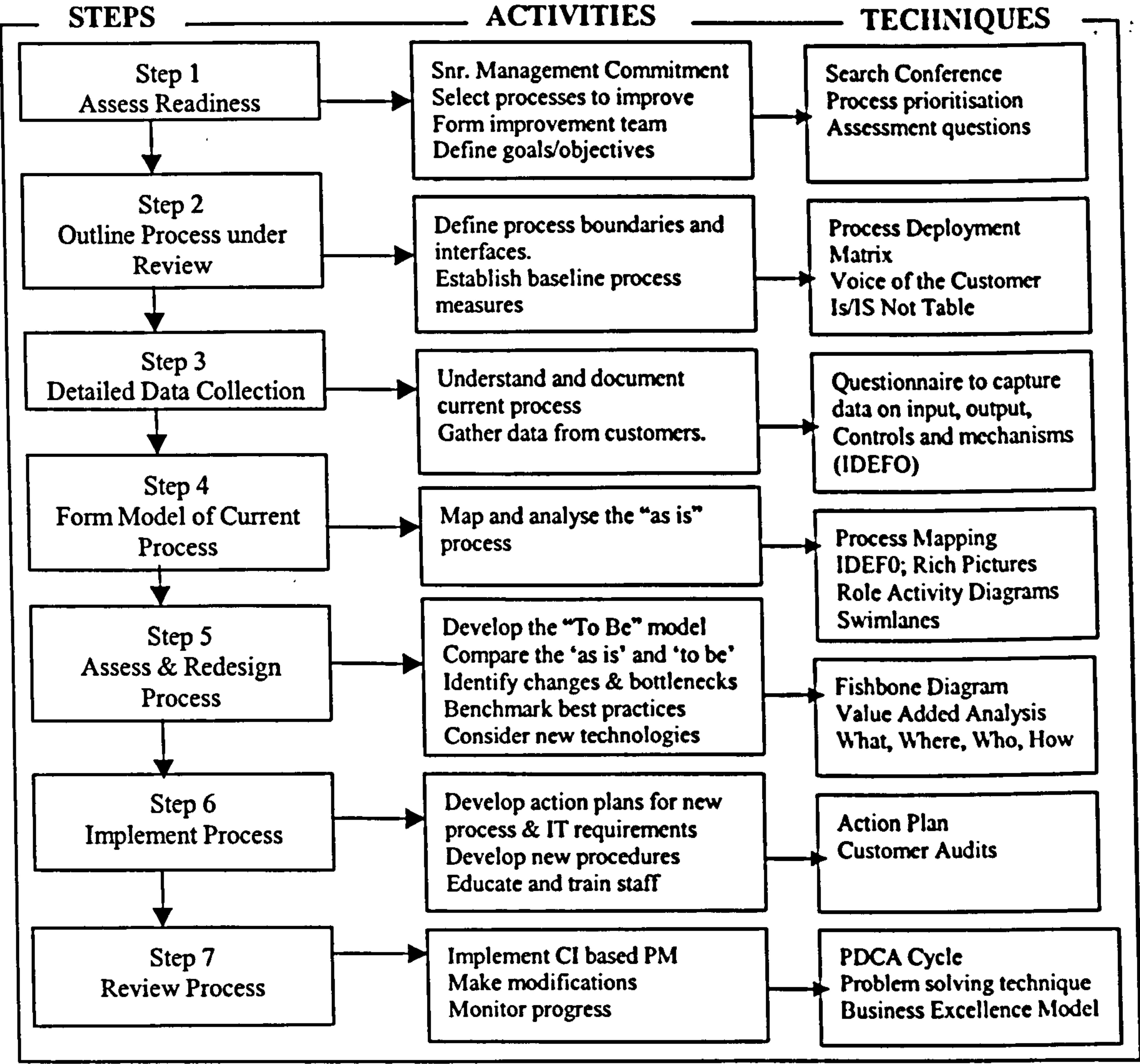


Figure 5.4: Practical Seven Step MIPIM BPI methodology
(taken from Baines and Adesola, 2000)

5.4.4 Step 3: Detailed data collection

The data collection step builds on step 2 to gather information about the process under study. Once the target process has been identified, this step begins to define the processes through a series of process capture exercises with the process owner and users. Data from interview sessions is used to map out the current processes. This step is executed using an adapted eXpert Process Knowledge Analysis Technique (XPAT) developed by Adesola et al., (2000), which is proposed as an enhancement to IDEF0 activity modelling.

5.4.5 Step 4: Form Model of Current Process

The modelling step aims to understand how the process is currently performed and to provide baseline models using appropriate modelling tool to improve the business process. The purpose of modelling processes needs to be defined and linked back to the business objective in step 1. The scope of this effort is to keep the model at a fairly high level. The output is the “As-Is” model that establishes a baseline for the BPI project. The development of a process model enables an organisation to understand, analyse and communicate what is currently happening. Associated techniques include: IDEF₀ (activity modelling); Flow diagram; role activity diagram (for mapping role and interaction to the activities); Swimlanes; and business modelling tool for mapping end to end process diagrams.

5.4.6 Step 5: Assess and Redesign process

This step identifies the weaknesses in the “baseline model”, and tries to overcome these to specify a more efficient and effective process. It deals with process analysis, measurement, the identification and selection of processes for redesign or improvement. One of two options is available: optimisation of the current process or developing new process from a clean slate. Whilst no specific rules are provided, the following key techniques have been incorporated: Value Added Analysis; Cause and Effect Analysis; Brainstorming; Process Performance; What if, Simulation, Benchmarking; 5Ws and 1H problem solving technique.

5.4.7 Step 6: Implement improved process

The Implementation step aims to plan the implementation of the improved process specification, by developing action plan and new procedures. Action plan addresses issues such as automation and system requirements, job design, managing change, communication, training and education. A changeover pilot testing is recommended to confirm the soundness of the improvement process whereby results are verified and fine-tuned. Techniques such as, action plan, customer audit and improvement learning audit have been added to support the implementation process.

5.4.8 Step 7: Review Process

The purpose of this step is to carry out ongoing evaluation of process in practice, which may lead to the next cycle of improvements. Once the new process is handed over to the process owner, a periodic review of the performance standards needs to occur. The key techniques used with this step include the opportunity cycle; Deming's plan, do, check, and act cycle; failure mode and effects analysis and the business excellence model.

A model-based and integrated methodology has been presented in this section. The pilot methodology describes the structure and outlines the seven steps. The methodology is iterative and the steps of assess readiness, redesign and implement the new process are very important to the success of the BPI project. It is important to understand how to organise and manage the proposed methodology, which is the focus of the next section.

5.5 Operationalising the Methodology

The purpose of this section is to explore how the BPI methodology could be organised, managed and implemented in practice, by investigating the procedural conducts and risks of following a methodology.

The research employs Platts' (1990; 1994) four guiding characteristics for operationalising manufacturing strategy process research: point of entry, participation, process or procedure and project management (4 Ps). To be useful, a methodology should specify how an organisation should implement the process, who should

participate and how the project of implementing the process should be managed (Mills et al. 1995). These aspects are described below.

5.5.1 Point of Entry

Platts, (1994) argues that there should be a method of entry into the company or business unit, a platform to achieve the understanding and agreement of the management group, and clearly defined management expectations. In order to obtain the management agreement and commitment to the BPI project, the methodology specifies that a formal presentation of the methodology should be conducted by providing a two day education and training workshop with the team and management with demonstration of case scenarios.

5.5.2 Participation

The participation aspect of the methodology addresses the identification of the stakeholders from other functions or processes within the organisation to achieve enthusiasm and understanding. The team may be established, as well as the use of workshops to agree objectives.

5.5.3 Project Management

The management of a BPI project is an important factor. Platts identified two project management issues, first, adequate resourcing for managing, second, supporting and operations group should be identified and a specific timescale for producing a new process should be agreed to ensure that the project is adequately resourced and works to a timescale. Other key factors cited in the literature to ensure more effective project management include communication, clear objectives and scope, work breakdown structure and project plans (Clarke, 1999). Project management provides a sound basis for change management.

Since a change project completely fulfils the definition of a project as a one-time job that defines starting and ending date, the proposed methodology will benefit from the project management approach (Grover et al., 1995; Narasimhan and Jayaram, 1997; Lanning et al., 1998; Clarke, 1999). These include project planning and execution,

management of scope, time, cost and quality, human resource management, communications and risk management. Timescales evident in the literature are highly variable, generally speaking, the life-cycle may be shorter or take rather longer to execute the methodology depending on the company situations, time taken to learn to work as a team and learn new methods, concepts and even new techniques.

5.5.4 Process

Process is the fundamental requirement of a methodology as it specifies the steps to be taken to solve the problem. There should be well-defined steps of information gathering, information analysis and identifying improvement using simple tools and techniques including a written record of the results at each step. The actual procedural process followed is the pilot BPI step-by-step workbook methodology with relevant tools and techniques and supported by an assessment on completion of each step.

5.5.5 Risk Factors inherent in the Methodology application

This section explores the literature on risks of using and not following a BPI methodology, and what could undermine its effectiveness and efficiency.

One explanation for the high failure of BPI initiatives is that practitioners are not taking prudent measures to evaluate and manage the risks involved in following a methodology. BPI increases the problems associated with risk management. This subject area is relatively new and much work remains to be done. Apart from the study on BPI project risk management (Remenyi and Heafield, 1996; Kliem, 2000), limited research has been carried out in the area of BPI methodology risk.

Because of this shortcoming, risk assessment in other disciplines was investigated, including software development and information systems development. Risk identification is a process to determine risks that are likely to affect the application of the methodology. Like every important management project, there is a risk of generating unrealistic expectations and demoralising employees (Drew, 1994).

Previous efforts to identify risk factors in the software development include the work of Boehm, (1991). Methodology risks are of two kinds according to Berztiss, (1996), those

Table 5.2: Examples of Risk Factors

Risks Factors
Lack of top management commitment to the project
Failure to gain user commitment
Misunderstanding the requirements
Lack of adequate user involvement
Failure to manage end user expectations
Changing scope
Lack of required knowledge/skills in the project team
Insufficient/inappropriate staffing
Lack of time for team members to work on a project
Conflict between user department
Poor user- modeller interaction
Employee resistance to improvement
Inadequate preparation
Failure to educate personnel properly for the changeover
Process failure
Poor management skills
Poor quality control (Operational risk)
Unrealistic expectation
Demoralised employees

relating to the development of the methodology (development risk) and those relating to the effects the methodology may have once it is put into use (operational risk).

A number of risk factors, listed in Table 5.2, have been extracted from the literature (Boehm, 1991; Keil et al., 1998; Berztiss, 1996; Kliem, 2000), to provide an adaptation of risks in BPI methodology application. Four characteristics have been identified which are important in determining the success of the methodology application. These are: lack of management commitment, staff shortfall, lack of time to work on project, and lack of skill. The section has also explored risk factors inherent in a BPI methodology, which could be used for applying and testing the methodology in practice. In the next section, the medium for presenting the pilot methodology is introduced.

5.6 Delivery Mechanism

The medium or vehicle that is used to present the pilot methodology to the intended audience is discussed in this section. The section describes the type and selection of delivery medium, the design requirements for the workbook, and the workbook structure.

5.6.1 Selection of Delivery Medium

An interesting and challenging decision in the BPI process is the selection of the medium that will be used to present and disseminate the pilot BPI methodology. Information on choice of delivery is surprisingly limited. This research has investigated media selection from the instructional design literature.

Instructional design is generally an accepted, systematic approach to the development of instructional materials. It is a structured process in which all parts are considered critical to successful learning (Dick and Carey, 1985). Two principal means of delivery were available for selection, a paper based or computer technology. By nature, multimedia environments are dramatically different from traditional learning environments centred on human interaction, such as paper-based which can be controlled by the user. In contrast, multimedia environments are characterised by the ability to present information in a non-linear and dynamic fashion.

Reiser and Gagne, (1983) published a model showing how to select the best medium for self-instructional delivery systems. Based on this model, the designer uses the model by answering questions about the skill to be taught and then follows a flow diagram to the point that several candidate media are suggested. The technique is based upon a complete review of the research on the use of media in instruction. From the work of Dick and Carey, (1990) and Gagne et al., (1988), the media employed are often chosen on grounds of:

- Availability of resources and personnel in the environment in which the methodology will be used (Gagne et al., 1988)
- Feasibility (Gagne et al., 1988)
- Convenience
- Flexibility
- Durability
- Cost effectiveness (Gagne et al., 1988)
- Learning task.

Based on the above factors, the medium chosen to deliver the pilot methodology is a facilitated paper-based workbook, primarily based on the human interaction, ease of access and cost factors in the user environment. The objectives of the workbook are to:

1. Encourage all stakeholders to participate in the process of improving business processes.
2. Promote a better understanding and consensus to be reached.
3. Guide the intended result of the delivery, communicate what the interested parties should be able to do, and how to do it at the end of the activity.
4. Take a systematic, process-based and procedural view of the business process operation.
5. Enable learning and knowledge transfer to occur.
6. Achieve effectiveness, efficiency and appeal.

A number of methodologies have been delivered through a workbook (for example, Mills, (1995); Neely, (1996); Greswell, (1998); Childe et al, (1999); Farrukh et al., (2000); and Lettice et al., (1999). Whilst workbooks have a number of advantages, they

also have weaknesses. Bradford et al. (1999) observe that workbooks assume a sequential approach to a problem, based on analysis, design and implementation, all delivered in a textual format. Despite the differences, workbook provides transfer knowledge to the user in a structured way.

5.6.2 Workbook Design Requirements

This section outlines the requirements for the design of a workbook. To address the requirements, Smart et al., (1996) state that the design should be user-centred and address the following key needs:

- The effective transfer of knowledge on BPI concepts, likely impacts of the application of a business process concept, and the principles of the methodological approach.
- Low cost.
- Minimise the use of participant time.
- Provide easy access to individual steps and support the sequential seven-step structure.
- Support the requirements for internal facilitation.
- Learning theory is embedded in the design of a workbook whether the designer has incorporated it intentionally or not (Plowman, 1989).
- Knowledge transfer is assumed to take place as the user works through the workbook.
- Target audience is assumed to include user team and project managers. Basic users will generally read the methodology to learn in detail directions on how-to information for training. The experienced user such as BPR project manager will use the methodology to look up or to confirm steps for reference aid (Hidding, 1997).
- Cosmetic requirements inform how to write effective user-friendly training materials by paying attention to colour, white space, look and feel, language used and content arrangement.

5.6.3 The Workbook Structure

The structure of the workbook is outlined. The workbook methodology represents a body of skills and knowledge that becomes an organisation's standard, based on common language among practitioners (Hidding, 1997). The workbook is systematic, procedural and promotes learning by doing. It can be customised to a company's own needs and culture. The workbook prescribes consistent steps and is descriptive in approach with room for flexibility within each step. The structure of the workbook is presented in the final methodology (Chapter 9) to reflect feedback from the wider application.

An overview of the selection of delivery medium, and the rationale for opting for a paper-based workbook format has been discussed. Further, the section has outlined some of the design requirements used to develop the workbook, to assist the facilitation and application of the methodology.

5.7 Chapter Summary

This chapter explained the process of forming the pilot methodology for business process improvement. A seven-step MIPIM methodology was created by combining the structure and the contents of the existing methodologies. An overview of the methodology and its structure was provided, followed by a brief description of each step. The methodology is delivered in a workbook style tool. It provides not only a baseline, systematic and procedural guide for organisations to follow; activities are well defined in structured steps, and supported with associated tools and techniques. The operation of the methodology and the workbook design requirements further explain the practical aspects of application. It is proposed to further develop the workbook methodology after applications in companies. The next chapter presents the results of interviewing sixteen practitioners and experts in the field of business process to validate this pilot methodology for industry leading practice.

Chapter 6

Pre-Pilot Validation Process

The previous chapter described how the pilot BPI methodology was created. The research programme in Chapter 3 has established the third stage of the research, namely the pre-pilot validation process. The objective and the method for this stage of research are presented first. This is followed by describing the execution of the validation process. The results and findings from the validation are discussed. Observations from the study are highlighted, and, finally conclusions drawn.

6.1 Stage 3 Objective and Method

The objective of the pre-pilot validation process is to validate the pilot BPI methodology in order to identify leading industry practice (section 3.1). In realising this objective it was important to investigate the methods and practices used by experts in the field (academics, consultants and practitioners). There are six parts to this stage of research: firstly, to determine the research method; secondly to select suitable participants; thirdly, to determine what data needed to be collected and how; fourthly, to analyse the validation, followed by consideration of objective observations; and finally, to make changes to the pilot methodology from the findings. In all of these, the starting point is the pilot BPI methodology, used for the validation. This is illustrated in Figure 6.1.

6.1.1 Research Method for Stage 3

This section considers the methodology and the logic employed to undertake the pre-pilot validation process of the BPI methodology. The research design was a particularly difficult part. The stage considered three methods: namely, survey questionnaire, Delphi technique and interviews. The survey questionnaire approach is a way of contacting a large number of people to get their views. Whilst this method saves time, the possibility for respondent misunderstanding is often very high. The main disadvantage according to Oppenheim, (1996) is the lack of opportunity to correct misunderstandings, to probe, or to offer explanations. So, if a response is not clear, little can be done to clarify this,

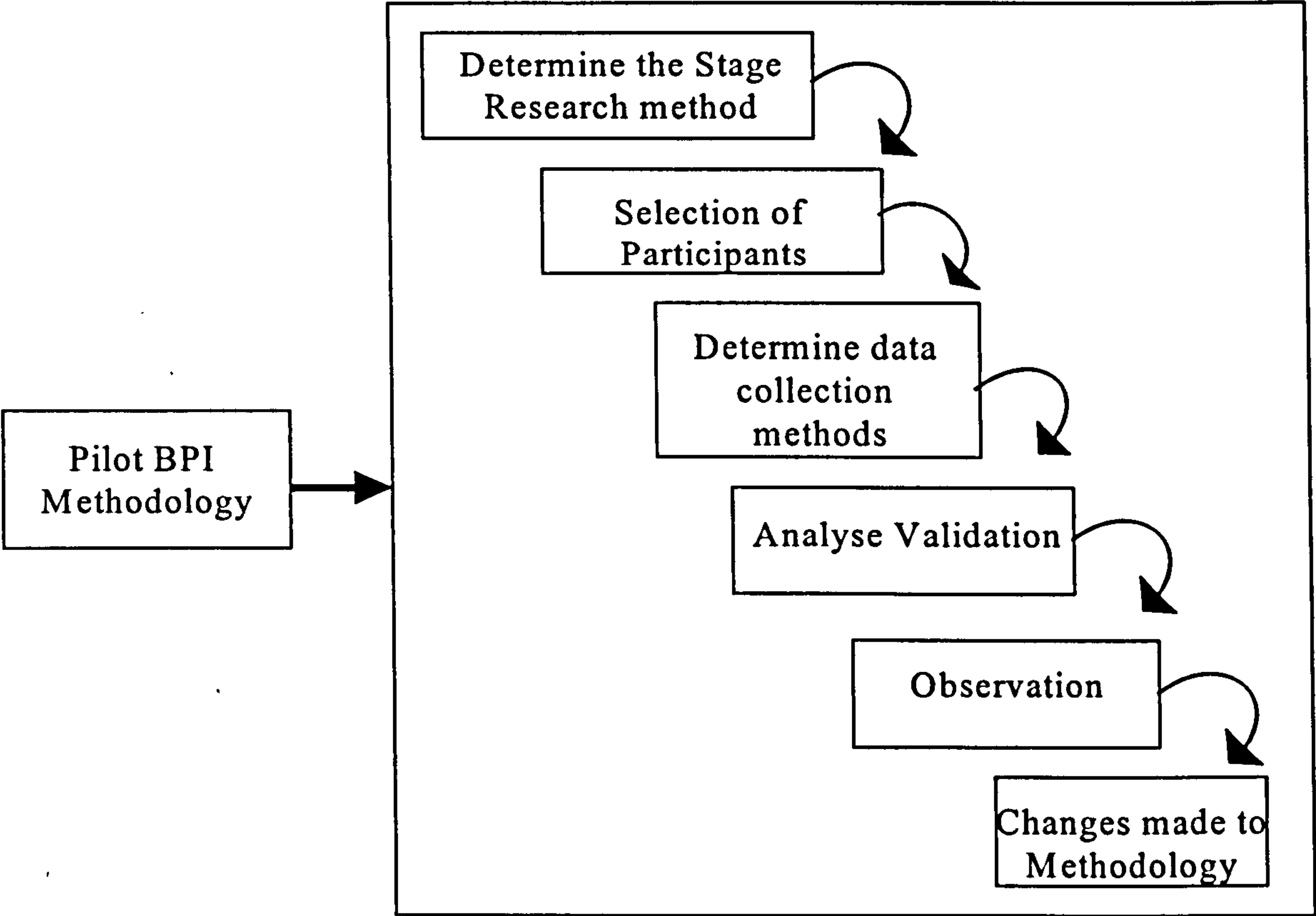


Figure 6.1: The Pre-Pilot Validation Method

because no interviewer is available (Zikmund, 1997).

The Delphi technique was another way of obtaining group input for ideas and problem solving from 'experts' in the field. The technique requires no face to face participation and essentially consists of three or more rounds to elicit information and feedback from the participants involved in the process. Whilst this approach predicts a reliable judgement and maintains anonymity of participants, it requires adequate time and participant commitment, and produces biased judgements of the selected group.

An exploratory interview is a form of depth interviews, or free-style interviews. The primary objective is to maintain spontaneity. This method allows the interviewer to clarify responses when necessary, respondents can express themselves in their own language and the duration of the interview can be clearly determined. A small, in-depth interview was preferred for this stage of research, because it allowed free discussion and enabled the generation of ideas.

6.1.2 Selection of participants

Once the method was determined, the next step was to sort out people to contact. Initial identification of participants was through contributions in the BPI literature. Recommendations from Cranfield University also proved useful sources.

A number of academics, consultants and companies were identified and selected as those who knew enough to comment on, or had experience of business process improvement and reengineering. The criteria used for selection included seeing the right people, process champions, and people in a position of authority who actually drive the BPI project. The size of the organisation was not a critical factor in the selection process.

The final selection consisted of 16 individuals in academic, industry and consulting firms, as shown in Appendix A.1. Of these groups there were three manufacturing companies, one financial service, four consultancy companies, and eight academics (Table 6.1). A one-page letter was sent to the appropriate personnel, likely to provide access, detailing the purpose of the study, content of the interview and seeking an

interview date (see Appendix A.2). A telephone call was followed up a week after to confirm their participation in the study.

6.1.3 Data Collection

In order to execute the validation, the next activity was to determine the research instruments needed to collect data. Within this research stage, several sources of data were taken into account. Having opted for the interview method, data was collected by carrying out a set of sixteen semi-structured interviews with the participants in different locations. Generally the researcher was given access to the Business Improvement Director, Business Process Managers, Systems Operations, Senior Consultants, and established academics in the field.

Interviews with participants were conducted with a set of 20 questions to direct the flow of discussion on five key areas as shown in Appendix A.3. The questions were set to:

- Explore the use of business process improvement within the organisational and academic context.
- Determine from the experts and practitioners, what methods are being used, how they are used, and whether these methods are useful.
- Confirm and validate that the pilot methodology reflects best practice and identify shortfalls.
- Identify current techniques and concepts used in the industry.

The information sought from the validation process was analysed to provide a descriptive and general picture of the methods and tools used. The use of exploratory interview and qualitative data analysis provided the research with the information needed to consider the validity and the initial refinement of the pilot BPI methodology.

6.2 Execution of Pre-Pilot Validation Process

The pre-pilot validation was carried out in the period February 2000 to Oct 2000. The backgrounds of four participating companies are detailed in Appendix A.4. The block of

Table 6.1 Characteristics of participating companies in the pre-pilot validation process

COMPANY																
Characteristics	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Discipline	Financial Services	Manufacturing	Pharmaceutical	Manufacturing	Consultancy	Consultancy	Consultancy	Consultancy	Academic	Academic	Academic	Academic	Academic	Academic	Academic	Academic
Product/Service	Retail Banking	Energy	R & D	Automotive	Consulting	Consulting	Consulting	Consulting	Research	Research	Research	Research	Research	Research	Research	Research
Date of Visit	March 2000	March 2000	March 2000	May 2000	March 2000	March 2000	March 2000	March 2000	Feb 2000	Feb 2000	Feb 2000	March 2000	March 2000	April 2000	April 2000	Oct 2000
Interviewee(s)	Strategic Design Manager	Manufacturing Manager	R&D Automation Manager	Business Improvement Director	Strategy Consultant	Consultant	Senior Consultant	Senior Consultant	Senior Research Fellow	Research Fellow	Lecturer	Professor	Senior Lecturer	Programme Manager	Programme Director and Lecturer	Lecturer
Access via	Seminar delegate list	Cranfield University	Cranfield University	Cranfield University	Cranfield University	Plymouth University	BPM Mailing List	Publications	Publication	Cranfield University	Cranfield University	Cranfield University	Warwick University	Cranfield University	Cranfield University	Publications

interviews was aimed at gaining useful insights into the perception and approaches of practitioners, consultants, and academics involved in business process change and improvement.

A set of sixteen interviews was carried out with experts in the field of business process improvement. The structure of an interview was based on face-to-face, open-ended semi-structured interviews. Each interview section began with an introduction, stating the objective of the session, the order of interview and follow up. Interviewing involved the direct questioning of individuals. During the interview, the discussion was based around five questions, namely:

- **Business Process Improvement and Reengineering Methodology used.** This was a general section used to find out what methods were used to redesign and improve business processes, general critical issues they had to consider when following the methodology, how it was formed, strengths and weaknesses and existing change programmes within the participating companies.
- **Research Process.** Questions under this section were used to obtain knowledge of how participating companies evaluated their methodologies.
- **Comments specific to the pilot methodology.** In this instance, after a brief presentation of the pilot methodology by the researcher, the interviewee was asked to comment and suggest improvements.
- **Tools and Techniques used.** Here the intention was to obtain some details of the tools and techniques used to support the BPI process in the real world.
- **Future Research Challenges.** Suggestions were sought to help understanding of the directions and issues for further research and recommendations in the field.

From the validation process, a wealth of information and knowledge was generated, which could be analysed to provide a consideration for the validity for the pilot methodology.

6.3 Analysis of Pre-Pilot Validation Cases

The results from each of the five areas of discussion question were analysed as follows. The findings only reflect the organisations visited, and not all companies.

- ***BPI Methods used***- Are formal methods in place to help with BPI, and what are their strengths and weaknesses?

The findings showed that the larger participating companies used no formal methodology; the variation of methods used could be linked to the context of the companies. All the consultants interviewed followed proprietary methods developed for commercial purposes.

The methods adopted by companies to carry out process-based change initiatives are depicted in Appendix A.5.1. In this instance, Companies J and K were omitted as they provided no information on current methods used, but their opinions were valued in the suggestions for improvement for the pilot methodology. Company N was a senior manager within the Post Office and a researcher in the field. She was involved in supply chain reengineering and warehousing reengineering between 1994 and 1995 where her reengineering methodology was tried and tested. The interviewee was in a good position to provide both practitioner and academic input to the research. Similarly, Company O was a well-known researcher and consultant and had been involved in a number of projects within the financial services, telecommunications, public sector etc.

- ***Research Process*** -how do organisations know their methodologies work and how are these methods assessed?

As Appendix A.5.2 shows, only a fraction of companies evaluated their methodologies in one form or another. Companies A, B, C, F, J, K and L were omitted from the analysis because no formal methodology evaluation was identified or reported. There was general consensus amongst the academics to the effect that there was a lack of formal assessment of methodologies in practice.

The danger was that assessment was not comprehensive in comparison with the project assessment. Amongst those who followed a methodology, many of them could not confirm the effectiveness of such methods. What had been measured in most cases was the success of the project, perhaps on an ad hoc basis using a variety of methods.

- *Comments specific to pilot methodology* - were there any comments on pilot methodology?

By interviewing the practitioners, academics and consultants, it was possible to obtain specific and general comments on the pilot methodology, whether the model adequately covered all the relevant steps and activities and how it could be improved. Most of the comments made by participants were additions to the methodology rather than flaws, these comments are listed in Appendix A.5.3. For the 'assess readiness' step, it was found that an assessment of the business drivers and change drivers should be made explicit. Suggestions were made to combine 'Outline Process under Review' and 'Detail data collection' steps to reduce time. In the case of modelling step, the key question raised was how to capture the process model and document it. What information was needed in the process, and where were the documents stored in the diagrams? Were the models paper-based or computer based?

The result indicated that the objective of modelling the business process should be aligned with the process objectives. The result also showed that as part of the modelling step, modelling techniques should be tailored to the type of user base. Within the 'assess and redesign process' step, the methodology needed to incorporate gap analysis and benchmarking. From a general sense, a lot of improvements recommended were based around iteration, risk assessment, checklists, process measurement, project management methodology, post implementation assessment. The validation process recommended for a descriptive, flexible, adaptable and non-linear workbook methodology, with associated simple to use visual aids. The strengths cited by the participants included balancing flexibility and rigidity in the methodology, tailoring to specific organisational culture, and applying to a wider audience.

■ *Tools and Techniques* currently being used

The results of the interviews on the tools and techniques used by the participants to support a BPI activity are summarised in Appendix A.5.4. After reviewing the responses, the validation suggested that there were many techniques and products in the market open to users, but their use depended on the requirements of the organisation. Some organisations tried not to use an IDEF0 structured activity modelling method at all, because they found it too complicated.

The tools and techniques used vary from environment to environment, but generally, the following represented common tools employed: powerpoint, Visio diagramming tool, flipcharts, flowcharts, post it notes and brainstorming sessions. These have advantages as they helped users, regardless of skill and background to get involved and map the processes. Simulation seemed popular in the manufacturing and financial service. The result indicated that consultants were great believers in doing things visually, so the tendency to use rich picture, whiteboard to describe a process was quite common. By way of contrast, the academic community seemed to favour the use of the Role Activity Diagram (a role-based modelling notation). From discussion, it was evident that many users have been involved in modelling processes through the use of white board or Visio process flowcharting tool to create their own models.

There was much support behind making a methodology independent of any modelling tool; most of the participants saw modelling as a means to an end and suggested that the emphasis should be on the structure of the methodology. In the situation of Case M, if too much emphasis was put on the modelling tool, every BPI project turned into a modelling exercise, lost track on process change and instead, concentrated on the nature of the modelling tool.

■ *Future research challenges* -what experts said the BPI research should focus on next.

For future research, the discussions were based around future challenges in the BPI field, and what researchers ought to be doing next. Examples of future challenges facing the academic community are listed in Appendix A.5.5. The conclusion drawn from this

discussion was that there were a wide range of opportunities and problems to handle. Amongst the practitioners, the validation suggested that knowledge management would in future be used as the key to facilitate change in organisations, as well as deploying BPI methodology on the intranet for sharing. For example, Company D was planning knowledge management as an important way forward in applying knowledge-based engineering techniques to business process improvement.

In this section, the results of the validation process have been analysed, which indicated that many of the BPI methods, tools and techniques used in some organisations, were not always explicitly structured, particularly in the larger companies. The validation also provided constructive feedback into the pilot methodology, and highlighted areas for future research.

6.4 Observations from Pre-pilot Validation

The purpose of this section is to present an objective observation of the validity of the pilot BPI methodology. Inputs from academics provided different perspectives of approaching a BPI project, practitioners' inputs provided an indication of what companies understood by BPI methodology and the different tools, and techniques, whilst the consultants provided inputs from consultants' methodologies, and an effort was made to formalise their techniques.

A number of suggestions from the validation were based around the way the methodology should be developed. The results have the following implications for the next stage of development:

1. There was a strong support indicating that involving different levels of management and users in the methodology steps are likely to lead to more successful projects. Most felt that this level of accessibility would improve participation and support.
2. Risk assessment should be reflected in the methodology, stating the impact of non-compliance for each step of the methodology and the level of risk. This would encourage consistency and, more importantly, better chance of success.
3. Many agreed that the success factor of the pilot methodology would be determined through its application and evaluation in practice. This invariably links with the

assessment. The validation supported the idea of including a step for the assessment of methodology.

4. The methodology and tools should be simple to use and easy to understand.
5. The methodology should be practice focused.
6. The methodology should have a well-defined, iterative and flexible procedure.

Participants identified important key issues they felt might impact on the success of the methodology. These included amongst others: performance measures, change management (managing people perception), strategy and scope of change. Participants felt some of these issues needed to be addressed at each step of the methodology. The finding showed a concern for soft issues such as involvement of users and commitment, particularly in the larger companies. This confirmed the importance of having the first step of the pilot methodology.

The overall feeling was that it was difficult to have a methodology for all sectors and industries, therefore, a methodology should be tailored according to each sector's needs. Evaluation of a methodology was said to be of importance although not implemented by many of the participants interviewed. Lack of formal assessment during application was the concern of the academics who demonstrated methodology evaluation in practice. The adoption of a workbook methodology for BPI was not apparent from the validation, which added weight to the pilot methodology.

Through the validation process, important issues emerged which provided an opportunity to explore the subject and related areas in closer depth.

6.5 Initial Refinement to the Pilot Methodology

Through the pre-pilot validation process, a number of comments were obtained which could be used for refining the BPI methodology. The changes were minor and related to the contents of the methodology, such as the addition of relevant activities within the steps. These changes were not incorporated immediately, because the pilot application of the methodology had already begun by the time the pre-pilot validation visits were completed, leaving no time to incorporate changes obtained. It was felt that any changes

would cause confusion for the users involved in the testing stage, as they had been introduced to the original version. These suggested changes would form part of subsequent refinement following the primary evaluation of the BPI methodology.

6.6 Chapter Summary

This chapter has presented the third stage of the research programme, namely the pre-pilot validation process. The stage objective was realised through a series of activities. First, the research method was determined, followed secondly by the selection of participants based on criteria. Thirdly, the data collection method was defined to guide the execution of the process, and results analysed using a qualitative method. A general observation from the process was provided, and finally, highlights of the initial refinement were given. The outcome of this process was that the pilot BPI methodology had been validated to reflect leading industry practice.

The following chapter continues the research programme by applying the pilot BPI methodology to a real case project within a public sector organisation.

Chapter 7

Primary Evaluation of BPI Methodology

The research programme established three stages for the formulation of the pilot BPI methodology; these stages have been discussed in Chapters 4, 5 and 6. The fourth stage is to apply and test the methodology in an industry setting to address the problems that are being faced in practice.

The chapter is structured as follows. The objective and method of conducting this part of the research is first discussed. The design of evaluation method is then discussed. The application of the methodology in test case within the public sector is explained, followed by the results. The principal findings, which emerged from the analysis, are described, and observations from the testing highlighted. Finally, a discussion on how the success of the methodology is measured is presented.

7.1 Stage 4 Objective and Method

The second part of the research aim in Chapter 3 is to evaluate the effectiveness of the BPI methodology in industry. This means a rigorous testing and refinement of the methodology through application. The overall goal of testing is to observe the application of the methodology in practice in order to evaluate whether it is workable, to determine whether the methodology provides a practical, procedural step in the activity of BPI, and to make the methodology relevant to the real world. To address this goal, there are three objectives, namely:

1. To identify how the methodology could be used in practice.
2. To identify any problems and difficulties with the methodology.
3. To identify if the result is worth the effort and whether the methodology gives a useful output to the organisation.

In order to achieve a rigorous testing, it is considered necessary that a direct involvement of the researcher is required (Hill, 1987; Lawler III et al. 1985). The

concern to ensure the methodology is practical, useful and relevant to the practitioners has led to the adoption of two research methods, case study and participant intervention research (sometimes referred to as action research). Therefore, the following research method and design adopted throughout this chapter is presented. First, to describe the conduct of the case study method; second, to illustrate the intervention method used; third, to discuss the choice of test site; and finally, to give an overview of the evaluation research design.

7.1.1 Conduct of the Case Study Method

A case study method has been adopted as the appropriate research method to carry out the testing (Yin, 1993). Many authors have employed this method as a useful research technique (Glaser and Strauss, 1967; Eisenhardt, 1989; Miles and Huberman, 1984; and Yin, 1994). Yin strongly recommends that the researcher be involved in the development of case design and the research design. The case study approach refers to an in depth study or investigation of contemporary organisations in their real life context using multiple sources of evidence (Yin, 1994). The method is best suited to 'how' and 'why' questions and is also suitable for qualitative, quantitative methods, single or multiple cases, for testing and building theory from empirical evaluative research (Cavaye, 1996; Eisenhardt, 1989; Miles and Huberman, 1994). The nature of the research programme suggests an exploratory and descriptive case study method to seek out what is happening, obtain new insights and describe how it is done (Robson, 1993; Zikmund, 1997; Yin, 1994).

Adapting the case study design by Eisenhardt (1989) and the techniques outlined by Yin (1994), the following aspects to designing case studies were adopted. The researcher applied the BPI methodology within the sponsor company to the process improvement project being studied. One limitation of this type of involvement was that the testing became too person dependent, but the quality of data obtained was a trade-off. The unit of analysis for this testing was the primary sponsor, the Benefits Agency (BA), an executive agency of the Department for Works and Pensions. The pilot test based the evaluation on a sample of process design practitioners and the human resource personnel within the organisation. In all, seven people directly involved with the

achievement of business process redesign, were assessed and interviewed; this formed the primary source of assessment data.

7.1.2 Conduct of the participant intervention method

Testing the workbook methodology involved adopting an “intervention” approach, in addition to case study method as a way of tackling the problem (Argyris, 1970). Intervention is an act of entering an organisation for the purpose of changing it (Argyris et al., 1978). The case study involved a great deal of intervention and participation of the researcher. The researcher’s role was to apply, facilitate, seek changes and learning; this type of intervention may be referred to as action research (Coghlan, 1994), but this thesis prefers the term ‘intervention’.

The adoption of an intervention research approach to carrying out the testing raises a number of issues and challenges. The use of intervention brings with it lack of objectivity and unbiased observation. The test is not repeatable and the researcher is not independent of the test (Platts et al., 1998; Eden and Huxham, 1996). In their discussion of challenges with this approach, Probert et al., (2000) remarked upon problems with obtaining access to suitable company situations, engaging the interest and effort of the relevant personnel in the organisation, and determining whether the results obtained are soundly based, useful and transferable.

Two additional factors were described by Gummersson, (2000): first, pre-understanding and understanding of the organisations and or culture; second, rigour of reporting and presenting lines of reasoning and conclusions. In spite of the challenges, the participant intervention technique provided a means of gaining learning and knowledge about research and practice, identifying the issues of real concern to practitioners, and in making certain that the solutions developed have real world validity.

7.1.3 Choice of Test Site

This section justifies the selection of the test site for the primary evaluation. A single case study was used for the primary testing. The following pre-defined criteria were set to guide the researcher in what to look for in a test-site:

- The scope of the project had to be big enough to test the validity of the BPI methodology, but small enough to be carried out completely by the researcher as the user and facilitator.
- The test site should be considering a process improvement or re-engineering initiative.
- The test site had no BPI methodology in place, and was exploring a new structured approach.

A senior manager of a government department with an engineering background approached Cranfield University for collaboration. The business unit known as Process Design Centre (PDC, the Sponsor), was keen to equip the design practitioners with advanced methodology, tools and techniques, with the aim of providing a service to the rest of the larger department, as well as improving the skill sets inside the team. Developing methods, tools and techniques with real business requirements would be an ideal opportunity to carry out the following tasks;

- To establish and develop a common BPI methodology for use by PDC and their partners.
- To consider the requirements of integrating existing process design methods and baseline models in the modelling tool.
- To validate the methodology by direct application.
- To generate a refined methodology for the benefit of the collaborative company during the research programme.

The sponsor provided a case study for testing the pilot methodology, which was conducted within the PDC team for a period of six months. Details of the project can be found in section 7.3.

Having stated the objective and the method for carrying out this stage of the research programme, the challenge was how to evaluate the research. In the next section, the design of the evaluation method and the assessment framework are discussed.

7.2 Design of Evaluation Method

This section describes the process taken to design the assessment procedure for testing the BPI methodology as part of the case study.

7.2.1 Research Design Overview

The purpose of this section is to establish the design method for the assessment framework. Figure 7.1 shows the macro level research design. It consists of the research design for the assessment, the evaluation with company, cross case analysis and findings.

The process of assessment design illustrated in Figure 7.2 adopts the input, process, output, controls and enablers approach to facilitate the evaluation based on the work of Pettigrew and Whipp (1991). From the methodology, through using it, there will be an outcome or content to an organisation, which the research wants to measure to see if that output is satisfactory and useful to the organisation. There are criteria by which to assess it, the indicators that help us to assess those criteria and the research instruments to enable successful implementation. This notion of process, context and output (content) and the relationships between them and performance, form the basis of discussion. The whole framework is carried out within a single case study (Yin, 1994) as discussed in section 7.1.1.

7.2.2 Designing the Assessment Framework

Two possible evaluation procedures were considered from the literature; first, NIMSAD (Normative Information Model-Based System Analysis and Design) and second, Platts' (1990) assessment criteria for testing manufacturing process research. The NIMSAD framework developed by Jayaratna, (1994), emerged from problem solving in industry,

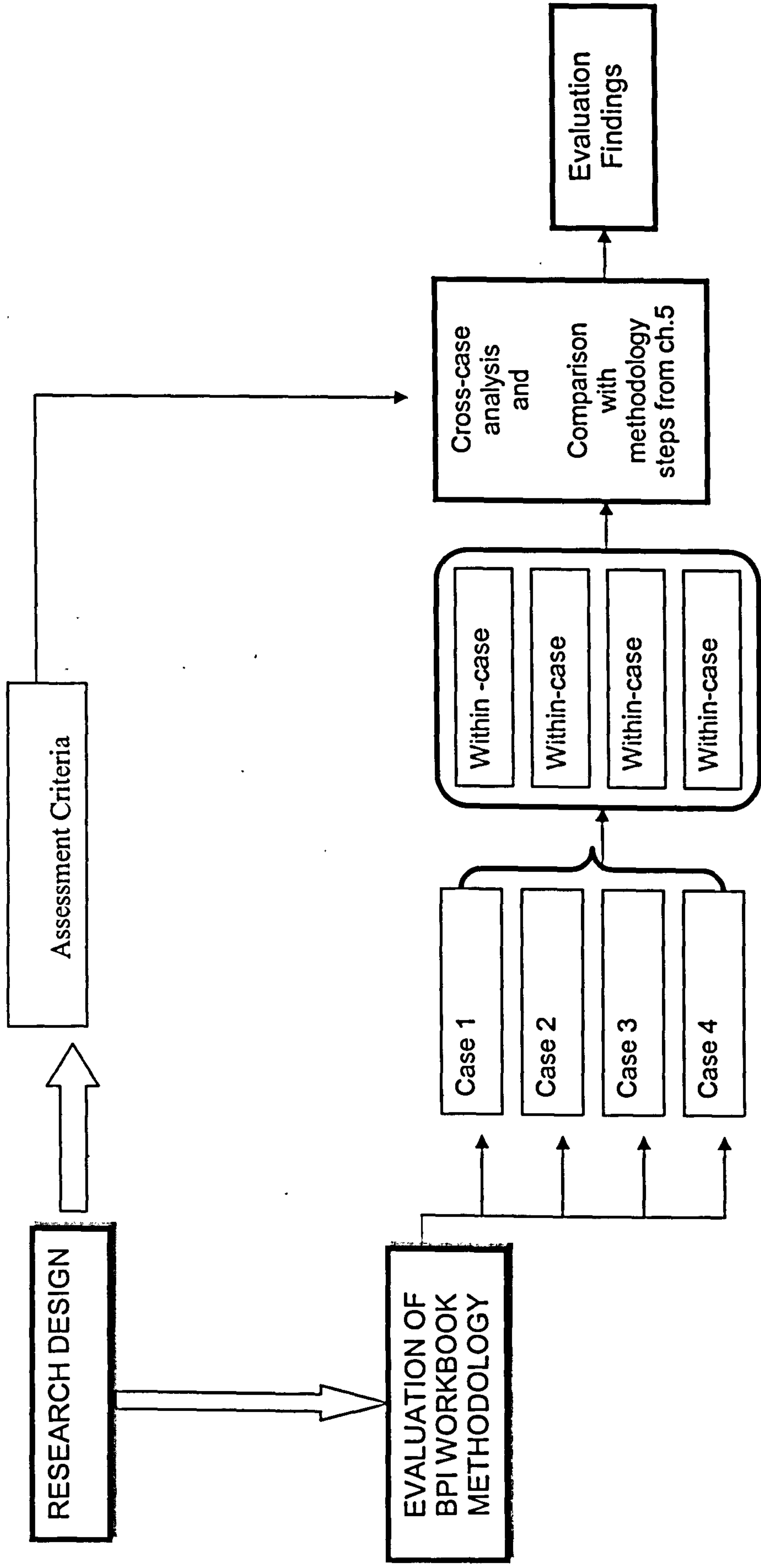


Figure 7.1: Macro-Level Research Design for Evaluation

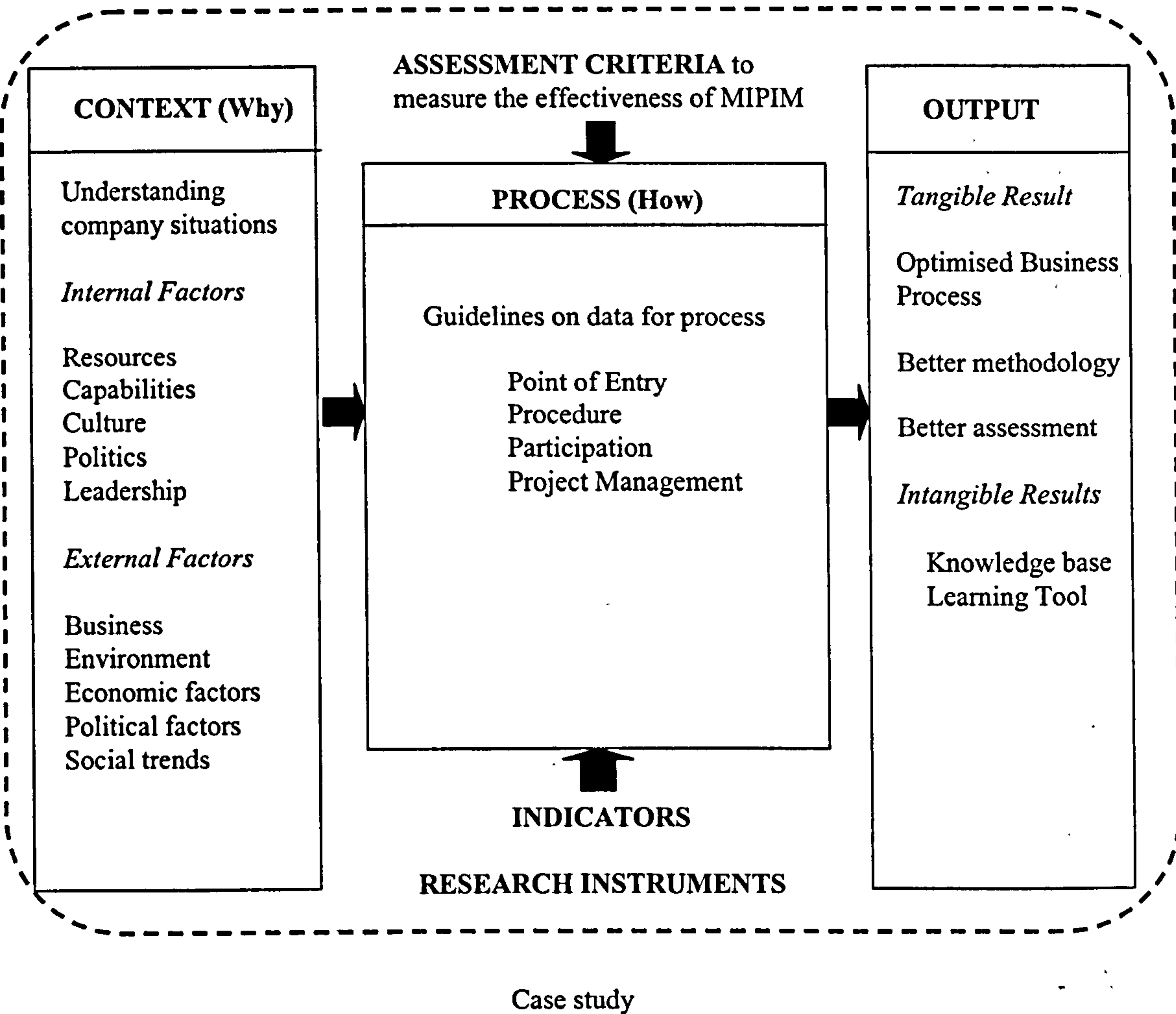


Figure 7.2: Micro-level Research design for assessment framework

consulting practice and action research. According to Jayaratna, the framework can be used to evaluate any methodology, not just information systems methodologies. The NIMSAD framework divides the methodology that is to be evaluated into the following four elements:

- The problem situation (the methodology context). In this case, the problem is the redesign of a business process.
- The intended problem solver (the methodology user). The intended problem solver is the facilitator.
- The problem solving process (the methodology). MIPIM workbook methodology is the problem solving process.
- The evaluation of the above. There are various assessment questions used to test the methodology.

Although the NIMSAD framework is good to use to identify the initial structure for the evaluation exercise and understanding the problems, it does not provide the level of procedural and clinical process required in evaluating the MIPIM workbook. Thus, the research decided against using it and instead, the procedural approach of assessing process research was adopted (Platts, 1990), as described below.

Process research has generated increasing interest from strategy that focuses on the relationship between systems, decision processes, performance (Chakravarthy and Doz, 1992) and operations management looking at the relationship between operational processes and performance as opposed to the traditional way of design and implementation of processes. Voss et al. (1994) agreed that a process-based approach can play a considerable role in developing and testing a theory of process effectiveness and the use of a process based assessment framework has the potential to develop value to practitioners if it is to be of relevance to the industry. There is evidence to support adopting a process approach. Gregory et al., (1996) offer a useful insight into the process approach that allows practice to be operationalised, captured and compared. The authors set out the following benefits that can be achieved:

- Systematic and organised approaches yield better results than ad hoc methods.
- Robust and transparent approach allows projects to be delivered with minimum risk and time.

- It provides a framework for assessing the completeness of process.
- Process approach enables managers to learn and refine a methodology over time, and gain an improved understanding of actions and consequences.
- Process approach makes the normal working practice of a business explicit, operational.

7.2.3 Designing the Assessment Procedure

An assessment methodology has to be, in the words of Platts (1990) “an organised and systematic procedure which involves people in a participative manner, both in basic data collection and joint discovery through its subsequent analysis, leading to creatively identifying improvement opportunities.” In order to evaluate the effectiveness and success of the BPI methodology in use, a process approach for the assessment framework was developed, based on previous literature in the provision of methodological workbooks such as:

- manufacturing strategy (Platts, 1990, 1993).
- performance measurement system design (Neely et al., 1996; Bourne et al., 1999).
- innovation management audit (Chiesa et al., 1996; Phaal et al., 1998).
- technology management (Patterson et al., 1997; Probert et al., 2000).

The BPI methodology assessment framework shown in Table 7.1 consists of three categories of assessment and the following research issues considered as part of the process research such as:

- **What:** What questions should be asked of the criteria? To answer the questions at each step of the methodology, what set of performance indicators do we need to consider to measure if it is working well?
- **When:** When should data be sought?
- **Who:** From whom should data be collected?
- **How:** How should the data be collected and what form of data collection should be used? (Semi-structured interviews, questionnaires, sample size, participant observation etc.)

The assessment criteria should therefore be practically based. Platts, (1990) suggested that successful tests of any practical methodology should constitute:

- Feasibility - Can the workbook MIPIM methodology be followed?
- Usability - Is the BPI methodology workable? Are the steps, tools and techniques easy to use?
- Usefulness - Is the workbook methodology worth following? Does the methodology produce workable results that the business finds helpful?

Feasibility

The testing of feasibility is straightforward according to Platts. If each step in the methodology was followed consistently as laid down, this demonstrates the methodology is feasible. Alternatively, feasibility was thought of as a test for point of entry or capability of the organisation to follow the methodology, for example risk assessment on the methodology. If the workbook does not appear to be feasible for instance, this needs tailoring for extra credibility. Hence, feasibility is a prerequisite and needs to be asked early on in the process. Feasibility was assessed in terms of completeness, consistency, success factor and contingency.

Usability

For the methodology to be accessible to users and managers, the techniques and tools have to be relatively easy to use and user friendly. Factors include the clarity and simplicity of the workbook methodology, getting ownership and support, organisational and cultural factors, facilitation skills, resource availability, elapsed time, the problems and difficulties faced in using the methodology and asking users for their opinions using both qualitative and quantitative questionnaires and followed by interviews. Usability was measured based on time, ease of use, understanding, participation and flexibility. The intention is to test the methodology and to refine it by application.

Usefulness/Utility

Following the completion of the methodology, its success is assessed. There is a cost involved in undertaking the methodology. Assuming the methodology can be followed

Table 7.1: Methodology Assessment Framework

Categories of Assessment	Performance Questions	Performance Indicators	When	Who	How
<i>In what ways can a methodology success be evaluated?</i>	<i>What questions should be asked to be able to comment on each category of success?</i>	<i>What responses indicate answers to the questions?</i>	<i>When should responses be sought?</i>	<i>Who should provide responses?</i>	<i>How should the data be collected?</i>
Feasibility	Could be methodology be followed?	Completeness Consistency Success Contingency	Post completion	Facilitator	Post Completion Questionnaire Interview
Usability	How easily could the methodology be followed?	Time Ease of use Understanding/Frustration Participation Flexibility	Each step of the methodology	Participants and Facilitators	Post Completion Questionnaire Interview Diary Participant Observation
Usefulness	Did the methodology provide a useful output that met expectations?	Efficiency Effectiveness Satisfaction	Post completion	Participants/end users Facilitator	Post Completion Questionnaire Interview
Context	What are factors internal & external to the organisation that may impact on the methodology?	Confidence Organisational Structure & culture Business Environment	Pre and Ongoing	Facilitator	Participant Observation Post Completion Questionnaire

and is easy to use, the management team should consider that the results obtained from undertaking the case project are worth the time they invested. Again, asking the opinions of participants after the application can test this. To add to this, two other criteria are considered. The team should consider whether the methodology produces a good output and can it be demonstrated that the output is a function of the methodology and not solely of the facilitator (Neely et al., 1996).

This refers to the overall usefulness of the methodology. Factors include short-term perception of value, long-term significance to the company in terms of process improvement, changes that can be attributed to the application of the workbook, ownership and support and appropriate timing for the application of the method. Usefulness was assessed in terms of effectiveness, efficiency and satisfaction. Intuitively, it is possible to assume that without user satisfaction, a methodology is less likely to be used and to produce beneficial results to the organisation.

Context

To these criteria, one other test is added, context. This methodology may mean different things in different organisation. Pettigrew's (1992) definition of context was adapted to business process research and this is interpreted to mean the capability of the organisation to apply the methodology. Context is measured by looking at factors internal and external to the organisation that may impact on the use of the methodology. Organisational structure and culture, politics, confidence and business environments are examples of measures.

Once assessment criteria are defined, other issues are considered as part of this process approach framework. Questionnaires were developed to help answer the 'what'. In order to do this at each step of the methodology, it was necessary to formulate a set of performance indicators that would measure whether the methodology was performing well. From this, fifteen sets of performance indicators were established. The definitions of each of the indicators are provided in Appendix B.1. Example of questionnaires to illustrate the indicators for each criteria is shown in Table 7.2. A full sample of the pre, during and post completion questionnaires is exhibited in Appendices B.2 to B.5.

7.2.4 Data Collection Methods for the Assessment Procedure

Although Yin, (1993) provides a good structure for conducting the research, it does not help in defining what data should be collected. The data collection model chosen was that developed by Pettigrew et al., (1989) for researching the management of change. Their work ensures that change and decision process are not considered in isolation of organisational 'context' and 'content' of the change. Their model of context, process and content was appropriate for the data collection as illustrated in Figure 7.2. For instance, the data collection model for the context was taken directly from Pettigrew et al., (1989), including internal and external factors.

For the process, the data collection was based on the work of Platts, (1994), the four characteristics of robust and successful methodologies were adapted to provide a basis for the procedural operations. These are namely, point of entry, participation, project management and procedure. Data collection was also based on the feasibility, usability and usefulness.

The research based the data collection for content (outcome) on the Pettigrew et al., (1989) framework. It was recognised that tangible outputs from the process of assessment, the business process and the methodology should be present. It was also recognised that besides the tangible outcomes, there may well be intangible benefits known through observation and interviews. This could include individual or group learning and knowledge developed as a result of the project which may have longer term influence.

The size of PDC and the problems being tackled suggested that questionnaire based interviewing techniques were more appropriate. Seven key areas were proposed to capture the data collection, and within each, it addressed when to assess, the target audience, type of assessment criteria and the research instruments used (Appendix B.2 to B.5).

1. Pre-methodology, to facilitators, covering context and risk (questionnaire based interview and observation).
2. Pre-methodology to participants covering risk (questionnaire).

Table 7.2: Matching questions to indicators and risk assessment

Indicators	Questions
Feasibility	
Completeness	Were all the steps in the methodology completed?
Consistency	Did you feel there was enough time to address each step?
Success	Did the project follow the workbook methodology?
Contingency	If the project encountered problems, did the methodology provide alternative solutions?
Usability	
Time	Did you allocate time for people to attend meetings
Ease of use	Did you find the step and the tool helpful
Understanding	Did you encounter any problems following the steps
Participation	Did you get the chance to contribute
Flexibility	Were any modifications made to the methodology?
Usefulness	
Efficiency	Did the project consume excessive resource of time and people?
Effectiveness	Was a successful output a function of using the methodology?
Satisfaction	Would you use the methodology again?
Context	
Confidence	Have you used a structured methodology previously?
Organisation structure & Culture	Is there a flat or hierarchical organisational structure?
Business Environment	Have there been any recent changes in policies that may impact on the use of the methodology?
Risk	
Success Risk factors	What are the internal and external risks to the methodology being successful?
Specific risks to Methodology	<i>What are the specific risks in the workbook methodology?</i>
Risk of not using MIPIM methodology	What are the risks of not using this methodology?
Factors undermining the assessment criteria.	What could happen to undermine feasibility, usability and usefulness of the methodology?
Risk to time	What are the generic risks to timescale?
Contingencies	With hindsight, what plans would you make for dealing with problems in the workbook methodology?

3. At each step of the methodology, to participants, covering usability (questionnaires, observation and diary).
4. At each step of the methodology, to facilitator, covering usability (interview and questionnaire).
5. Facilitator observation checklist, covering usability and context (questionnaire, observations).
6. Post methodology, to facilitators, covering all four assessment criteria (questionnaire, semi-structured interview).
7. Post methodology, to end users or participants, covering usefulness and usability (questionnaire, semi-structured interview).

7.2.5 Research Instruments for the Assessment Procedure

Having established what data to collect, when and from whom, the last activity within the framework was designing how to gather the data through the use of research instruments. Primary and secondary sources of evidence in line with Yin, (1994), were employed during the research project. Questionnaires were developed and administered to collate quantitative data and the level of importance (Morse, 1994; Yin, 1994; Patton, 1990; Strauss and Corbin, 1990). Participant observation, semi-structured interviews and diary were used to gather qualitative data in order to determine what was important in the context of the research and why (Patton, 1990). Where possible, multiple sources of data added the advantage of triangulation. The tactical methods used for these research instruments are described below.

Questionnaire Design, Validity and Deployment

A principal method of collecting test evaluation data within the case study was through questionnaires. Several assessment questions were examined to assess their usefulness and appropriateness, including readiness assessment, manufacturing strategy formulation, technology management and performance measurement. Table 7.3 lists the types of assessment questionnaires considered. None of the questionnaires studied were completely appropriate for assessing each of the assessment indicators. Whilst the

researcher adapted the assessment criteria provided by Platts, (1990), the problem was lack of description of questionnaires to measure the criteria. The researcher decided the best approach would be to take some knowledge from the questionnaires examined and develop a specific questionnaire.

The process of questionnaire design is often divided into a step-by-step approach. The approach was based on the eight steps scale development (DeVellis, 1991) now customised into five step approach by Brown, (1997).

1. *Clearly outline what is to be measured.* The researcher should explore in detail and be certain of exactly what areas are to be measured.
2. *Generate an item pool.* A large number of possible draft questions should be formed and reduced by choosing the ones most relevant to the purpose.
3. *Determine measurement format.* Thought should be given to the type of measurement scaling which would be most appropriate to the type of information collected.
4. *Review item pool.* The pool of questions should be reviewed and refined by several experts.
5. *Pilot test.* The final questionnaire should be tested on a sample number of users. Refinements and amendments should be made to the questionnaire where necessary. Additionally,
6. *Obtain reliability and validity data* – added by Morris et al. (1987) from developing a performance test in program evaluation.

To ensure clarity and lack of bias, attention was given to the wording of the questions. The guidelines in the literature for the questionnaire development were followed concerning the contents, sequence, wording, layout, the look and feel, open and closed type questions and the scaling techniques (Oppenheim, 1996; Czaja and Blair, 1995; Sekaran, 2000; Fink and Kosecoff, 1985). The number of questions for usability questionnaire during application to facilitator was between 30-35 and to participants, was narrowed down to about 25 on average. Post completion questions to participants numbered 35 in all.

Table 7.3: Questionnaires Assessed

Questionnaire	Source
Readiness Assessment Questionnaire	Jackson, (1997)
Manufacturing Strategy Assessment	Creating a winning business formula Mills et al., (1997)
Competitive Manufacturing	University of Cambridge and DTI (1988)
Technology Management Assessment Questionnaire	Farrukh et al., (2000)
Performance Measurement Questionnaire	Neely et al., (1996)
Concurrent Engineering Implementation Questionnaire	Lettice, (1995)

During the process of generating these questions, the scale used to measure respondents' attitudes to the questions was also decided. Oppenheim, (1996) states that the function of a questionnaire is measurement. What to measure is contained in the questionnaire specification. The ranking scale chosen for the questionnaire was the Likert scale. In the PDC primary case project, a four-point scale was chosen, as opposed to the typical five-point scale, where 1 indicates not at all (strong disagreement) and 4 indicates very (strong agreement). The main reason for using a four scale was to restrict the number of choices required thereby avoiding the neutral ground. The Likert scale is popular as respondents can easily rank the strength of their opinion about a statement along a scale, and it provides a good method of attitude measurement and good reliability.

By following the approach, a set of assessment questions was developed in order to test the usage of the methods, tools and techniques. The purpose of the assessment questionnaire was to find out participants' perception on how the workbook methodology was used, and to identify areas that may need further refinement. Qualitative questionnaires were used during the application of the methodology to the process being studied, whilst both qualitative and quantitative questionnaires were prompted for post completion assessment of the methodology, and its impact on the result. All questions were categorised into sections to match the assessment criteria, context, process and outcome.

Questionnaire Reliability and Validity

A scale must be both reliable and valid. To ensure validity, the research instrument should measure what it intends to measure (Rutman, 1989; Black, 1993). Validity reflects errors in the form of bias. Yin warns of the bias inherent within leading questions. Bias distorts the objectivity of data. Data quality may also be compromised by participants' responses. A scale that fails to measure what it is supposed to is of little help to the researcher and is invalid (Davis, 1996).

In addition to having a valid questionnaire, it is equally important to have a reliable scale that produces consistent and stable data (Sekaran, 2000). This means that responses to the same item will be relatively consistent, and can be repeated with the same result. Reliability in questionnaires and tests can be checked through test-retest,

i.e. administering the same test some time after the first. Rutman, (1977) stresses that much of the variation in the measured event is due to inconsistencies in measurement, rather than in the event being measured. Sources of unreliability according to Rutman include:

- (1) respondent's mood, fatigue or motivation which affects his or her responses;
- (2) observer's measurement, which can be influenced by the same factors affecting the subject's response;
- (3) the conditions under which the measurement is made, which may produce responses which do not reflect the 'true' score;
- (4) problems with the measurement instrument, such as poorly worded questions in an interview; and
- (5) processing problems such as simple coding or mechanical errors.

The whole assessment framework was pre-tested with researchers at Cranfield University and the sponsored company to obtain comments on the contents of the assessment criteria, the indicators and questions and to anticipate any problems which may arise. Following the pre-test, modifications were made to the draft assessment framework which then became the initial pilot research instrument. The questionnaires were run before, during and post application of the methodology to the process improvement project, in order to gain usefulness of the methodology and to guarantee all indicators continue to be considered. During application of the methodology, open questions were used. The researcher as the user kept a diary of issues and problems. In this way, information was gathered which could be used to both improve the methodology and infer its usefulness.

Participant Observation

Yin, (1994) argues that this is a unique mode of observation. The researcher was directly involved in facilitating and observing the case study as participant-as-observer (Burgess, 1984; Sekaran, 2000). The researcher was a lead team member and shared the team members' experiences. The use of a diary played a significant part in recording data about everything observed in the process: including description of people, events and conversations as well as the observer's actions (Taylor and Bogdan, 1984). Validity

of observation is often a challenge, and to reduce bias from subjective interpretations of situations (Denzin, 1989), the researcher cross checked findings from the project participants and eliminated inaccurate interpretations (Adler and Adler, 1987). The other main concern is that researchers cannot ensure that their findings are real, hence they lack reliability (Denzin, 1989). To enhance the generalisation of the findings, Denzin suggests that systematic and repeated observations conducted on varying conditions are more credible than those gathered according to personal patterns.

Semi- structured Interviews

Interviewing is one of the most important sources of case study information (Yin, 1989). As recommended by Patton, (1990) and Jankowicz, (1991) the in-depth, semi-structured interviews were carried out intermittently to support the questionnaire in order to elicit any additional information. Due to the time pressure on the part of the participants, the researcher was unable to fully utilise this method for all participants during the test. The post interviews were held with the project sponsor and three employees heavily involved in the process improvement activities in PDC. The interviews were very loose allowing the interviewees the freedom to comment on any aspect of the methodology; this seemed a better choice to promote fairness and to reduce subjectivity of data. The debrief session lasted an hour. The debrief interviews began by stating the objective of the meeting, then checked the completed post assessment forms to see where further discussion was needed. The sponsor and project participants were asked what they felt worked and did not work about the methodology and the result, their experiences of the methodology and the process improvement they had been involved in.

Interviewees were asked for specific examples to illustrate their thoughts and ideas and to increase the researcher's understandings. Questions used included "What do you consider to be the major strengths and weaknesses of?" "How much influence do you think the BPI methodology had on achieving.....?" "Can you suggest improvements to the methodology?" These questions were used to elicit rich details. At the end of the debrief session interviews, the interviewees were asked if there was anything else of significance that affected the methodology that had not been covered already. All interviews were tape recorded with permission and transcribed. Whilst

Patton, (1990) says that a tape recorder is indispensable, Lincoln and Guba, (1985) recommend against its use except for unusual reasons. The use of tape recording of interviews in this research was agreed with the parties involved, which helped to minimise the risk of misinterpretation of data and lessened the risk of details being neglected. The intention was to minimise common problems of bias, poor recall, and poor or inaccurate articulation as warned by Yin, (1994).

In this section, a process-based assessment framework has been developed. The framework determines the evaluation criteria, the sets of questions and performance indicators, and the research instruments employed to implement the evaluation procedure within an organisation.

7.3 Conducting the on-site testing at Case 1

The purpose of this section is to describe the experience, success, problems and issues concerned with Case 1 using the pilot BPI methodology for process redesign. The section provides a background to the case study project, an overview of the use of the methodology to the process being studied and its subsequent validation.

7.3.1 Background of Case Study 1

Case 1 is part of the business change management regime of a larger government department. As a unit of 44 employees, the team is a central skills pool of process design and modelling experts, a central point for setting standards for modelling and quality assurance role. Their area of work is divided into four broad streams: development,, deployment and maintenance of the business model programme; technical development support and infrastructure management; and business improvement consultancy. Case 1's vision is to support the larger organisation's drive to capture and understand all key processes, through a programme of wider implementation of Automated Business Models (ABM Programme), to promote the adoption of process design techniques as a way of understanding, analysing and improving business outcomes to the benefits of ministers, users of the services,

managers and staff. The case project is reported with the project brief and Platts (1994) features of point of entry, participation, procedure/process and project management.

Key Business Improvement Event – Training and Development Process

The event chosen as the focus of the test study was the redesign of a training process. This began in April 2000 and was completed in September 2000. Within the business unit, the senior management has recognised the need for defining all their internal processes within the team's vision, in line with the Business Excellence Model (BEM). Part of this evolving vision was creating values for its team members through the training and development process.

The current inconsistency and documentation format of the training and development process indicated that improvement was a priority to adhere to the BEM, this was seen as an important step to achieve baseline process excellence. Thus, the need to improve training process led to apply the business process improvement methodology to understand, identify, improve waste in the collective knowledge and document the process.

Point of Entry and Access

A formal presentation had initially been made to the management team who agreed that the research project should be undertaken. The research and the project were described to the project sponsor, Training and Budget Manager together with the researcher background. The timescale of the project was initially agreed for 3 months, and resources and commitment from the team were discussed and agreed upon.

Participation

It was decided that the Training and Budget Manager, Training and Development Co-ordinator, Line managers and Staff were involved from the organisation, and that the researcher was involved from the outset. It was also agreed that issues relating to the project be discussed with the sponsor, and issues on change of direction or problem be discussed and resolved with the industrial supervisor from the business unit.

Project Management

A team of seven people was set up to work on the project including the researcher as user and facilitator. The facilitator managed the project with tasks delegated to the team.

7.3.2 Overview of Application of BPI methodology in Case 1

An overview of the application of the BPI methodology to the case project is provided.

The primary test was aimed at achieving three things namely to:

1. Understand whether the methodology needed refinement, and in what areas.
2. Carefully consider the way the methodology was tested.
3. Help to improve Case 1 training and development process.

The intervention approach was initiated in April 2000 and the researcher has followed the methodology, tools and techniques from the workbook methodology. The timescale of the research precluded a full evaluation of the entire methodology steps; instead, only the first five steps of the workbook methodology were followed closely. The core of testing this methodology was how the workbook supports people. A half day meeting was held to introduce the content and process of the workbook methodology to the project team, discuss and agree project specification and scope the project. At the end of the day, risk and context assessments were conducted. The team were asked to evaluate the risks in the methodology and to determine if there were potential internal or external context factors that may affect using the methodology.

The next stage was to launch into the workbook methodology. A strategy for change was set for the project in the early steps, using the objectives from the PDC business vision. The training and development process was identified as the first candidate for improvement. Detailed data capture and analysis of the process were carried out with the development of detailed process models in Enterprise Modeller tool with the input of the stakeholders and PDC staff. The process was redesigned and mapped, and an implementation plan was developed to fit with a business process focus. Appendix B.6 describes how each step of the pilot methodology was applied by the facilitator (researcher) to the training and development improvement project. Appendix B.7 will show an example of the use of XPat tool for process capture.

7.4 Evaluation Results of BPI methodology application

The results from testing the BPI methodology are presented and categorised into pre, during and post in the six areas of: risk, context, immediate reactions after application, organisation of the methodology, reactions post completion of the methodology, and the research assessment procedure. Qualitative analysis has been used to report on the pre-methodology risk, context assessment, and usability test during the application. Following the completion of the test case, both quantitative and qualitative analysis were carried out. The results of the pre methodology risk assessment and context are depicted in Appendices B.8 and B.9. The result of the immediate reactions to the methodology after application is shown in Appendix B.10, and the feedback on the organisation of the BPI methodology process is discussed in Appendix B.11. Only the reactions to the methodology post application and assessment is discussed in this section.

7.4.1 Reactions to the BPI Methodology Post Completion

The reactions of the participants to the methodology and the project following the application of the test case are discussed in this section. The three assessment criteria have been applied. The testing of feasibility involved checking that the BPI approach was followed. The testing of usability looked at how the workbook methodology was carried out, identifying problems, looking at the way in which the methodology was organised. The testing of usefulness considered how well the methodology addressed PDC's project objectives.

Members of the project were assembled for a debrief session to obtain their overall views on the performance of the methodology and its impact on achieving results. A five page post completion questionnaire was sent to the participants for completion prior to attending the debrief session; this was initiated to save time. The questionnaire was divided into feasibility, usability, usefulness and context.

The following comments were received and analysed both quantitatively and qualitatively. Quantitative questions were rated on a scale of 1- 4 (4 being very, 1 being not at all). Where a zero was shown, this indicated 'no' response was given. To arrive at

the total percentage for each assessment criteria, the sum of average for each criteria was divided by the total number of questions and respondents. Some key aspects of the results which are set out in Appendix B.12 are discussed below.

Feasibility: The feedback rated the methodology as 79% feasible. The users rated the completeness and success factor of the methodology as “4” on the rating scale. This demonstrates that PDC followed the methodology. Most felt that the options provided in the methodology for alternative solutions in the event of problems were “quite” useful, whilst the level of consistency achieved quite good.

Usability: The result showed a trend of problems in: the timing of methodology application with normal workload, methodology consultation, robustness and vagueness, these are rated “2” by most users. This is one area where some of the tools used during the project were considered not robust. Whilst the results showed a moderate success rate of 64%, other aspects showing good outcome included preparation advice prior to each application and clarity of step assessment prior to evaluation. This suggests that communication and understanding of the process were maintained. On the issue of research assessment procedure, most considered this to be managed quite well. An average result showed equal responses between the ‘partly’ and ‘quite’ scales on whether sufficient time was allocated to discussing important issues during the assessment. Examples of some of the qualitative results obtained in the form of descriptive comments to the questionnaire are presented in Table 7.4.

Usefulness: The overall feedback from the session on the usefulness of the methodology was positive; on the whole 65.18% was recorded. In particular its impact on the project was noticeable. The methodology scored 4 (average 3.25) for the usefulness of the result from the improvement project, influence of the methodology on the result scored an average of 2.75. However, the consensus view was that the process did consume excessive resources. Two out of four remarked there was evidence of change attributed to using the approach. One of the participants said not yet and the other remained anonymous. Examples of evidence noted were “clerical and system overlaps” “duplications addressed”. Another put it: “yes the fact that we now have a refined process without unnecessary duplication and everyone is clear about what happens and

when”. Most people thought the methodology and the tools would be useful in some part of their work. When asked whether they would use the methodology again, most scored yes. The Development and Training Co-ordinator thought “it provides a logical approach”, whilst the Training and Budget Manager thought, “may be to use it to look at training evaluation, human resource and finance processes”. The ABM modeller used the phrase “it will be adapted.”

On the point of whether the methodology had a future in PDC, an average result of 2.5 was produced, shifting generally towards adopting the model. Three of the participants scored 4, 3 and 2 for adoption. Nevertheless, all participants have found that the methodology provided a consistent, logical approach of looking at processes, helped process awareness amongst the team, provided equal opportunity for a starting point, and is already being used by the ABM modelling team within PDC. One participant put it “methodology hopes to have a future in the organisation as some business modellers are beginning to use it.”

Context: Few practical cultural issues arose from the set of questions asked. On the impact of organisational culture on the methodology, all found that the pressure inside PDC contributed wholly and partly to the way the methodology was followed. Concerns were expressed over the recent departmental changes and its uncertainty on the staff, resulting in low morale and lack of enthusiasm during the exercise. Increasingly, individuals were pressed for time. Most felt that in some part, the culture of PDC inhibited resulting actions. The methodology scored high for communicating the success of the approach to the wider organisation.

The view on the existence of PDC ad hoc improvement methodology taking priority over the BPI approach was split, two respondents felt no threat existed, but generally people were reluctant to change. PDC existing methodology was reported as being not universal within PDC. Others were between the two extremes holding the views that PDC current approach will to a certain extent affect the proposed method, but that some parts may be more tailoring. The view is that people are reluctant to change and it will take time to manage.

Table 7.4: Usability Qualitative Responses

Question Number	Descriptive Comments
11: Consultation with methodology	<p>“would like to use the methodology in line with the core work”</p> <p>“Depends, some of duties would not warrant it”</p>
12: Robustness of methodology, tools and techniques	<p>“I found the techniques very new at outset”</p>
21: What worked well?	<p>“Bringing group together to review existing process and redesign”</p> <p>“”The same people were involved, so everyone was at the same stage”</p>
22: What did not work well?	<p>“Tended to redesign whilst still looking at old process. Did not leave enough time for redesign/implementation plan”</p> <p>“Spaces for writing on the assessment forms were not big enough”</p>
25: Most useful activities	<p>“Step 3: Detailed data collection”</p> <p>“Defining process and redesign”</p> <p>Step 5: Assess and Redesign”</p>
26: Least useful activities	<p>“XPat brown paper exercise for process mapping”</p>

7.4.2 Reactions to the Research Assessment Process

The objective of this part was to identify problems experienced on the assessment procedure used to obtain the data and specifically, what problems were encountered in completing the assessment forms. Although this process based approach provided a theoretical framework for evaluating BPI methodology, and yielded some useful results, it suffered from the following significant drawbacks.

The respondents found the questionnaires used immediately after each methodology step had insufficient space to write comments, few expressed clarity and recollection problems because the questionnaires were completed late, whilst some preferred a better format. Constraints in filling forms on time were due to staff illness, holidays and busy workload. The questionnaires were designed to be completed by (or with) individuals, and thus the benefits of group interactions and discussion were not obtained, wholly due to time constraints. However, all found the post completion questionnaire very friendly, easy to use and professional in style and layout.

The section has discussed the results from testing the BPI methodology from the aspects of the three assessment criteria, the context and risk. It has also considered the procedural operations of the methodology.

7.5 Discussion of key findings

A number of key findings have emerged from the primary evaluation of the pilot methodology. These findings are presented as discussion points below.

7.5.1 Finding 1: The methodology was feasible and usable

Platts, (1990) states that if the steps of a methodology were followed, then the methodology is proved feasible. The testing suggests that the methodology can work provided that the steps are completed and enough time is allocated to address each step. In this case, each of the five steps tested was successfully executed, so as a tool for researchers, the methodology was feasible. The methodology has been shown to provide a useful and practical approach to the redesign of business processes. Managers,

Training Co-ordinators, process design staff and modellers found the methodology easy to use within the limitation that it was applied and assessed by the same researcher who developed it. Discussion with the staff found steps 3, 4 and 5 useful but tiring and different level of skills was apparent.

Everyone in PDC was aware of the visibility of the methodology and revealed all the known problems. Although some participants experienced a few problems, most people still found the approach very structured and helped them to acquire process thinking, something that was non-existent prior to using the workbook. Some of the problems experienced included:

- Assumed prior knowledge of Business Process Improvement
- More modelling and mapping techniques needed
- Enterprise Modeller (EM) not needed for AS IS model
- Use alternative modelling tool instead of EM
- Not all of the tools and techniques were fully utilised
- Need more knowledge of the tools and techniques
- Insufficient time allocated for redesign

7.5.2 Finding 2: The methodology produced a useful output

Discussion with PDC personnel found that the methodology played a major part in the redesigned process, and also identified instances where in the organisation information about the training and development process and time could be obtained. All the project participants found it worthwhile, regardless of whether they proceeded to implement the measures or not. The case provided evidence, which supported the assertion that the results were achieved by using the methodology and were not solely dependent on the facilitator. It was therefore found that the methodology was capable of producing a useful, credible result, and also helped in directing wider testing. A safe conclusion can be made that the methodology was good and led to improvement of the case project, and this would be a measure of success.

The other aspect of the usefulness concerned the impact of the methodology on the improvement process. This was resolved by matching the assessment criteria with the objectives of the process improvement project as shown in Figure 7.3. This indicated that by using the workbook methodology and the evaluation procedure for the case improvement project, measures for the business process have been set and process objectives met. The result is that the training and development improvement process had satisfied the measurement criteria.

7.5.3 Finding 3: Level of Process Maturity

The testing identified the level of maturity in using the workbook methodology. Two groups were identified: group 1 consisted of inexperienced user set of process design, particularly their level of knowledge in using the tools and techniques. This group needed to be taken through a step-by-step approach and be provided with a guide. The other group, called matured users, perhaps had previous experience through training, their use of the workbook was only as aide memoir. It was discovered that maturity could determine level of capability.

The key findings from the pilot test have been discussed. The evaluation has proved that the methodology is feasible, usable and useful, and has also identified the need to make the methodology more accessible to all levels of users.

7.6 Observations of Pilot Assessment

Throughout the testing, observations were maintained by keeping a record diary on the conduct of the process, identification of problems (e.g. commitment), issues and an assessment. Overall, the project was successful but the facilitator needed to take a more forceful approach. This section considers the general observations from the case project.

In order to discuss the observation in a structured manner, a categorising framework was created to address nine key observation points as discussed in Table 7.5:

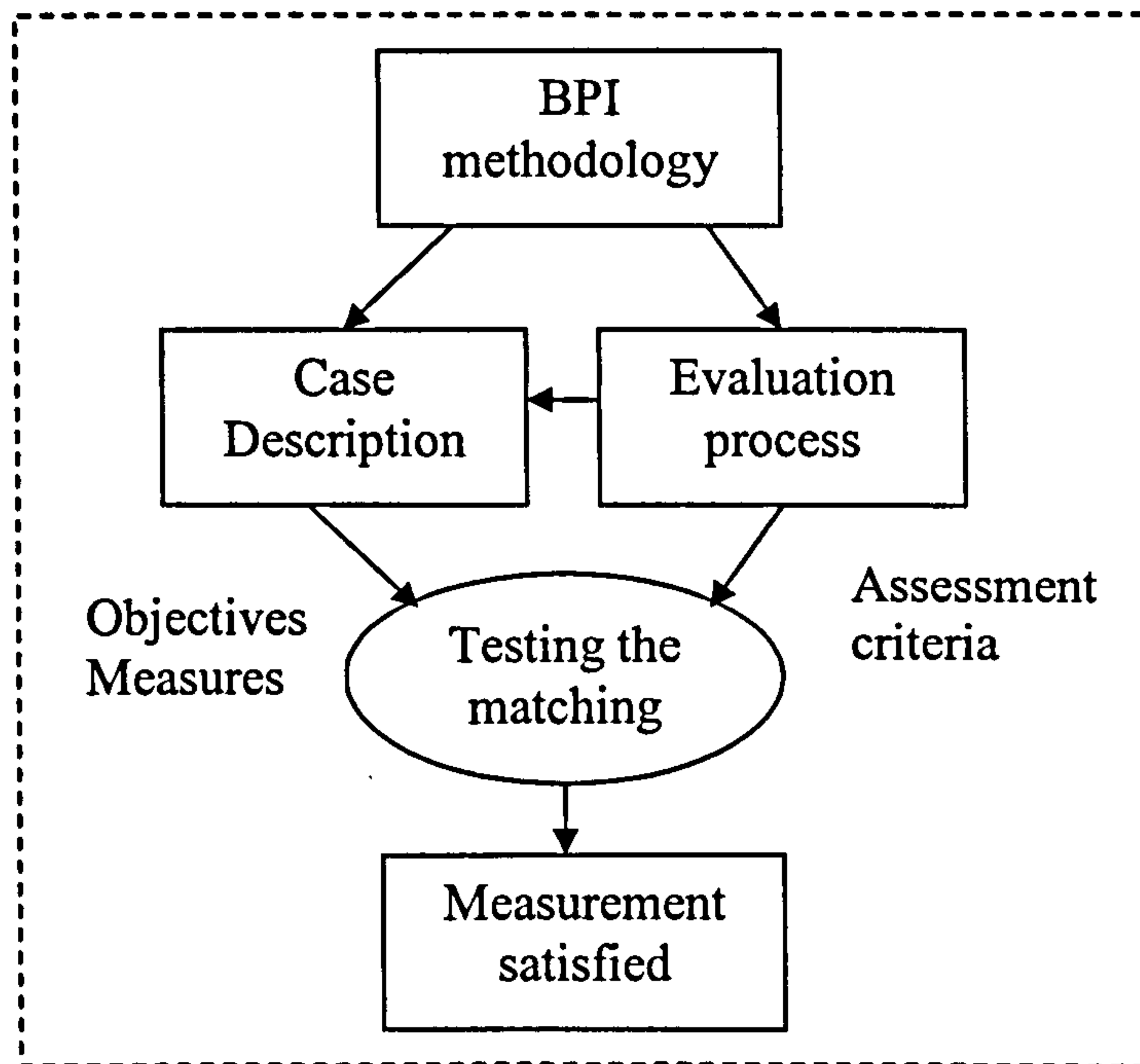


Figure 7.3: Matching process improvement objectives with the assessment criteria

1. PDC understanding of business process
2. Importance of managing people's expectations
3. Non prescriptive methodology
4. The importance of culture
5. Teamwork and participation
6. Process Maturity Level of skill and knowledge
7. Relations between process and workbook methodology effectiveness
8. Tools and Techniques
9. Testing the assessment procedure

The conclusion drawn from the observation was that adequate preparation advice could be better, and more user involvement is needed for modelling.

7.7 Refinement to the Pilot BPI Methodology

This section presents the fifth stage of the research programme, namely, refinement of the BPI methodology. The purpose of this stage is to use the feedback data gathered from the pilot test to identify, refine and improve the BPI methodology. The refinement process starts by applying and testing the methodology. From the testing, a number of areas for minor changes have been suggested by the participants. Areas needing further improvement include, cosmetic changes to the contents, terminology, timing, process maturity level. Other areas requiring improvement is the assessment procedure, such as the questionnaire layout, request for an immediate completion of the assessment forms. Within the methodology steps, a number of suggestions were raised for each step of the methodology; these are listed in Table 7.6.

Suggested changes for the pilot methodology have been used for refinement aimed at improving the usability of the model. The second refined methodology comprises a seven-step approach but this time, some of the step names have been changed, some steps have been merged and new ones introduced. The refined methodology incorporates into the step, an element of assessment of the process and the methodology to embrace the process management culture.

Table 7.5: Observations from Pilot Assessment

Category	Discussion
1. PDC understanding of business process	Improved knowledge amongst the Human Resource staff. Provided a common language for all involved. All found it was a valuable exercise to step out and look at their processes. Painful process but worthwhile said one member.
2. Importance of managing people's expectations	Specify time to carry out tasks, consider project planning, commitment and resources.
3.Non prescriptive methodology	Methodology should not be prescriptive, but flexible to adopt any part.
4.The importance of culture	Unanticipated or unplanned changes Constant re-organisational structure had a medium effect.
5. Teamwork & Participation	Participative contribution encouraged. Team felt comfortable with each other in establishing ground rules.
6. Process Maturity Level of skill and knowledge	This becomes apparent in applying XPat. The modelling and process design experts found the techniques easy to apply and follow, but struggle from the training and development staff members was evident.
7. Relations between process and workbook methodology effectiveness	Measuring the success of the methodology versus measures of process improved considered. Is the methodology capable of improving a process? A good assessment of the process improvement might help.
8. Tools and Techniques	More modelling and mapping techniques needed. More explanation of terminology used Not all of the tools and techniques were fully utilised, alternative tool used to speed the step. XPat worked but was tiring. Everyone contributed to the mapping process and helped team building. Highlighted a difference between basic and experienced process thinking. XPat tool was found by most process users to be too complex to follow, time consuming and physically demanding, but users were surprised by the detail of data collected. Modelling should be conducted by all project team, seek assistance from modelling experts
9. Testing the assessment procedure	Do the research assessment tools help? Are the right questions asked?

The refined MIPIM methodology shown in Figure 7.4, consists of the following seven steps:

1. Understand the Business Needs
2. Understand the Process
3. Model and Analyse Process
4. Re-design Process
5. Implement Process
6. Assess new Process and Methodology
7. Review new process

The feedback from application has contributed to the refinement of the methodology, which can be used for the wider application in the next stage.

7.8 Chapter Summary

The BPI methodology and the research assessment process have been applied simultaneously to facilitate the improvement project at PDC. The methodology and the research process have been both tested and questioned.

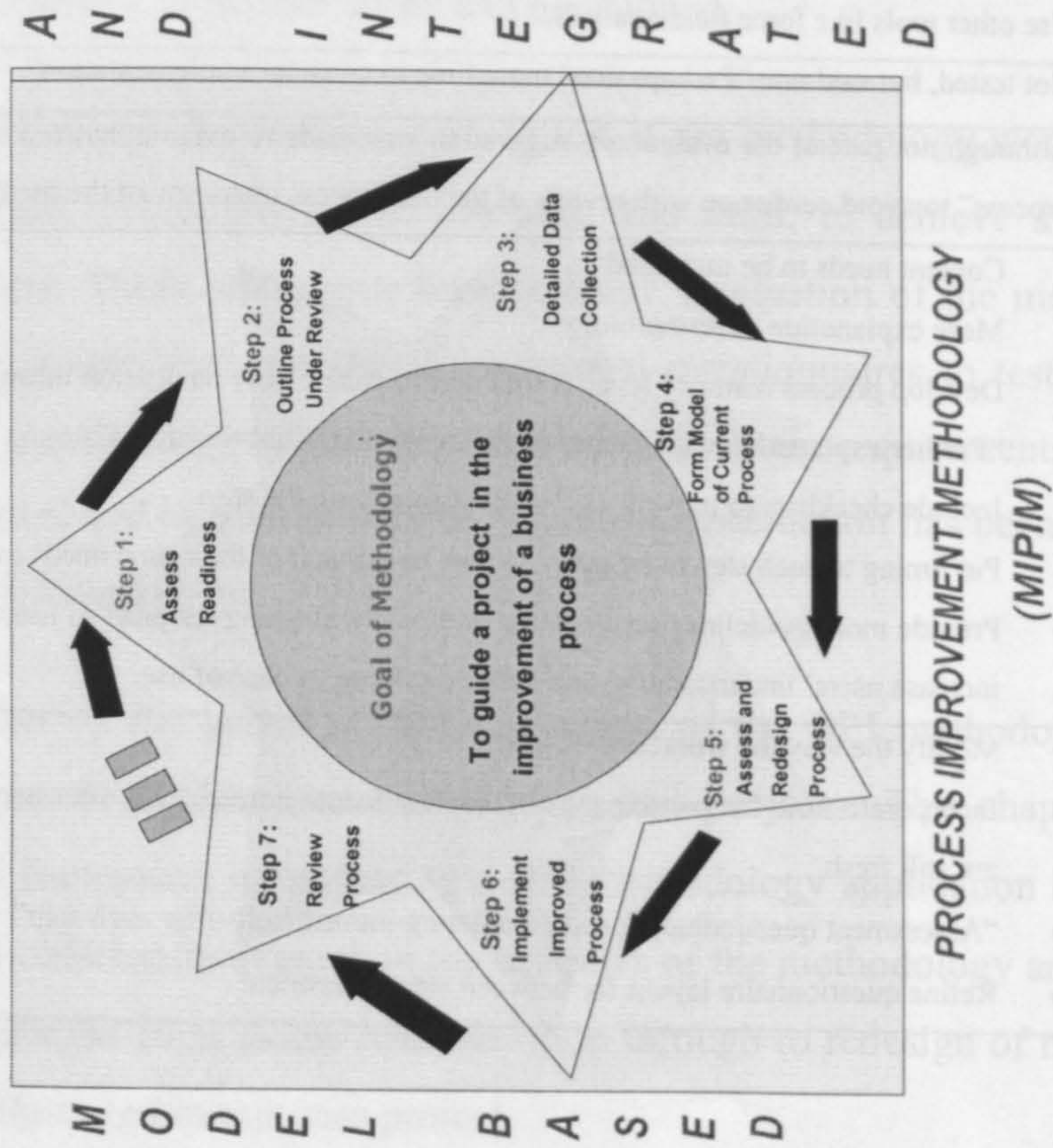
The goal of the pilot test has been, first, to test if the methodology worked, second, to test the way the methodology was assessed, and third, to achieve a change in the business process. These goals have been realised. Evaluation of the methodology was carried out by administering a set of assessment questionnaires to test the success or failure of the methodology. This was undertaken to obtain requirements from both the process designers and end users. Feedback from the evaluation has been used to further redevelop the methodology.

The view taken by the author is that evaluation of the BPI methodology requires a different approach to that used for conventional projects. The chapter proposes a process-based framework for assessing a BPI methodology application in practice. The importance of continually evaluating the usability of the methodology and its impact on the business process from assess readiness step through to redesign of new process has been clearly illustrated in this case project.

Table 7.6: Suggestions for Improvement from Pilot Test

Methodology Changes	Suggestions for improvement
Step 1	Align business process to business objectives/strategy Seek management commitment on time and resources
Step 2	
Step 3	Identify customers and stakeholders explicitly. State the objectives of involving them. Clearly define customers and stakeholders. Use different mapping method for visualisation “More initial explanation perhaps of how to use XPat technique” Allocate a day for XPat workshop “may be a practice run to reinforce understanding before embarking on the exercise” Tick off some of the elements on XPat which can be obtained later so as to save time during discussion with the users.
Step 4	Consider changing the title to a simple one to avoid misinterpretation by different levels of users. More time needed for modelling. Use alternative methods and tools Simplified examples of the tools and techniques before use
Step 5	“Together, assess and redesign step were too much because they are very large and important” “Split step “ Allow more time for redesign, allocate one day Use other tools like force field analysis
Step 6	Not tested, but said one “Perhaps need more time to consider implementation”
Step 7	Although not part of the evaluation, suggestion was made to rename the step to “Review the new process” to avoid confusion with review of the old process or review of the methodology.
Cosmetic Changes	<ul style="list-style-type: none">• Content needs to be increased• More explanation of terminology• Develop process maturity level of user sets to enable easy navigation through the workbook• “Further explanation with examples and reference to abbreviations”• Include checklists to prevent exit without satisfying the step• Put timing to each step to let people know how much of their time needs to be committed.• Provide more guidelines, explanation and practical examples prior to use, perhaps, this would increase users’ understanding and hence facilitate its ease of use.
Assessment Changes	<ul style="list-style-type: none">• Modify the way the workbook is tested• Incorporate time for participant to complete forms immediately after each step while details are still fresh.• “Assessment questionnaire need completing immediately after each step”• Refine questionnaire layout for between step assessment

Old



Refined

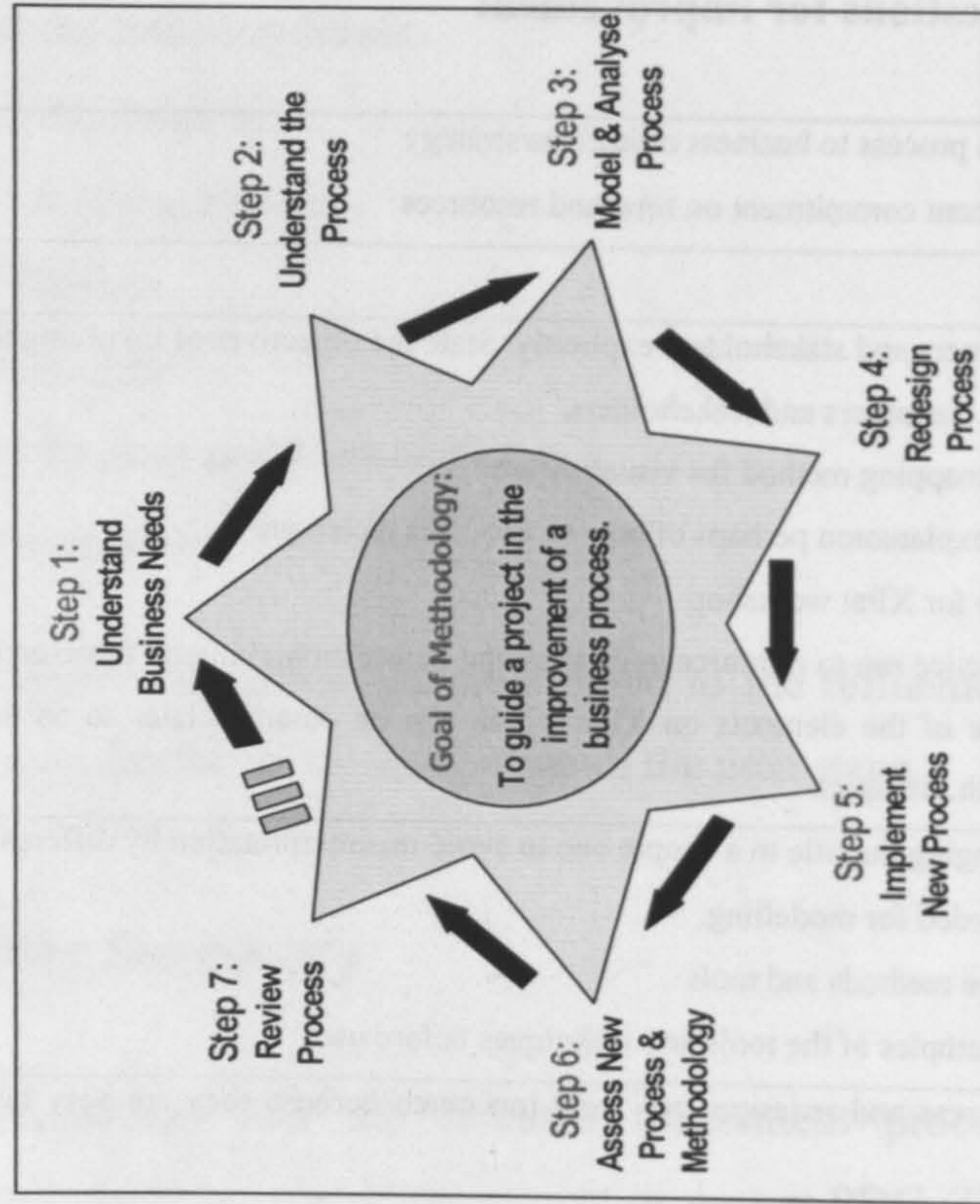


Figure 7.4: The Pilot and Refined BPI Methodology

The nature of this research stage suggests an action-oriented intervention approach. The intervention is aimed at contributing both to the practical concerns of the organisation, whilst generating new knowledge. A case study method has been adopted for this pilot project. A variety of research methods were used to collect and analyse data using both qualitative and quantitative methods. The next chapter will present the wider application of the refined methodology across three organisations in the public and private sectors.

Chapter 8

Wider Application of the BPI Methodology

Chapter 7 discussed the results of applying the pilot BPI methodology by the researcher. The methodology was judged to be successful, however, there was a concern that the facilitator could have achieved success by means of process consultancy skills, and as a result of the close involvement in the study. In order to minimise this effect and to allow independent use, a second phase of testing was carried out, with the purpose of evaluating the refined BPI methodology more widely using new facilitators. This wider testing is the focus of this chapter, as it represents the sixth stage of the research programme.

The structure of this chapter is presented in these sections: section 8.1 describes the objective and method for realising the stage testing; an overview of the application of the BPI methodology by the companies that used the methodology is presented in section 8.2. The results of the cross-case analysis are discussed in section 8.3. The subsequent sections discuss the findings, observations, measure of success, performance and improvement areas.

8.1 Stage 6 Objective and Method

The objective of this part of the testing stage is to test the refined BPI methodology in a much wider application, so as to determine whether the methodology is generic and robust. At this stage, the intention is to allow the methodology to be used independently of the author who developed the approach, and to encourage use by managers. A number of ways can be used to realise the stage: the method of conducting the test could be different, similar assessment criteria could be used here, the companies would have to be selected by satisfying certain entry requirements, and finally, the research may need to choose an appropriate data collection method. Therefore, there are four parts to this particular stage in the research, firstly, to establish the tactical research method,

secondly, to determine the measurement criteria used to assess the application, thirdly, to determine the selection of the participating companies, and finally, to establish what methods to use for data collection.

8.1.1 Research Method Adopted

The type of research method adopted for this stage of the research is discussed in this section. In contrast to Chapter 7, a case study method without the researcher intervention was employed for this part of the programme. The role of the researcher at this stage was very much an observer-as-participant, by maintaining periodic contacts with the people involved within the case study organisations (Burgess, 1984; Gill and Johnson, 1997). Each company facilitated the methodology in their own organisation.

8.1.2 Evaluation Criteria

The goal of the wider application was to test the broader use of the BPI methodology, and to establish whether it was feasible, usable and useful in the selected companies. These three assessment criteria have been described fully in Chapter 7. The evaluation research design was illustrated in Figure 7.1 showing the method for the assessment framework and the evaluation with companies, cross case analysis and findings. The process of execution as shown in Figure 8.1 follows the micro-level research design for assessment framework in Figure 7.2, namely the context, process, output, guides and enablers. The process is the application of BPI seven-step methodology in a series of case domains. The output/outcome from the process are two-fold: a refined or new business process and a better BPI methodology. The context column is concerned with the role of the researcher as observer, the BPI methodology, point of entry and statement of context.

To enable a valid evaluation, the methodology assessment framework (section 7.2.2) was applied to test feasibility, usability and usefulness before, during and post application, against the facilitator, participants and observer (researcher), utilising various research instruments. By analysing the information given on what happened during the change process, a description of the decisions made by the three companies and of the problems was produced.

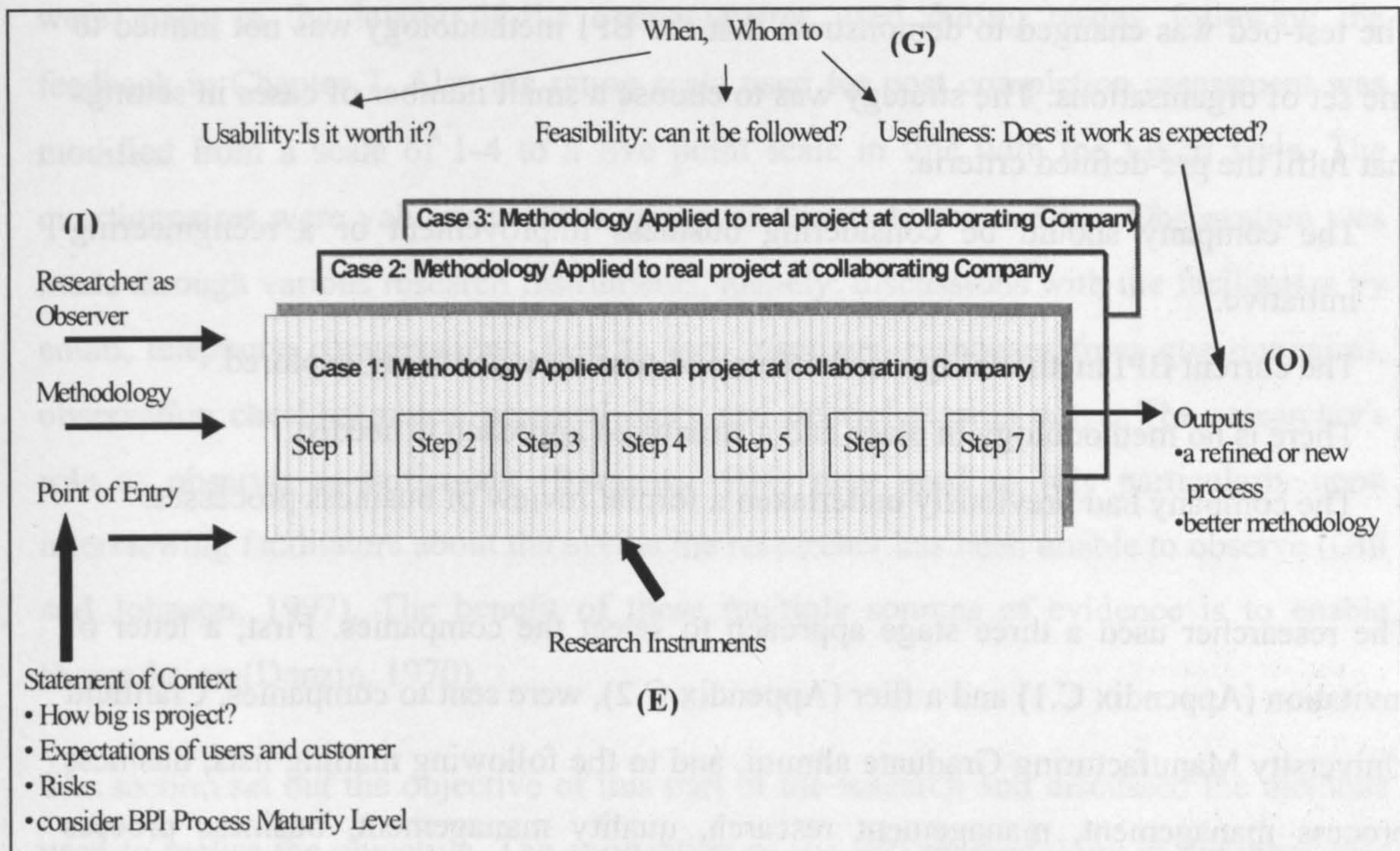


Figure 8.1: Wider Test execution

Table 8.1: Characteristics of participating companies

	Case 2	Case 3	Case 4
Size	50-249	10-50	50-249
Ownership	Corporation	Subsidiary of large Irish corporation	Public authority
Business/Products	Software Development and IT Consultants	Logistics and Distribution	Leisure, recreation, sport and conservation
Access via	Business Consultancy Manager	Managing Director	Best Value Manager
Participating team in process	Finance Client Services	Warehouse Operations Manager Finance	Corporate Marketing Department Managers Best Value Unit
Facilitator	1	2	1
Date of case project	Jan-June 2001	May-Aug 2001	June-Nov 2001

8.1.3 Characteristics of participating companies

This section sets out to determine the selection of the test site for the wider evaluation. The test-bed was changed to demonstrate that the BPI methodology was not limited to one set of organisations. The strategy was to choose a small number of cases in settings that fulfil the pre-defined criteria:

- The company should be considering business improvement or a reengineering initiative.
- The current BPI methodology is obsolete and new ones are being explored.
- There is no methodology in place and a structured approach is needed.
- The company had previously undertaken a formal review of business processes.

The researcher used a three stage approach to select the companies. First, a letter of invitation (Appendix C.1) and a flier (Appendix C.2), were sent to companies, Cranfield University Manufacturing Graduate alumni, and to the following mailing lists, business process management, management research, quality management, business process management and improvement, and the Institute for Public Finance Best Value Quality Forum. The second stage involved responding to interested people and giving further details about the methodology and the assessment process. If still interested, the final stage of selection was to invite them to Cranfield University for a formal introduction meeting, presentation and to discuss possibility of collaboration, project scope, time-scale and roles. At the end of the meeting, a decision from either side was made whether to continue or not.

Once the selection process was completed, a three-stage entry framework was defined. The first stage was to present the BPI methodology and the research framework to the collaborating companies both at Cranfield and at company sites to the senior managers, taking approximately two hours. The second stage involved giving two days in-house training sessions in the use of the methodology to the facilitators, the project team members and the supply of the comprehensive workbook. The third stage was the half-day debrief session with the facilitators and the project participants. Table 8.1 shows a profile of the characteristics of the case companies. All the preparation, tests and evaluation took place between December 2000 and November 2001.

8.1.4 Data Collection Structure

The methods used to collect data are described in this section. Some minor changes were made to the layout of the questionnaires used during testing following the feedback in Chapter 7. Also the rating scale used for post completion assessment was modified from a scale of 1-4 to a five point scale in line with the Likert style. The questionnaires were validated with a group of Cranfield researchers. Observation was made through various research instruments, namely: discussions with the facilitators by email, telephone conversations, face to face meetings, responses from questionnaires, observation checklist notes, personal diary and debrief session notes. The researcher's role as observer-as-participant (Burgess, 1984) may need to rely particularly upon interviewing facilitators about the events the researcher has been unable to observe (Gill and Johnson, 1997). The benefit of these multiple sources of evidence is to enable triangulation (Denzin, 1970).

The section set out the objective of this part of the research and discussed the methods used to realise the objective. The application of the BPI methodology in the three case studies will be presented in the next section.

8.2 Overview of Case Study Applications

An overview of three case studies is presented in this section. Each case study provided a useful and different perspective of business process change. A detailed description of each case study application is set out in Appendix C.3.

Case 2 was a medium-sized global developer of strategic manufacturing applications. One area vital to its UK success was the client services and support business unit. The service ordering and delivery processes were identified as the candidates for redesign. The focus was to make these processes effective and efficient to ensure a friendly, professional service. Case 2 initially identified five key processes from the ordering and service delivery. Out of the initial processes, two were redesigned, namely the invoicing/debtor management and request for service processes. Within the request for service process, the bidding review sub-process was re-engineered, resulting in a new bid management process.

Case 3 was a small wholly owned subsidiary and independent logistic operation of Folens educational publisher in Ireland. The order requisition and warehousing processes were the candidates for improvement, because of the problems in tracking customer orders and managing inventory discrepancy. Lack of product knowledge and staff training contributed to most of the problems. Minor changes were made to the sales order processing, but the warehousing process required a closer look at the pick locations, layout etc. Immediate results included employee monitoring, ownership and coaching by appointing an in-house trainer to carry out quality check. The improvement process also raised cultural changes that needed further investigation.

Case 4 was a public sector authority involved in the provision of leisure, sports, recreation and conservation. The authority adapted aspects of the BPI methodology to reengineer its Corporate Marketing under the Best Value review, particularly how marketing thinking and activities were used to help the authority achieve local business plans and the objectives of the Strategic Business Plan. The focus was to promote an integrated departmental approach to marketing. The redesign step looked at the best ways to deliver marketing services. A benchmarking study was conducted to obtain best practice, solutions recommended included business planning process, re-education of staff, marketing information system, direct championing etc.

Having given an overview of the applications, the results of the testing are presented and analysed in the next section.

8.3 Evaluation Results of BPI Methodology Application

This section presents the findings of the three cases based on pre, during and post assessment procedure. Three requirements were tested: feasibility, usability and usefulness. The refined methodology and assessment procedure yielded rich data, which is structured around the steps of the BPI methodology. The results of the pre methodology risk assessment and context are depicted in Appendix C.4 and C.5. The result of the immediate reactions to the methodology after application is shown in Appendix C.6, and the feedback on the organisation of the MIPIM methodology process is discussed in Appendix C.7. Only the post reactions to the BPI methodology

application are discussed in this section.

8.3.1 Reactions to the Methodology Post Completion

The purpose of the post completion assessment was to provide a way of recording the overall performance of the methodology on all the criteria established for the assessment of the methodology. Quantitative questions were rated on a 5 point scale (5 being very, 1 being not at all and 3 being don't know). Where zero is shown, this indicates no response was given. In line with the pilot result, the total percentage for each criteria is calculated as follows: the sum of average for each criteria is divided by the total number of questions and respondents. The following represents the comments made.

Feasibility: The three companies followed the methodology and this demonstrates that it is feasible. Three process participants in Case 2 shown in Appendix C.8.2, responded to the four questions on feasibility and rated the methodology as 78.33 %, five participants in Case 3 scored 47% (Appendix C.8.4) whilst six participants in Case 4 rated 64.17% (Appendix C.8.6). The facilitators' perceptions of the methodology were very good in Cases 2 and 4, (Appendix C.8.1, C.8.5) but average in Case 3 (Appendix C.8.3) .

Usability: The measure of usability was also tested post completion and here, the research sought both quantitative and descriptive statements from both facilitators and process users. Based on the eight quantitative questions, three participants rated the usability of the methodology as 71.67% in Case 2 (Appendix C.8.2), 53% in Case 3 (Appendix C.8.4) and 63.33% in Case 4 (Appendix C.8.6). The rating from facilitators was also positive. These findings were further supported by descriptive comments made by companies as shown in Table 8.2.

Usefulness – Success of the methodology and outcome of the process: The measure of the usefulness of the methodology took two forms, first the perceived success of the methodology and the outcome of the process improvement projects. All indications pointed to the fact that the methodology was perceived very good by the facilitator in

Case 2, average in Case 3 and very good in the last company. From the participants' perspective, the following feedback was received. Of the six questions asked, three users scored 70% in Case 2, five users rated it 54.67% in Case 3, and six respondents in Case 4 scored 66.67%.

In measuring the success of the methodology, process participants scored "4" in Case 2, average of "2.8" in Case 3 and average of "4" was recorded in Case 4. The facilitators rated the methodology success as "4" "3" and "4" respectively. The following statements supported the findings.

"successful as far as we have gone" (Case 2- participant) Q.27

" Successful in some parts" (Case 4 –participant)

" too early to tell" (Case 3 –Facilitator)

On the point of whether they will use the methodology again in future (Q35/Q37 F), some of the comments received were as follows:

"yes, if content simplified" (Cases 3 and 4)

"yes when adapted" (Case 4)

"yes, would like to use it" (Case 3- user)

"yes, the basics are sound but must be tailored to individual organisation" (Case 3 –user)

"yes, the basic steps were ok and useful as a structure to follow, with some changes" (Case 3 – Facilitator)

"yes, it provides a good discipline and good tools and techniques" (Case 2 – Facilitator)

All three participating organisations reported that it was too early to judge the success of the BPI project as implementation has only just started and in the last, still waiting for project to finish. The rating by Case 2 facilitator for the project success was "3", "3" in Case 3 and "4" in Case 4. The average results from the user participants' ranges from 3.0, 2.2, and 3.0.

The test results have proved that the methodology can work, and changes have been achieved. Four different facilitators, with different skill levels, successfully completed

Table 8.2: Cross case Qualitative Post Usability Statement

Question Number	Descriptive Comments
17	"Workshops worked particularly well where view of opinions and knowledge was shared in a forum" (case 4-user)
18	"it seems best suited to a manufacturing process or where there is a real product. Difficult to apply to a thought process like marketing which is philosophical" (Case 4 – user)
18 facilitator	"The steps enabled a structured approach to be followed" (Facilitator – Case 3). "Understand the business needs and the process" (Facilitator – Case 4)
19:	"I would have liked to have experimented with more of the techniques offered in the workbook, but time was a constraint" (Case 2- user)
23	"Process analysis was very useful in bidding process" (Case 2-user) "understanding the process, it sets up and confirmed the need for change" (Case 4- user) "Step 1 provided a good structure to analyse and assess the business" (Case 4 –user).
24 Facilitator	"Model the process and getting individuals to understand processes" (facilitator –Case 2). "the step gave me greater understanding of exactly what occurs throughout our processes"(facilitator – Case 3)
25	"More examples, less technical jargons" (Case 3 –user)
26	"I liked the logical structure with business need moving through to redesign" (Case 2 –user) "The steps outlined each section very well, but there was too much content and complexity (Case 3 – user)
27 Facilitator	"A dedicated step by step process allows staff with operational management skills to follow the methodology to improve the process being looked at" (Facilitator –Case 4)

the BPI methodology in three companies, which gave greater confidence that the results were a consequence of the methodology and not just the result of good facilitation. The question to be asked is whether the facilitators had a significant impact on the application. The feedback and discussion with company personnel tend to support the conclusion that the methodology can be used independently of the researcher but skilled personnel within the organisation needs to lead the BPI process.

The use of the methodology has resulted in incremental changes to the warehouse and sales order processing in Case 3. In Case 2, moderate improvements have been achieved with the invoicing and debtor management, and a new bidding management process created, leading to performance improvement in customer service and service delivery. The BPI methodology has highlighted and confirmed the need for business planning process and integration of departmental marketing processes in Case 4. The net result is that, by using the workbook methodology and the assessment procedure for the business change projects, business process objectives have been established and satisfied, hence, there is a match between achieving BPI objectives and the assessment measures as formulated in section 7.5.2 and Figure 7.6.

Context: The question on the format of the methodology scored “4” by the facilitator and participants in Case 2. Similarly, both the facilitators and users in Case 4 preferred the workbook format scoring “4” on average. This suggests that the workbook format was acceptable. In contrast, Case 3 did not seem to like the idea of workbook as evident by the facilitator and users, scoring “2”. The following are examples of context issues that emerged, (Q39 –P) the General Manager’s sudden resignation at Case 3 left little time on already heavy work schedule to devote to the process improvement project, said by one personnel. In Case 4, it was the case of attitude towards internal provision of marketing services.

The discussion in this section has so far focused on the results gathered from the wider testing of the BPI methodology. The observations from the facilitators and the researcher are highlighted in the section below.

8.4 Observations of Wider Testing

This section addresses the general observations from the wider application. It is important to separate the influence of the methodology from the facilitator and researcher to increase its validity across the cases. This was achieved through the observations recorded during the application by both facilitators and researcher as observer. Data was captured using a facilitator observation checklist form and observer diary. The following is the outcome of the two observations.

8.4.1 Facilitators' General Observation

In order to obtain reliable data from the case facilitators, a checklist of questions was created, covering two sections: the methodology and the internal context, participation and project management. Details of the category of questions addressed by each section, and a summary of observations received are shown in Table 8.3. The feedback was positive and confirmed the organisation of the methodology, as part of measuring the usability criteria.

8.4.2 Researcher's General Observation

The researcher, during the projects, recorded issues, problems, commitment and internal changes. There is a problem with this, because it is subject to perceived views. Similar to the categorising framework established in Chapter 7, the following nine areas were observed and summarised in Table 8.4.

1. Understanding of business process
2. Flexibility and customisation
3. Change and culture
4. Teamwork and Participation
5. Process Maturity Level of skill and knowledge
6. Relations between process and workbook methodology effectiveness
7. Tools and Techniques
8. Testing the assessment procedure
9. Methodology vs facilitation

Table 8.3: Facilitators' Observation

Section 1: The Methodology	
Success of meetings	<ul style="list-style-type: none"> Meetings and workshops have been successful and helped articulation of practical outcomes. Progression was made through identifying many issues. The desired outcomes were achieved Successful, it gave light into process and problems
Deviation and modifications made to the step	<ul style="list-style-type: none"> Business case document was created because of confusion with Proposal (Case 2) Tailoring to business needs- additional parts on customer input and process outputs created to match best value review requirement. Linking problems and opportunities with scope of change Some steps were prescriptive (Case 2)
Apparent frustration and important incidence	<ul style="list-style-type: none"> Slow speed to complete methodology recorded in Case 3
Section 2: Internal context, participation and project management	
Meeting participation	<ul style="list-style-type: none"> All parties attended meetings and in some, all who attended stayed for the whole of the meeting. Prompt meetings was achieved
Senior management interest	Yes
Meeting results	<ul style="list-style-type: none"> Confidence that the project will succeed Good sessions good progress The results were good
Atmosphere	Friendly, sometimes lack of conviction of way forward reported in Case 4.
Contribution	Yes
Inhibitions of discussions	No
Meetings disagreements	No

Generally, people found it helpful when the researcher intervened and assisted in some aspects where it was noticed that no headway was forthcoming. The result from Case 3 is useful to compare small and large organisations and whether it could work in both types of organisations.

The conclusion is that the methodology would work better if simplified to meet the requirements of both organisations and user level. Some facilitation skill is necessary both in terms of general process background and familiarity with the general management techniques and this specific methodology. This can be taught during a training session, however, at least in the case of Case 3, the facilitators' limited business improvement knowledge was a restriction to the use of the methodology.

8.5 Cross-case Findings of the Primary and Wider Application

This section compares the results of the primary and wider application of the BPI methodology in relation to the assessment criteria defined. The four participating companies evaluated the methodology which took place within the BPI projects.

The evaluation procedure requires the methodology to be applied and tested against the assessment criteria. Within the context of the research assessment, the BPI methodology initially appeared to be feasible, usable and useful from repeated industrial applications. The choice of these criteria was informed by previous research in development of practical industrial tools (Platts, 1993; Neely et al. 1996). A summary of the assessment criteria, risks and context in all the four cases is presented in Table 8.5. The table illustrates the parts of the MIPIM methodology applied in each case.

Two versions of the methodology were tested during the development stage; a pilot version was applied in Case 1 from steps 1 to 5 of the methodology, a refined version was then applied in Cases 2, 3 and 4. The table also shows the facilitation type in each case project, example of risks identified, the nature of context issues, the rating for the organisation of the methodology, and finally, results of the cases against the assessment criteria. Overall, the lowest result recorded in Case 3 was 47% for feasibility, 53% for usability, 54% for usefulness (see Table 8.5). This Table was derived from the

Table 8.4: Researcher's Observations from Wider Test

Category	Discussion
1. Understanding of business process	<ul style="list-style-type: none"> • Significant knowledge gained particularly amongst low level users. • Element of jumping into detailed process step at the initial stage by Case 2.
2.Flexibility and Customisation	<ul style="list-style-type: none"> • Methodology should be flexible for customisation. • Tailor the approach to service industry and small companies.
3.Change and culture	<ul style="list-style-type: none"> • Negative attitude to change in the public sector due to bureaucratic functional structure • Instability hinders attitude to change, morals and business performance. • Authority subject to Government Best Value Review performance
4. Teamwork & Participation	<p>Project was successful because of the collective efforts of all participants and support from the senior management through their attendance at meetings and workshops.</p>
5. Process Maturity Level of skill and knowledge	<p>2 levels of workbook to be provided: Experienced and non-experienced users. An outline in a flowchart will be useful for basic users.</p>
6. Relations between process and workbook methodology effectiveness	<p>Success of the methodology and its influence on achieving process results pointed to the conclusion that the project would not have taken place if a structured approach was not followed.</p>
7. Tools and Techniques	<ul style="list-style-type: none"> • Time constraints played major part in experimenting with the tools and techniques. • Tools not fully used • XPat process analysis tool could be simplified for non-complex processes. • Creation of case based examples of how tools have been used
8. Testing the assessment procedure	<ul style="list-style-type: none"> • The expansion of the assessment questions helped to generate wider organisational issues such as culture. • No major change required
9. Methodology vs facilitation	<ul style="list-style-type: none"> • Cases suggest that methodology can be used independently of the author but requires good facilitation skill. • General business improvement knowledge will be preferred but not essential

percentage of participants' and facilitators' feedback (shown in brackets) on completion of the projects.

Feasibility: The method for applying the methodology was fully documented in all four cases. Further, the methodology has been used consistently across four case studies.

Usability: The interactive meeting and workshop format throughout, with workbook guide, tools and techniques, made the methodology relatively easy to run, and facilitate group information capture and learning.

Usefulness: The level of detail recorded in the post completion assessment was consistently high across the four cases. The methodology and its influence on the project result have a high chance of stimulating ongoing improvement plans.

As the participating companies applied the BPI methodology, seven fundamental issues emerged as keys to the successful implementation of a BPI project. In Case 1, issues that were of importance included human change management (particularly skill levels), performance measurement, process alignment, business vision statement and project/risk management. In Cases 2 to 4, again, human change management, and information technology ranked high in the list. This suggests the existence of a relationship between the methodology and the key issues. Project management was seen by most of the participating companies as key to a successful implementation of a process-based change. In contrast, risk was not perceived as critical, but was useful to identify potential risks in the methodology so as to prevent failure.

The discussion in this section has focused on whether the MIPIM methodology has performed in accordance with the assessment criteria defined. All indications from the testing suggested that the methodology has been generally successful but there is room for improvement.

8.6 Suggestions for Stage 7 Final Refinement

This section introduces the final stage of the research programme, namely, final refinement and deployment. The purpose of this stage is to use the feedback from the

Table 8.5: Cross-case findings of the four case studies

	Case 1	Case 2	Case 3	Case 4
Steps of methodology	1 - 5	1 - 4	1 - 4	1 - 4
Process facilitated by	Researcher	In-company	In-company	In-company
Risk		resource availability workload internal acceptance	staffing, illness, workload pressures and resource were key risks	Shortage of time, hidden agenda, fear of change and vested interest.
Context	Departmental changes	Company sales lose reflecting on resignation of chief facilitator	General Manager resignation due to poor business performance	Cultural issues
Organisation of the Methodology	Very Good	Very good	Good	Very good
Evaluation criteria				
Feasibility	79.7%	78.3% (very good)	47% (poor)	64.1% (good)
Usability	63.6%	71.7%(very good)	53% (average)	63.3% (good)
Usefulness	65.1%	70% (very good)	54.7% (average)	66.7% (good)

wider test to identify improvements and refine the BPI methodology. As expected, the application of the methodology raised a number of suggestions for changes. These improvements are aimed at the usability criteria.

Table 8.6 outlines some of the areas suggested by the three cases for further improvements. This feedback has been gathered from the responses to the questions, followed by discussions. Whilst the methodology provided a rigorous and disciplined structure, many of the areas requiring further changes relate to style, use of technical terms, comprehensiveness and specific changes to each step of the methodology, as detailed in Table 8.6. The cases revealed ways which would enable the methodology to be tailored to meet the needs of specific circumstances, such as smaller organisations and the service industry.

Some changes have been made to the workbook methodology within the time allowed to complete this research. The refined methodology is still based on the five-phase, seven-step approach, but this time changes have been made to the contents and style. For the contents, simple flowcharts of each step have been included to aid the understanding of inexperienced users, and small businesses. Additionally, the key issues identified from the case studies have been considered (section 8.5). In terms of layout, the navigation diagrams have been simplified. The final BPI methodology steps and the structure are described in Chapter 9, whilst the final workbook methodology exhibited in Appendix D.1.

8.7 Chapter Summary

The chapter has reported on the wider application of the business process improvement methodology, aimed to determine its generic and robust fitness. This test was performed in three case studies in the public and private sectors, where facilitating managers and users were shown the method, tools and techniques, and were asked to follow the workbook methodology to assist in their improvement programmes over a period of 11 months. The methodology was assessed against the criteria of feasibility, usability and usefulness.

Table 8.6: Suggestions for Improvement from the Wider Test

	CASE 2	CASE 3	CASE 4
STRENGTHS	Rigorous and disciplined structure to ensure all important stages are undergone	Logical steps Thorough	
ASSESSMENT QUESTIONS		Take out the word "wider" in Q.42.	
STYLE	Consistent section heading for easy navigation. Put essential stuff in the main body of the text, and hints and tips in the margins. Consistent terminology Number section and sub-sections	Glossary of terms Colourful	Format page and use gray background to differentiate tools from methods
METHODOLOGY CONTENT			
General Changes	Clash between project risk and methodology risk	Too many steps No need for detailed activities within steps Two versions, one for novice and another for expert Provide a worksheet type workbook for a small company with less detail. Detailed workbook for the skilled and dedicated team Confusion over process and activity	Low level language Reduce number of tools and techniques Provide case study examples Expand on the Delivery Framework Relate to service industry
Step 1	Readiness Assessment are really part of the overall risk assessment Include a small number of key questions for Readiness Assessment and some form of rating. Scope of Change not clear. Proposal vs Business Case		Emphasise more on opportunities and problems and link with Step 4 Redesign Number step and sub-sections
Step 2	XPat would be better with more people Simplify version of XPat for smaller and simpler processes. Allocate more time Ensure all internal issues of wider aspects are captured	XPat – Change Expert for something else	Provide qualitative questionnaire of two processes for the scoping of process Highlight people management explicitly, what do people think about the process? Process Capture Interview form for staff, customers and client
Step 3		Change model for mapping	Force Field Analysis is better if weighted with the arrows
Step 4	Under "Identify IT Requirements", consult IT experts who would be fundamental to the process		Remove phrases Some aspects not detailed enough. Benchmarking needs to be proactively addressed due to time delay

Evaluation questionnaires were completed so that feedback from the participants and facilitators could be analysed and findings drawn. The results from the questionnaires formed the basis for drawing conclusions about the assessment process. It is not possible with a small sample to generalise on the value of the methodology or to judge the degree to which it is effective. However, the case studies have clearly demonstrated that the methodology performed well against the criteria of feasible, usable and useful.

The feasibility of the methodology was clearly demonstrated by the successful application of the approach at the three companies. The analysis of the usability of the approach concentrated firstly, on identifying the problems that occurred at each step and, where possible, suggesting improvements; and secondly, on the organisational aspects of the methodology. The main problems that arose were in the technicality and the detailed contents. The BPI methodology enabled the companies to structure the change project, identify improvement areas and to define business objectives more clearly than previously. The organisational aspects that emerged during the cases were, the value of multi-disciplinary teams, the value of team working, the workshop approach and project planning. Facilitators' reactions were generally favourable apart from one, and in addition to the outputs obtained, they cited improved communication, improved common understanding of the strategic and operational role of business process.

The methodology was judged to be useful both in terms of the results obtained and the companies' reactions to the methodology. This phase of testing confirmed the findings of the pilot phase, but also resulted in a number of modifications to the methodology to make it leaner. The final BPI methodology is described in the next chapter.

Chapter 9

The Final Methodology for Business Process Improvement

In Chapter 8 testing was carried out to validate the wider applicability of the BPI methodology. As a result, a number of minor changes emerged (section 8.6). This chapter is the second part of Stage 7 of the research programme, namely, the deployment of the final BPI methodology. It starts by stating the objective and method, followed by an overview and description of the final BPI methodology. Finally, the methodology steps are matched with key issues for successful implementation.

9.1 Stage 7 Objective and Method

The objective of the seventh stage of the research programme is to present the final BPI methodology for wider use. As Figure 9.1 illustrates, the final methodology has been formed by combining the following logical sources:

- Pilot methodology steps (chapter 5)
- Feedback from the pre-pilot methodology (chapter 6)
- Refinement from the primary evaluation (Chapter 7)
- Refinement from the wider application (Chapter 8)

These sources provide useful starting points in finalising the content, structure, and steps of the final methodology as shown in Figure 9.1. Regarding what should be included in the final methodology, the key issues identified from the case studies were considered (section 8.5), and the issues were related to the methodology steps. The structure of the final methodology is still based on the five phase, seven-step structure. The outcome is the documented workbook shown in the Appendix D.1.

Having outlined the sources used to form the final methodology, the next section highlights the contents from the key issues identified in the case study.

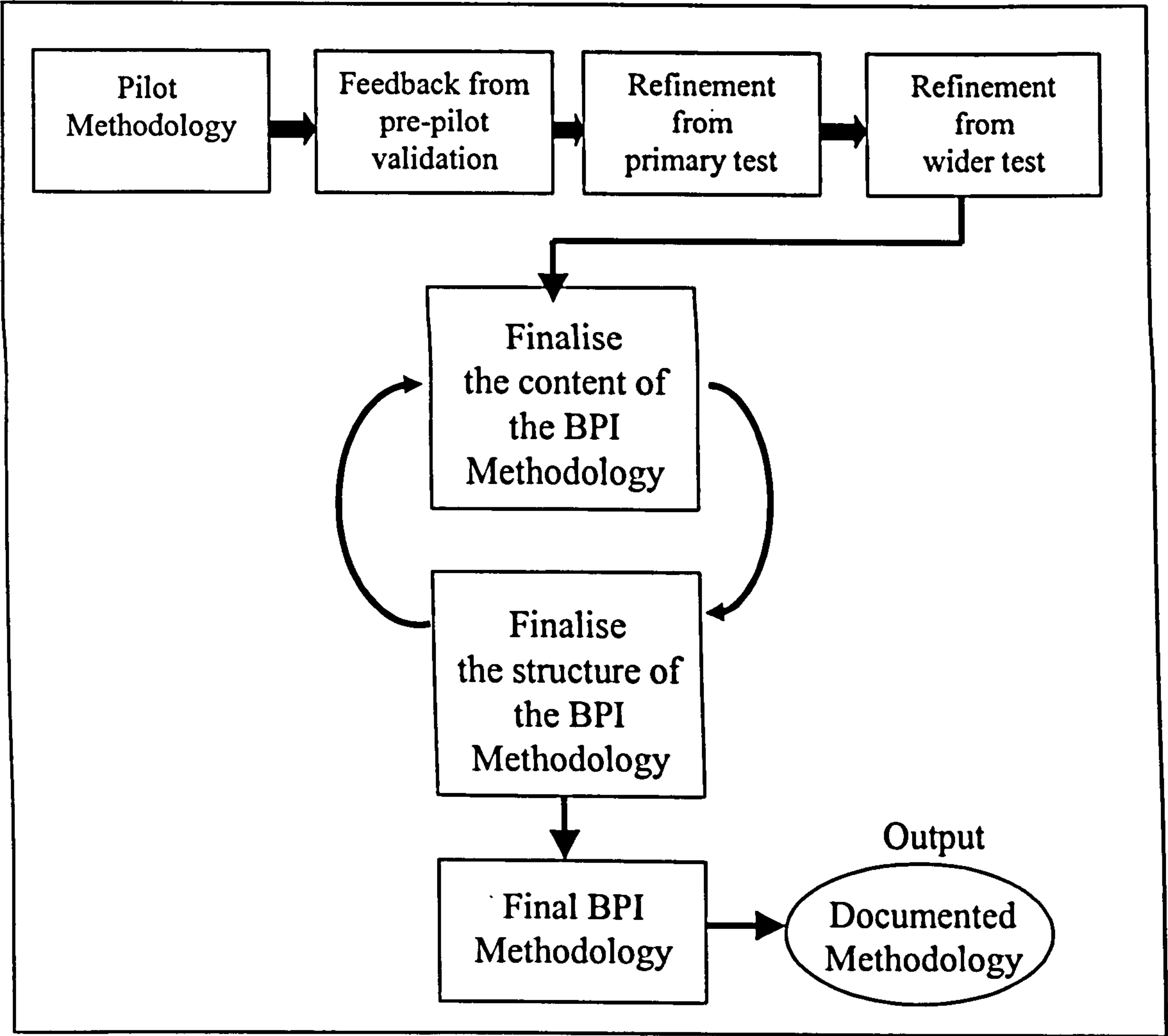


Figure 9.1: Stages leading to the final Methodology

9.2 The Content of the Final BPI methodology

This section describes the content of the final MIPIM methodology. The contents have been derived from the feedback in the wider case studies (section 8.6) and the key issues identified in the case study. These issues and their relationships have been matched with the final BPI methodology to guide users.

In addition to the specific contents addressed in section 8.6 and Table 8.6, the following seven issues (shown in Table 9.1) identified from the cross case studies are included in the final methodology:

1. Business/Strategy alignment
2. Scope of change
3. Process Understanding
4. Performance measures
5. People change management
6. Technology
7. Risk/Project management.

For each key issue, the research related the specific factors to the methodology steps in a matrix format. Understanding these issues at the different stages of the BPI progress is useful as a guide for planning, and for proper resource allocation so that each step is successfully completed.

Each step on the left-hand side of the matrix represents what the methodology is attempting to achieve. The key issues are located at the top of the matrix and influence the successful completion of each step of the methodology, by considering the particular issues. For example, within the cells “understand business needs” and “understand the process”, the people change management identifies people involved across departments, formulates relationship problems and seeks to obtain user involvement.

Also, the understanding of business needs cell is concerned with the business alignment, performance measures, change management and the use of IT within the business. This suggests that these issues are significant and have therefore been included.

Table 9.1 Matrix of Steps and key issues

Issues Steps	Business Alignment	Scope of Change	Process Architecture	Performance Measures	People Change Mgmt	Technology	Risk Assessment
1. Understand Business Needs	Process objectives Management Support Project Team selection			High level objectives and measures	Readiness Assessment Customer participation Identify departmental process users		Lack of management and employee buy-in
2. Understand the Process	Selection of business process	Scope definition	High level process model Processes captured and documented	Process measures	Formulate relationship problems User involvement		Scope too big Structuring the data Are they all needed? Users on holiday
3. Model and Analyse the current Process	Align model objectives with business objectives		Construct Processes and interrelationships models		User participation	Tool to map an As Is process model	Degree of understanding Communication Misalignment with business goal
	Selection of an appropriate modelling tool for conducting modelling.	Detailed analysis for incremental improvement		Collect and analyse baseline performance data	Analyse current roles, responsibility & authority. Analyse the wants, why. Identify current problems	Assess software applications	Incremental = low risk Radical = higher risk
4. Redesign Process	Prioritise opportunities for redesign	High level abstraction required for radical improvement Establish extent of change in line with project objective	Design the To-Be process Design new organisational structure to implement new process	Indicate improvement Develop new measures in line with project objectives	Develop quality working life for staff which reduces human error. Specify roles, responsibilities, and communication in line with new org structure and process.	IT requirement specification for new process System design and migration plans	High cost of software investment

Contd: Table 9.1 Matrix of Steps and key issues

<div>Issues</div> <div>Steps</div>	Business Alignment	Scope of Change	Process Architecture	Performance Measures	People Change Mgmt	Technology	Risk Assessment
5. Implement new process	Establish a plan or strategy for the implementation of the changes Establish if planned improvements achieve desired project outcomes Consider strategic alignment	Formulate action timetable and assign tasks to implementation team Encourage ownership for the implementation	Roll out new org structure Communicate new org structure to ensure buy in from employees showing the potential benefits Communicate managerial responsibility of the new structure Address individuals within the new structure	Monitor performance during and after implementation Manage effects of changes to ensure appropriate results are achieved Develop & distribute method for collecting and analysing process performance for on-going assessment and improvement Evaluate & document cost and benefits of the change project	Prepare staff for the operation of the new processes. Communicate project progression and milestones Specify roles and responsibility of personnel Provide adequate training to facilitate the process operation Implement incentives Use workshops to address any reservations Involve unions to develop acceptable scenarios.	IT system development, testing and implementation which fulfil requirements. Purchase computer systems & hardware to support the new process Migration of old to new system Populate new databases Train IT staff in the new technologies to ensure capability Centre is present	Identify risks in the methodology Plan for contingencies
6. Assess new process & methodology			Carry out an process audit	Define measurements for the new process and the methodology Implement with survey questions,	Decide who to measure Decide what part of the methodology to modify and add new features	Identify new tools and techniques to include in the methodology	Identify risks in the methodology Plan for contingencies
7. Review process					Gain buy in to continually review process to ensure on-going improvement		

The matrix is a natural link between the BPI steps and the key issues to direct the user on the most appropriate course of action for the company in question when going through the BPI methodology.

Given the content as considered, the structure of the final methodology is presented below.

9.3 The MIPIM BPI methodology

A detailed description of the methodology is provided here to illustrate the structure, the steps and their use when following the approach. The structure is revisited to reflect the changes made.

9.3.1 Overview of BPI Methodology Structure

This section is an overview of the MIPIM methodology, the structure and its steps. As Figure 9.2 shows, the MIPIM methodology is a seven step procedural approach that guides the actions and decisions of a BPI team. As a diagnostic tool, the methodology is aimed to be generic and flexible to equip in-house change agents to embark on a BPI project. It is designed to be a Do-It -Yourself guide for business process practitioners and internal consultants within organisations who cannot afford the expense of hiring external expertise. It addresses the 'what' to do and 'how' to make it happen with a participative team effort. The methodology is carried out by a group of business improvement managers and team members in a workshop environment, supported by a facilitator who guides the team through the methodology. It is a guide, not a procedure or manual. The template and questionnaires are used to capture information and various visualisation tools and techniques can be used to support the methodology.

In section 5.3, it was made clear how the five common phases identified in Chapter 4 were then used to map into the MIPIM steps. This section is set to map the phases to the final seven-step methodology (Figure 9.2), and outlines its structure. The methodology is split into phases and steps. From the project management perspective, there are five phases of the BPI project life cycle, namely, initiation, diagnosis, design, implementation and process management; each of these is linked to the methodology

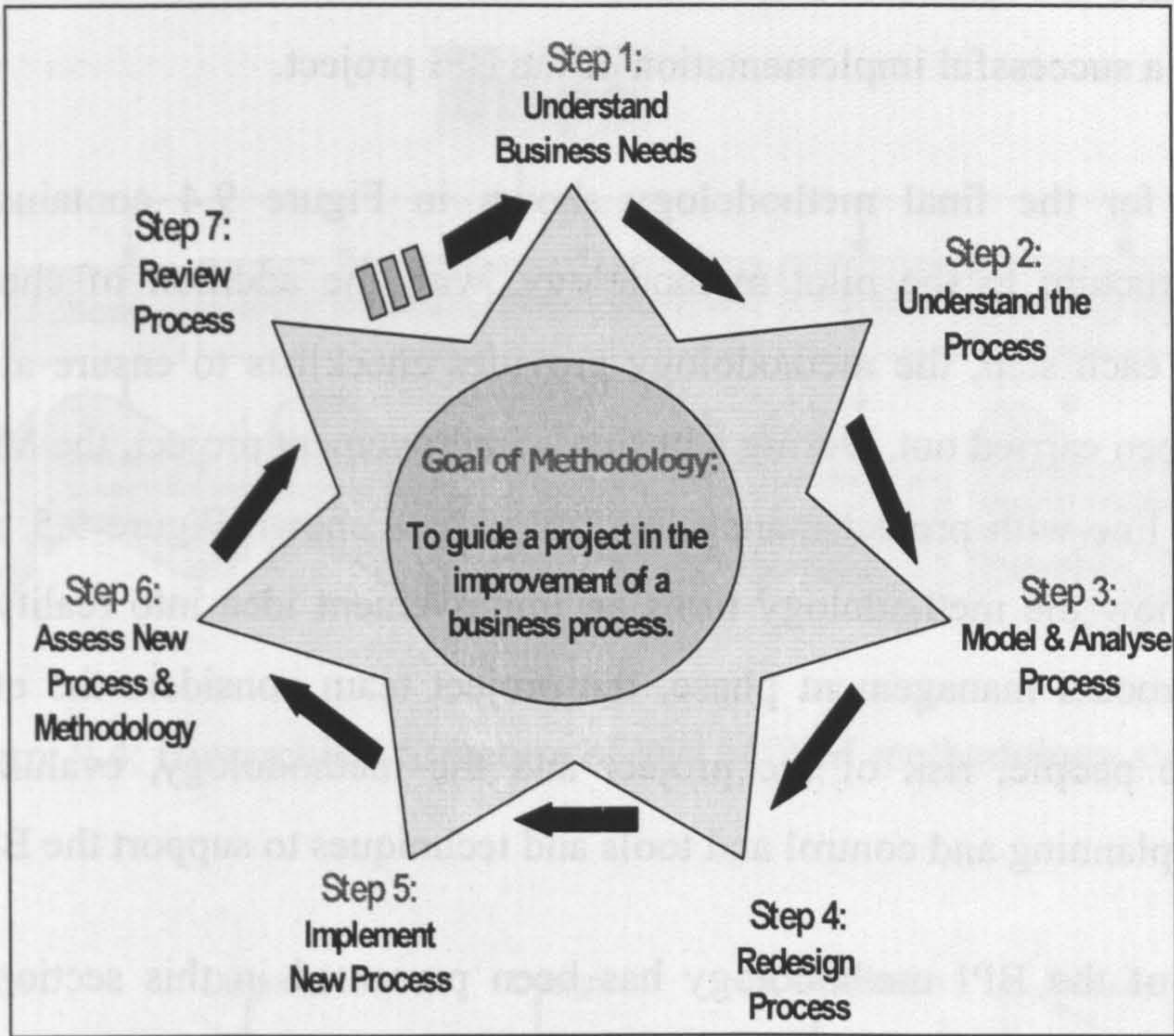


Figure 9.2: A generic methodology for business process improvement

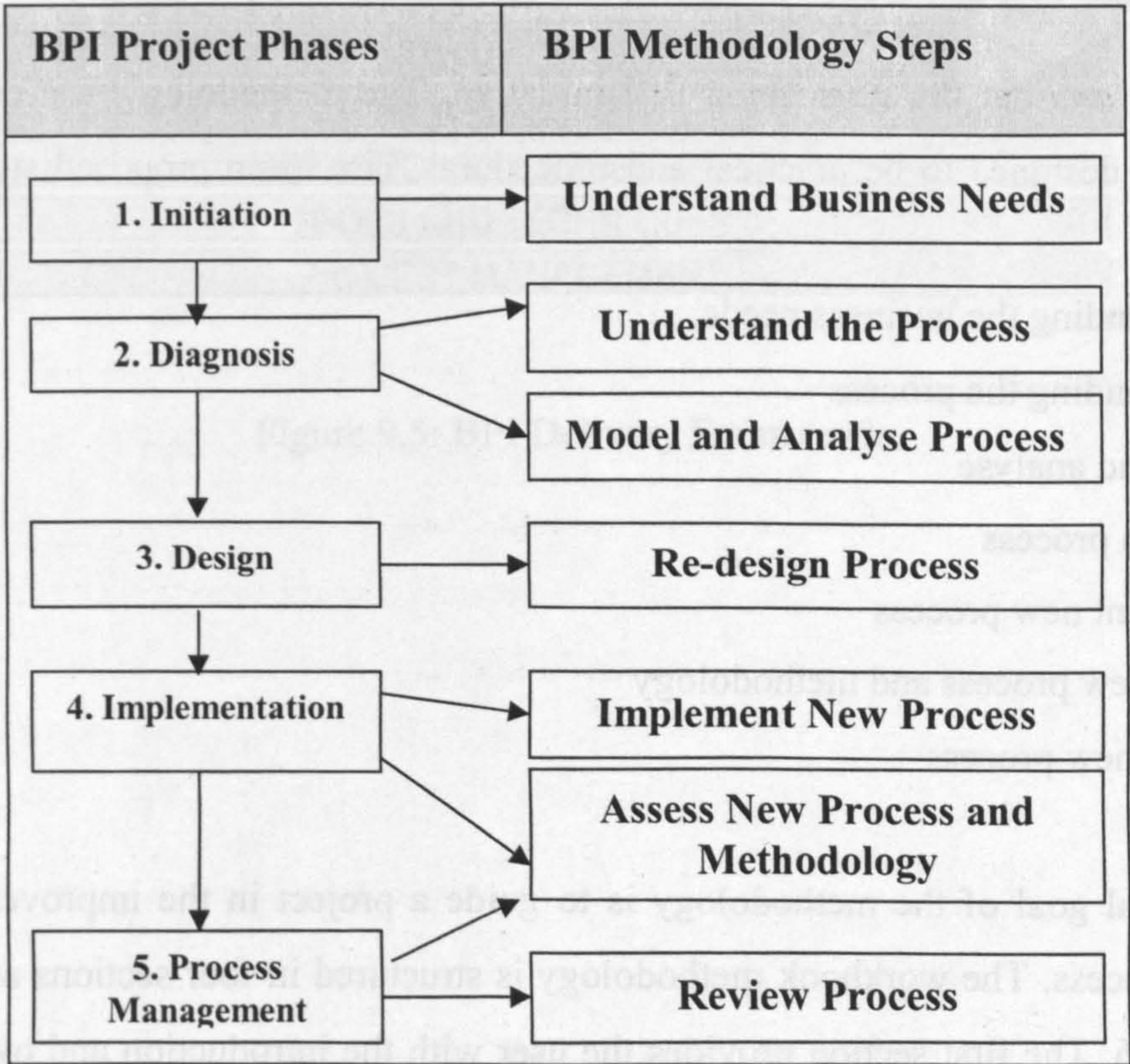


Figure 9.3: BPI Project Life Cycle

steps as illustrated in Figure 9.3. From the operations management level, there are seven steps to enable a successful implementation of the BPI project.

The structure for the final methodology shown in Figure 9.4 contains a similar hierarchical structure to the pilot methodology, with the addition of checklists. On completion of each step, the methodology provides checklists to ensure all necessary actions have been carried out. During a business improvement project, the Methodology is executed in line with project management phases as shown Figure 9.5 below. This figure shows how the methodology turns an improvement idea into reality. From the initiation to process management phase, the project team considers the effect of the change on the people, risk of the project and the methodology, evaluation of the methodology, planning and control and tools and techniques to support the BPI process.

An overview of the BPI methodology has been presented in this section. The next activity is to describe the seven-step methodology.

9.4 MIPIM Seven-Step methodology for BPI

This section sets out the steps for a BPI initiative. The methodology is a continuous cycle and is designed to be practical and procedural. The seven proposed steps are as follows:

1. Understanding the business needs
2. Understanding the process
3. Model and analyse
4. Redesign process
5. Implement new process
6. Assess new process and methodology
7. Review new process

The principal goal of the methodology is to guide a project in the improvement of a business process. The workbook methodology is structured in four sections as depicted in Figure 9.6. The first section provides the user with the introduction and overview of the methodology. The second section lays out the steps and its detailed guide; this is

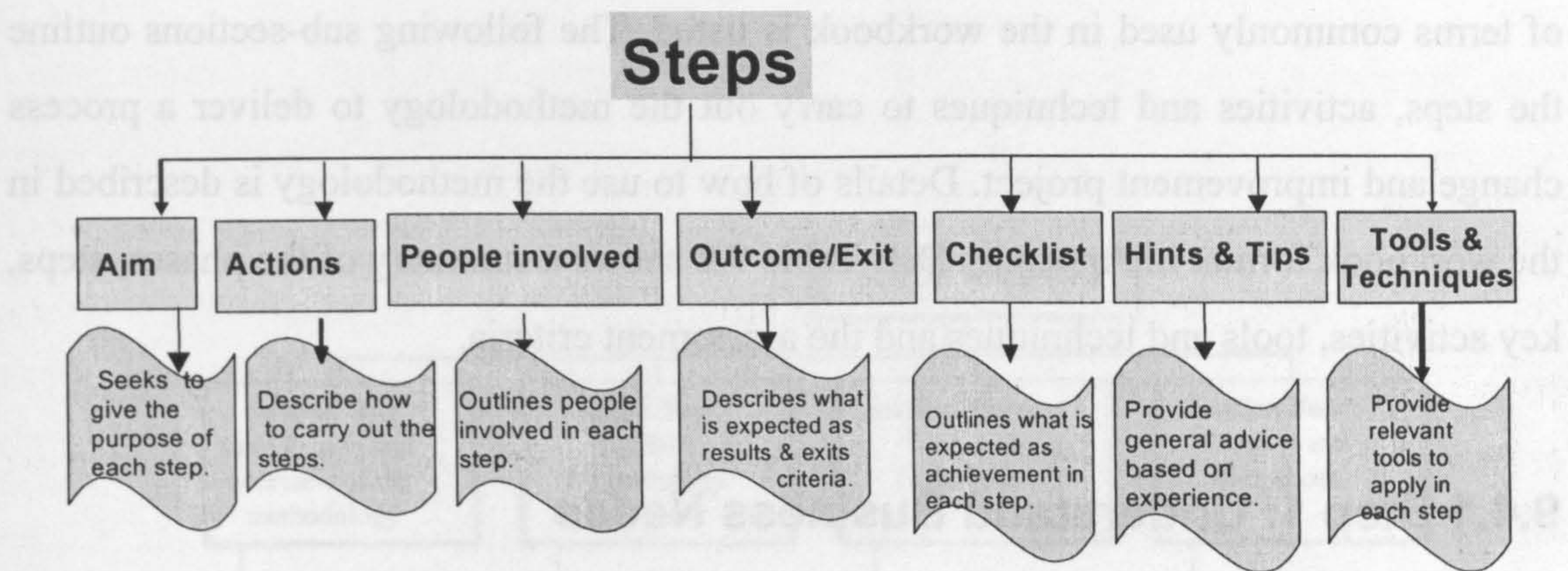


Figure 9.4: Hierarchical Structure of BPI MIPIM methodology steps

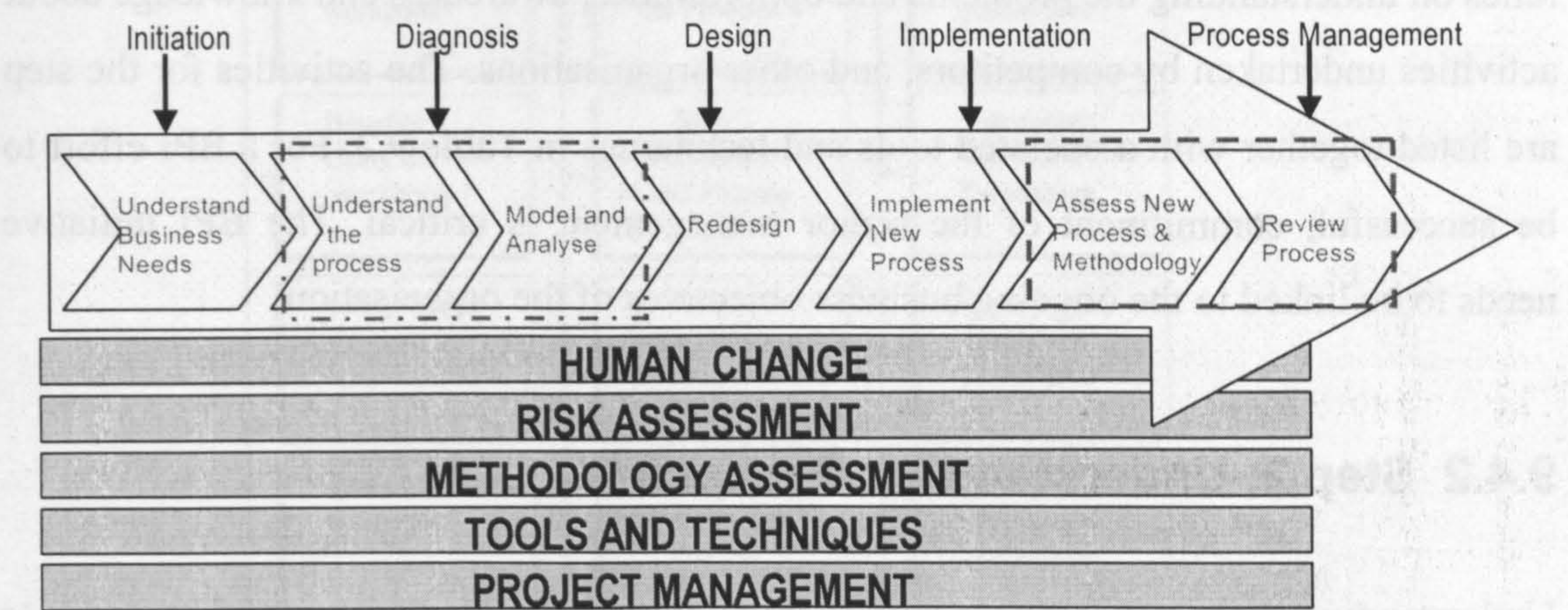


Figure 9.5: BPI Delivery Framework

supplemented with sets of tools and techniques in the third section. Finally, a glossary of terms commonly used in the workbook is listed. The following sub-sections outline the steps, activities and techniques to carry out the methodology to deliver a process change and improvement project. Details of how to use the methodology is described in the workbook format in Appendix D.1. Table 9.2 shows a summary of the phases, steps, key activities, tools and techniques and the assessment criteria.

9.4.1 Step 1: Understand Business Needs

This step refers to the development of vision and strategic business objectives. It requires the project team and senior management to evaluate their current practices, prioritise their objectives and establish measurable targets. Identifying business needs relies on understanding the problems and opportunities, awareness and knowledge about activities undertaken by competitors, and other organisations. The activities for the step are listed together with associated tools and techniques in Table 9.2. For a BPI effort to be successful, commitment of the senior management is critical. The BPI initiative needs to be linked to the ongoing business objectives of the organisation.

9.4.2 Step 2: Understand the Process

Understanding processes is key to improvement initiatives. The reason for this step is to gain an understanding of what the views are of the different people involved in the process and who will be affected by the change, so that any resistance to change can be anticipated and overcome. Therefore, the process must be defined from all perspectives of suppliers, inputs, process, outputs, customers and their requirements. In this way, a high-level process view is created. Details of actions, tools and techniques to take to implement this step appear in Table 9.2. The procedure of understanding the process was broken down to the following activities:

- Interview senior personnel, extract the knowledge that the process experts hold about the process and how it fits into the overall function.
- Interview individuals about their role in the process.
- Map the processes.

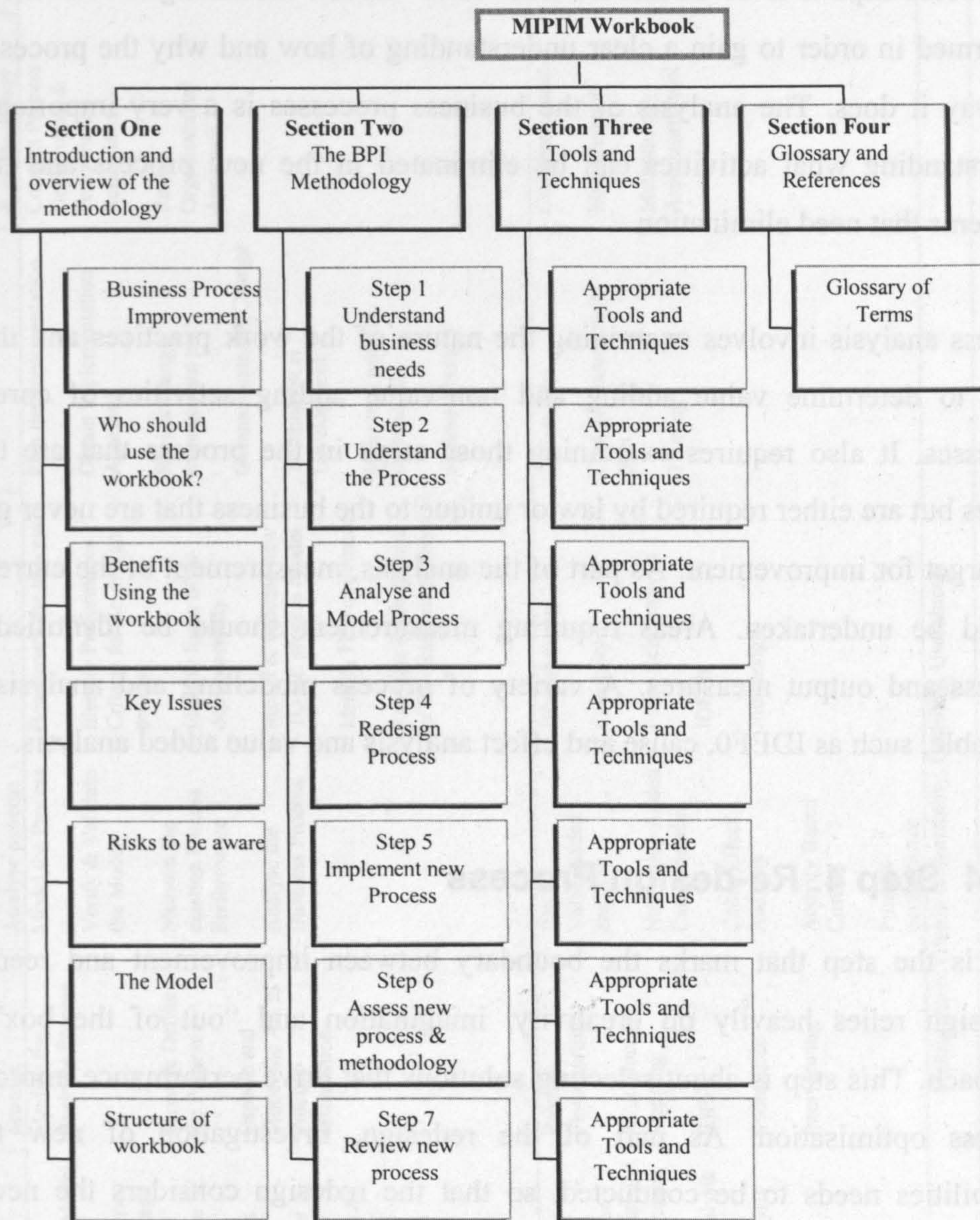


Figure 9.6: BPI Workbook Methodology Structure

9.4.3 Step 3: Model and Analyse Process

Once the core and the support processes have been mapped and verified by the experts, the processes can then be modelled, analysed and validated through walkthrough with the process experts to determine the true “as is” model. Modelling the current process is performed in order to gain a clear understanding of how and why the process operates the way it does. The analysis of the business processes is a very important step for understanding what activities can be eliminated in the new process and tracing the problems that need elimination.

Process analysis involves examining the nature of the work practices and the flow of work to determine value adding and non-value adding activities of core and sub processes. It also requires examining those steps in the process that are technically wastes but are either required by law or unique to the business that are never going to be the target for improvement. As part of the analysis, measurement of the current process should be undertaken. Areas requiring measurement should be identified, such as process and output measures. A variety of process modelling and analysis tools are available, such as IDEF0, cause and effect analysis and value added analysis.

9.4.4 Step 4: Re-design Process

This is the step that marks the boundary between improvement and reengineering. Redesign relies heavily on creativity, imagination and “out of the box” thinking approach. This step is about selecting solutions that drive performance improvement in process optimisation. As part of the redesign, investigation of new technology capabilities needs to be conducted, so that the redesign considers the new ways of working based on new technology. The research should also include benchmarking, by looking at the approaches and tools used by other organisations operating the same process to see what can be learned from them. On completion of the step, a “should be” model is constructed and validated of the improved process. It is important for the project to compare the current and the improved process and identify all the changes that need to be made. This can only be made if the implications of each and every change are understood.

9.4.5 Step 5: Implement New Process

The fifth step of the MIPIM BPI approach is aimed at implementing the selected processes. Implementation is a critical phase in a project and requires careful planning and delivery. The implementation of the agreed changes must be managed as a project and action plan developed, with resources identified, actions defined and owners assigned, schedules and deliverables established. Pilot tests should be run to ensure that the planned changes will produce the desired outcomes and to identify any problems with implementation. One of the key ingredients for success is training staff in the new processes and the new systems introduced to ensure that the new process is operated correctly and to help remove the fears and uncertainties that change brings.

9.4.6 Step 6: Assess New Process and Methodology

This step is really the execution of the project plan defined in step 5 once the new process is handed over to the process owners, and marks the start of the process management phase. The key is that performance targets have been established and a measurement system implemented to ensure that performance could be accurately known and corrective action taken when necessary. This means that the process owners are responsible for regular assessment of the process, done by analysis of the internal performance data from the measurement system. Having evaluated the performance of the new process, it is also important for the project team to assess the usefulness of the approach used during the BPI project, so as to add new methods or modify certain aspects to reflect changing business requirements. The methodology can be evaluated in terms of:

- Usefulness - for example, decisions taken during the process, any potential benefits arising from the implementation of the methodology.
- Usability - examine how the project team respond to the methodology and what required changes are necessary. Evaluate how the users responded to the approach.

In effect, by carrying out Step 6, organisations achieve performance results in the business process and in the methodology, that could be used as best practice knowledge

transfer. A number of measurement tools can be adapted, lists of tools and techniques are provided in the workbook.

9.4.7 Step 7: Review Process

Step 7 concentrates on establishing an ongoing management of business processes within the business. BPI is an ongoing activity, which needs to be managed within an organisation. No matter how good the organisation is, or how well regarded the products and services are, businesses cannot stop improving (Harrington, 1991) due to the changing environment. Even when the process becomes the very best, this is not the end of the BPI, it is the beginning of the ongoing, continuous improvement for an effective process management.

The methodology described here is not prescriptive and allows business processes to evolve over time as they respond to new business opportunities and business process options. Business Process Managers need to be attuned to a strategic view of business. In an attempt to focus on total customer satisfaction and people involvement, business process managers need to set challenging targets for the process, develop a plan to meet those targets and implement them. Apart from customer focus, another key principle of continuous improvement initiatives is total participation of people and rewarding the team for improvements.

At the project level, process needs to be stable using some qualitative and statistical tools. At the strategic level, business process management is used to achieve continual process management for the strategic objectives of the organisation. At this level, issues on process performance are discussed to ensure the processes are functioning to support business objectives.

9.5 Chapter Summary

This chapter has presented the final MIPIM methodology. It provides a holistic view of the phases, steps and key activities, and aligned key issues emerging from the case studies with the methodology steps. The methodology is structured, procedural and descriptive, and focuses on how to carry out process-based change effectively from the

start to the end. The next chapter will conclude the research programme, make contribution to knowledge and recommend further research in the field.

Chapter 10

Conclusion

This research set out to create a generic and procedural methodology that would be useful in the implementation of Business Process Improvement. This chapter summarises the research findings against the research aim and discusses contributions to knowledge. The limitations of the research are indicated, directions for future work suggested, and finally, concluding remarks given.

10.1 Principal Research Findings Against Research Aim

This section summarises the principal findings of the research. First, it provides an overview of the research aim and programme and then summarises the findings from each stage of the research programme.

10.1.1 Overview of Research Aim and Programme

The research aim of this work was as follows:

“To develop a practical methodology to support the implementation of business process improvement within organisations; and to evaluate its effectiveness in organisations.”

The research aim was addressed by completing a set of objectives, namely to:

1. Review existing literature on BPI methodologies, discuss relevance of methodologies and identify shortfalls.
2. Develop a structured and procedural method for BPI.
3. Seek expert opinions to identify leading industry practice.
4. Rigorously test and refine the methodology through applications in practice.

The research described in this thesis has set out to create a BPI methodology through a structured research programme. Initially a pilot methodology was formed on the basis of

existing contributions in the literature. This was then refined through discussion with practitioners, consultants and academics in the field. The primary field test was carried out in a single organisation with the researcher intervening to facilitate the application of the methodology. A wider field test was then conducted in three companies allowing the organisations to use the methodology and provide feedback. This involved the researcher's passive participation and observation.

10.1.2 Research Findings

The following summarises the findings from each stage of the research programme, together with findings relating to general issues collated from the case studies.

Finding 1: A Review of existing BPI Methodologies indicated a lack of practical application.

Current methods have been identified, collated and compared against the sets of requirements defined in the literature (section 4.4.3). Their structure, contents and limitations have been discussed. The results suggest that even though there are many commercially available methodologies with similar phases, their level of use is still low. The following findings are drawn:

1. Most methods are high level and lack detailed information on application.
2. Most methods attach the size of organisations as an important requirement for target.
3. There is lack of detail given to process knowledge capture and use process modelling techniques.
4. Current methods lack detailed and procedural application for the practitioner to use, some of them are too high-level and have no real structure for involving the users, hence, provide little guidance for specific tasks. However, the methodologies offer some strengths in planning, monitoring, implementation, visioning, change management, business and process objective alignment, which have been considered in developing the new approach.
5. None of the methodologies reviewed specifically address risks associated with BPI methodology application.

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6. Most methodologies seem to exclude evaluation and the continuous process improvement from the BPI life cycle.

Finding 2: Within a sample of BPI practitioners, consultants and academics, formal methods are not fully adopted.

A pre-pilot validation process was conducted, in which sixteen experts in the academic, consulting firms and industry were interviewed. The interviews were carried out using a semi-structured questionnaire to elicit spontaneous responses. This validation enabled the pilot methodology to be compared with the industry standards and sought to obtain a rich source of inputs for the initial refinement. Chapter 6 revealed that few of the companies studied had a formally documented BPI methodology, but all had an understanding of the elements of the BPI identified in Chapter 5. With the exception of consultants, many companies had never used a workbook methodology.

Finding 3: A BPI Methodology was successfully formed and applied.

1. A methodology has been created by combining the structure and the content of the existing methodologies to provide a practical, procedural aid in the activity of Business Process Improvement (Chapter 5). This methodology extends the capabilities of methodologies that were previously available. This has been termed MIPIM (Model based and Integrated Process Improvement Methodology); the framework and structure of the final methodology has been described in Chapter 9. MIPIM has adopted the structured approach (Chapter 2) and has offered the practitioner a set of step-by step aids. This methodology does not have to be followed rigidly. The structured approach assists users in following the process (especially inexperienced users) and provides a guide for more experienced users. It was found that the methodology could encourage users to get to know the BPI process which may lead to less training in the long term.
2. The MIPIM methodology was applied, tested and evaluated by the researcher, and directly by the managers in four case studies (Chapters 7 and 8) against the criteria of feasibility, usability and usefulness. The approach was found to successfully

capture business process-improvement methodology in detail, in terms of both the procedural steps and process elements. This satisfies the research design.

There are a number of specific points that the assessment criteria indicate namely:

Feasibility

The BPI methodology proved feasible:

- It was successfully applied in a public sector with the researcher intervening to facilitate the application of the methodology.
- Three companies in the public and private sectors, who were completely independent of the researcher, successfully used the methodology.

Usability

- The case studies showed that an ongoing process of data collection, as integrated in the workbook and workshop, was a practical way of carrying out the evaluation process.
- The participants who had used the methodology confirmed the importance of the workbook methodology for structuring the change process.
- The primary evaluation showed that MIPIM was easy to use but required more timing and knowledge of the tools and techniques (section 7.5.1). The final results from the primary evaluation suggested that the methodology should consist of a combination of structured steps, glossary of terms, process maturity level, checklists, timing each step and more knowledge on process analysis and modelling techniques. The workbook methodology was adjusted based on the changes suggested.
- The wider application was conducted with the refined version of MIPIM (chapter 9 for final refined methodology). The results were positive and indicated that MIPIM provided a good structure to follow. The results of the wider test generally confirm the findings of the primary evaluation.

Usefulness

The methodology was considered useful across the four case studies. Through the use of the methodology, all four case study companies identified and improved their business

processes, one of the companies is progressing further to the stage of generating action plans which would form the basis for further cultural changes.

The evaluation suggested that with leaner documentation, the BPI methodology could be used and adopted directly by companies, irrespective of an external facilitator. To gain some insight into reactions to the methodology and the assessment procedure, both the BPI methodology and the assessment framework were presented to an international audience of academics and industry practitioners (Adesola and Baines, 2001). The reaction to the assessment appeared to indicate application rigour, and suggested that a research based on workbook style BPI methodology embedded with assessment procedure would be worthwhile.

Finding 4: From the case studies, the following issues have been identified as critical for a BPI success.

The four case studies conducted as part of the research have consistently demonstrated a number of critical issues faced with when they try to improve their business processes. These issues have been identified and classified into: strategy, process understanding, performance measures, people, project management and information technology.

- **Strategy:** needs to define the business vision and objectives and how process improvement will help in achieving strategic objectives.
- **Process understanding:** needs to identify business process objectives and core models which must be aligned with strategic business objectives.
- **Performance Measures:** require the business process to be measured before and after the change to establish level of achievements.
- **People Change Management:** concerns managing people expectations, their levels of process skills, communication, training and education.
- **Information Technology:** confirms that IT experts should be involved in the process at an early stage of the BPI programme, and during the design of new business processes.
- **Project Management:** confirms that projects should be planned against resources, roles, tasks and responsibility to meet budget cost and time.

This section has given an overview of the research aim and programme, and summarised the findings of the research programme. The objectives of the research have been met and the issues facing companies when they try to improve their business processes have been identified. The major contributions of this thesis are now presented below.

10.2 Contribution to knowledge of Business Process Improvement and Reengineering

The research presented in this thesis makes two main contributions to knowledge on the subject of business process improvement methodologies and evaluation. This section summarises both the primary and secondary contributions of this research.

10.2.1 Primary Contribution

The research showed that, although there is a good understanding of what BPI is, there is little detailed research about how to operationalise such a methodology to implement BPI. The main outcome of this research is the creation of a methodology to provide a practical and procedural aid for BPI programmes. The purpose of the methodology developed in this thesis is to guide the practitioner through a series of well-defined structured steps necessary to make informed, consistent and efficient improvements to business processes. It brings together a series of tools and techniques, and provides a holistic approach to analyse, improve, implement, evaluate and review processes. This structured and procedural approach to improving and redesigning business processes forms the principal research contribution of this thesis. The initial aim of the research has been achieved.

10.2.2 Secondary Contribution

The other contribution is new knowledge on how to systematically assess a BPI methodology in practice. The implementation of the assessment framework adopts a process approach, as it provides a systematic, organised and participative procedure. The implementation framework is based on process and context approach (Pettigrew,

1992; Platts, 1990). It consists of assessment criteria, assessment questions, performance indicators, timing (when), people (who), and research instruments (how). The use of multiple sources for data collection ensured triangulation and validity of data. The context, process and content research framework, and the methodology assessment procedure provided useful mechanisms to evaluate the effectiveness of the BPI methodology application rigorously.

The major contributions of this research have been discussed. In the next section, the comparisons of the methodology developed from this research against other models are presented.

10.3 Comparison of the developed Methodology with other Research Findings

The MIPIM methodology developed by this research should be compared with other similar models to establish the unique similarities and differences between the existing and the new approach.

The research has previously stated the inadequate research work in this area (section 2.5), and therefore only limited comparisons can now be made. The most recent published works of Smart et al. (1998); Greswell et al. (1999), and Vakola and Rezgui, (2000); are probably the closest to the subject of workbook-based methodology and evaluation. However, they differ significantly in research methodology and scope. Vakola and Rezgui, (2000a) produced a generic model of BPR, which was evaluated in three European construction companies. The evaluation identified that the incorporation of the human and organisational issues and the understanding of evaluation and continuous improvement are critical success factors. However, the model was not produced in a procedural workbook-format like this research.

The MIPIM methodology is related to other BPI models that have been proposed for business process improvement such as: Harrington, (1991); Davenport and Short, (1993); Childe et al. (1996); and Vakola and Rezgui, (2000), but they all differ in the detailed and operational application. Whilst the methodology produced by Smart et al

(1998) is workbook-based, there is a clear difference in scope. This EPSRC funded project targeted the BPR methodology only at SMEs and did not consider post BPR initiatives. The process of evaluation in both Smart et al. (1998) and Vakola and Rezgui, (2000) was executed through a review of the methodology stages in the workshops, however the testing was not structured and rigorous.

Even though the above studies have been concerned with the process of business process redesign and improvement, this research has taken a further step to provide detailed information required to follow through the BPI process in a much more practical and procedural manner to improve general applicability. The next section discusses the weaknesses identified within the research.

10.4 Limitations of the Research

The nature of the design and implementation of the research programme gives rise to some limitations that could affect the findings of this research. The section begins with problems within the organisational context, then the sample size. It discusses the limitations of the research methodology, followed by problems in the MIPIM methodology. Finally, limitation on the methodology application and research findings are presented.

10.4.1 Limitations of evaluation inside the organisations

The main limitation is that it was difficult to achieve full control of the environments because the testing was conducted inside the companies. For example in Case 2, due to the company's organisational changes, which resulted in the unforeseen departure of the Programme Manager facilitating the improvement project, the testing process was delayed. The researcher intervened to ensure continuity and success of the BPI effort by providing extra support in completing part of the methodology to assist the other part-time facilitator.

In general, whilst the use of the methodology would give a detailed evaluation, the results from the testing may have been influenced by some bias in interpretation (Legge,

1984). There could have been bias due to the researcher's familiarity with the structure of the methodology. For instance, one way to overcome any element of bias in Case 2 would have been the search for another facilitator within the company. This alternative however, could hinder the research progress due to lack of suitable individuals with time and commitment to the research project. To overcome this weakness, the researcher helped the organisation in carrying out some part of the project to ensure continuity and success of the case. In an attempt to reduce bias, this research tape-recorded the discussions and interviews with the permission of participants.

10.4.2 Sample size used to evaluate the MIPIM methodology

The level of generalisation can be said to be limited due to the use of a case study research design because of the limited number of cases conducted within the time frame. The researcher would have preferred to have conducted a greater number of case studies; however, this was not possible within the timescale of the project. In the case studies that were conducted, the sample included large and small companies across sectors; this meant that detailed conclusions about any one particular industry could not be made. However, the diversity of the organisations involved provided useful learning.

10.4.3 Limitations of Research Programme

The research programme for developing a methodology, testing, refining and re-testing its general applicability by case study is believed to be novel for research in the field of business process improvement and reengineering. To the researcher's knowledge, this type of research is still under studied. The testing structure is seen as a key feature of the research upon which future work can build. The type of research however is subject to a number of weaknesses.

The scope of research is broad for a three-year doctoral programme, as it required the acquisition of knowledge in a number of subject areas. Some of this knowledge spanned from the traditional literature to searching the expertise in consulting and practitioners. In addition, the researcher needed to design and develop a workbook to disseminate the methodology; this imposed a substantial workload over a relatively short time. Significant effort was put into obtaining good industry test cases for the work described.

Industrial testing proved time consuming, allowing ongoing engagement with the companies during the research process. The shortcomings were that, because of the breadth of the work and the time pressures, certain issues could not be researched in depth and as a result, some of the findings are somewhat experimental. For the researcher, the problem has been to achieve sufficient focus to complete the research in the required timescale.

The researcher is conscious that more testing could have been achieved, but for practical reasons, this was impossible. It is acknowledged that lack of testing all the steps of the methodology individually may be seen as a limitation. However, the resulting BPI methodology is justified if it proves feasible, usable and successful for it sets a good framework for future work. This thesis does not claim that the BPI methodology solves all problems. Neither is it claimed that the lack of such BPI methodologies is the only inhibiting factor for the success of implementation. However, the development of a procedural approach and the evaluation of such a methodology demonstrate that it is a step towards providing an effective and structured methodology; hence, the research aim of the thesis has been successfully addressed.

10.4.4 Limitations of MIPIM Application and Research Findings

Aside from the scope, there is the issue of application of the MIPIM methodology. Within context and process, the research looked at how the MIPIM methodology may be tailored to suit different situations, for example, Best Value principles in Case 4; this was not easy to achieve in all cases. The methodology was considered to be generally applicable. However, there was evidence from discussions with the participants to suggest that the methodology did appear to be best suited to large organisations equipped with in-house business change team. However, this does not mean that it cannot be applied in small companies so long as simple flowcharts of the methodology steps are provided in the detailed guide.

The methodology did not get fully tested in some parts, due to its comprehensive nature and lack of time. In the three case studies for wider application, the test was carried out by an unrelated facilitator, the researcher was constrained by the level of intervention so as not to contaminate the research process. Furthermore, there were gaps in the results

obtained from the case studies, as not all questions were answered by the process users. There were a number of reasons for the average performance of the methodology in Case 3; amongst them were: the size of the organisation, commitment and level of skill within the project team.

The ideal situation would be to test the full cycle of MIPIM and then monitor the strengths and/or weaknesses of the method after the implementation of a business process. However, this was not feasible due to time constraints. This research design however helped to realise the research aim to a greater extent, proving that the methodology could be used independently of the researcher who developed the method, and that the results may not necessarily be influenced by the facilitators' skills.

Having recognised the limitations to this research, the findings still stand. Within the context, the methodology supports the activity of BPI initiatives. Some of the limitations of the research programme provide opportunities for future research. The next section considers possible future research work.

10.5 Directions for Further Research

Not all questions can be covered in a research project. Yet in the course of addressing the research aim and objectives, others arise which expose areas that require further investigation. This section examines such areas that require future research to increase the understanding of BPI methodology application and evaluation. It starts by outlining opportunities for enhancing the MIPIM methodology, then direction for further testing. It recommends future work to be carried out on the influence of other factors on the success of the methodology, and finally, gives concluding remarks.

10.5.1 Opportunities for enhancing the MIPIM methodology

The BPI methodology developed by this research has proved usable, but as with many methods, could benefit from further refinements.

- MIPIM methodology provided non-prescriptive timing to complete the BPI process, however, this may need further investigation. Further research would help to predict

the time required to complete an improvement or radical reengineering programmes. This is likely to assist in budgeting the total project cost and to ensure that all stages are given adequate time to be completed successfully.

- The link between BPI objective and strategic business objectives is one problem area within the ‘understand business needs’ step of the methodology, which could be addressed in more detail. This link also impacts on modelling and redesign steps. Further research needs to articulate the link between strategy and business process alignment irrespective of whether a company is engaged in process improvement or reengineering programme.
- Much of the process understanding is fairly straightforward, however, the focus on addressing the people issues is still problematic. Further work on making the BPI methodology people oriented should be considered.
- The ‘modelling and analysis’ step could be refined further. The modelling step is still less understood, particularly amongst inexperienced users who showed lack of modelling skill. There was a fear of learning and adapting to unfamiliar techniques. Most users prefer to use simple flow charts to map the processes. Future efforts should be directed at structuring the modelling techniques and process analysis techniques in a user-friendly and interactive manner that stimulate the use by a novice and consume less time.
- Process maturity level has been consistently shown to be a major issue during the testing. A framework needs to be created to embed maturity level of process users to the methodology to reflect different skills and knowledge level. This would ensure that the appropriate level of methodology is tailored to match users’ knowledge and skill sets.
- As part of the development of MIPIM methodology, further work should be carried out to provide a guide for identifying risks for each step, and providing mitigating solutions.

- Other important area suggested includes the development of a web-based methodology application. Most users supported the idea of having either a CD-ROM based or web-based format for quick navigation and communication purposes, as it is user-friendly and paper free. The development of an automated application would serve as a knowledge repository database to store the workbook methodology, the tools and techniques, and process knowledge derived from the real case projects, together with guidelines on project management and assessment. This would promote the idea of having a common process methodology platform across the organisation. Such an application would serve as a self-learning tool for the project team and other staff members who are new to Business Process Improvement.

10.5.2 Opportunities for further testing

The assessment of BPI methodology effectiveness formed a major part of the research. It is suggested however, that the methodology should be further evaluated with more case study research. This would extend the generalisation and give added validity to the case research. During the research, only four steps of the refined methodology were evaluated. Limited evaluation was possible within the timeframe to understand the long-term impact of the methodology, to evaluate the application of the entire methodology in one site or to understand each activity's effect in greater depth. Further evaluation will provide a deeper understanding of the methodology and may lead to further refinement.

Further tests within the manufacturing environment are required to evaluate its wider applicability. Future research could aim to follow the methodology process formally within the participating organisations and document changes in a manner such that it could be tailored to each company's needs. The methodology assessment framework that was applied could also be developed into an audit tool for use by companies. The tool could then form part of the process management phase to measure the success of the methodology during application, with the intention of refining and upgrading the approach for better practice and knowledge sharing within organisations.

10.5.3 Influence of other factors on the success of the methodology

Future research should continue to establish to what extent the applicability and success of the methodology are dependent on factors such as: the size of the company, the industry sector, the organisation structure, the prior existence of business process improvement methodologies and facilitation. For example, a detailed investigation into a sector or a specific organisation would ensure that their needs are met within the methodology.

This section has examined areas for further work which the researcher anticipates would foster research aiming to apply the methodology to both the public and private sectors and to contribute to its realisation. In order to implement any new methodology there is likely to be a change in the way that things have been done in the past. A suggestion would be to develop a change management strategy so that the methodology could be implemented smoothly.

10.6 Concluding Remarks

This concluding chapter has given accounts of the principal research findings against the research aim, and discussed major contributions to knowledge. The limitations of the research have been identified and finally recommendations for future work suggested. It is hoped that the main contributions that this thesis has made to the body of knowledge will be relevant in theory and practice.

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APPENDICES FOR CHAPTER 6

Appendix A.1: List of Organisations participating in the Pre-Pilot Validation Process

Natwest Bank - *(Company A)*

Althom - *(Company B)*

GlaxoWelcome - *(Company C)*

Rolls Royce - *(Company D)*

Melbach Logistics - *(Consultant E)*

DCE Consultants - *(Consultant F)*

Sema Group - *(Consultant G)*

IBM - *(Consultant H)*

University of Plymouth - *(Academic I)*

Cranfield University (CIM) - *(Academic J)*

Cranfield University (CIM) - *(Academic K)*

Cranfield University (SIM) - *(Academic L)*

Warwick University (WBS)- *(Academic M)*

Cranfield University (Shrivenham) - *(Academic N)*

Cranfield School of Management - *(Academic O)*

University of Salford - *(Academic P)*

Appendix A.2: Sample Pre-Pilot Validation Letter of Invitation

Cranfield
UNIVERSITY

Manufacturing Systems Dept
Building 30, College Road
Wharley End
Cranfield
Bedfordshire
MK43 0AL

3rd February 2000

Dear [],

I am currently a Research Assistant, at Cranfield working in collaboration with the Benefits Agency. We are examining how business processes are improved and modelled within an organisation. My academic supervisor is Dr Tim Baines.

As a part of this research, I am investigating what is considered as 'best practice' in business process improvement methods. To do this, I am examining how academics, consultants and practitioners set about designing, implementing and reviewing business processes.

I wonder whether I could arrange a brief meeting with you to discuss how business processes are reengineered and improved. I am specifically interested in the process improvement and in particular, the steps in Methodology, tools and techniques used to support methodology. I would also like to find out how you go about implementing both the Methodology and subsequent improved and redesigned process.

In return for your co-operation, I can share the outline principles of the business improvement process we are developing for the Benefits Agency, without breaching confidentiality.

I hope you can assist us.

Yours sincerely,

Sola Adesola

Appendix A.3: Pre-pilot Validation Questionnaires

Guideline for semi-structured interviews in Pre-Pilot Validation Process

AIM

The aim of this study is to achieve a better practice of the methods that companies, consultant firms and academics use to redesign and improve business processes.

The following section demonstrates a set of questions, which are used in the meeting with the participating organisations.

Business Process Improvement methods being used

1. Methods used
2. How method is formed
3. Key Issues that impact on the success
4. Strengths
5. Weaknesses

Research Process used to evaluate the methodology

6. How do you know your methodology works?
7. What methods are used?
8. What is lacking in the approach used to assess the methodology (weaknesses)

Tools and Techniques being used

9. What tools and techniques are used to support the business process change?
10. What method and tool of process modelling is used?

11. Is modelling tool dependent/Independent of the methodology?
12. How do users get involved in the modelling exercise?
13. What do you like about these tools and techniques?
14. What don't you like about them?
15. What should modelling techniques and tools start doing to make it more useful for BPI projects?

Comments specific to the proposed methodology

16. How would you improve this methodology?
17. What factors would help you to use this method?
18. What do you consider to be the strength of this methodology? What makes this methodology different from other methodologies?

Future Research Challenges in Business Process Improvement

19. What are future challenges in this field and what is likely to emerge?
20. What should we be doing next?

Appendix A.4: Background of Participating companies for the Pre-Pilot Validation Process

The background of some of the participating organisations is set out in this appendix. The sixteen different participants were all located in the south-east region and ranged from manufacturing, financial service, consultancy and academic. The following is a description of four representative cases from the industry and consulting.

Company B: Energy and Transportation Industry

Company B is an operating division of a global group in power generation, power transmission and distribution and transport. Following the full integration of the power generation activities, The Power Transmission and Distribution division today has annual turnover of £18 million and employs more than 1500 people in its Stafford site. Within the UK T&D Division, the Protection & Control business is responsible for the design, development and manufacture of protection relays and control systems, electrical indicating instruments and electronic assemblies, research and development. The Company operates stringent quality control procedures and has implemented a total quality approach to ensure the excellence of its products and customer service.

At the time of study, the Company has never used the term business process change, and had no formal process change methodology, although the organisation had implemented a total quality management (TQM) approach to process improvement on an ad hoc basis under the Quality Focus Group programme. In recent years, the Company implemented a SAP system in 1999 with the input of a proprietary methodology from an external consultant.

Company D: Aerospace and Engine Industry

Company D is one of the most famous names in engineering throughout the world - a global aerospace, automotive, defence, marine and energy group with facilities in 15 countries. Company D is a world-leading power systems provider, designing, manufacturing and supporting a comprehensive range of products and services for air, sea and land applications. With around 43,000 employees located in 48 countries,

Company D is well positioned to satisfy customer requirements in each of its key markets of civil aerospace, defence aerospace, marine and energy. At the time of the study, a one-stop initiative, called Better Performance Faster (BPF) has been running between 1995 and 2000 to look into Integrated Product Development process and improvement in cost and quality. The interview was conducted with the Director of Business Process Improvement and joined by personnel from the Knowledge unit. The role of the Director was to direct and manage the continuous improvement, quality system and information technology within the new set up BPI Centre, across the whole of the organisation.

The company has three methodologies for process improvement and change. Kaizen has been implemented successfully to effect change in working practices and roles in the US plant and UK. Whilst this is a bottom up approach, the Company found a real empowerment with Kaizen approach. Another approach used within the organisation is Derwent Life Cycle approach for product development. There are six stages and three quality review gateways between the development process. For the knowledge acquisition process, the organisation used SPEDE methodology, this is a proprietary methodology developed between the Company and University of Nottingham. It is a structured approach for capturing the process. Change process in the organisation are now top down and according to the interviewees, crisis and emotions have to be created to get change from people.

Company G: Information Technology

Company G is a major business and information technology services company providing IT solutions to the telecommunications, utility, finance, transport, oil and gas and public sector markets and is the leading supplier of smart card technology. The Company is a global network of over 32,000 employees in over 130 locations worldwide, with annual revenue in excess of £1.25 billion. The company is dedicated to building long-term customer relationships and providing consulting, systems integration, managed services and best-in-class products. Consulting is the core service and offers services in process transformation, strategic change management, information systems strategy, knowledge management, programme management and e-enterprise. At the time of the study, the Company's process transformation was based on

providing value rather reducing costs and streamlining processes. Their proven five stage methodology, called "Our Toolkit" focuses on implementation programmes on process, people and technology. Recent projects carried out by Consultant G include, Benefits Agency, The Post Office, BP, BBC, Transco, Prudential and much more.

Company H: Computer Systems

Company H is a leader in computer systems and strives to lead in the creation, development and manufacture of the industry's most advanced information technologies, including computer systems, software, networking systems, storage devices and microelectronics. The case study was conducted within the corporate's Global Services Consulting division, that offers service solutions in business innovation, integrated technology and strategic outsourcing. The interviewee for the case was an experienced Senior Consultant and Business Excellence Model Adviser who has been with the Company for 36 years. By 1999, the corporation's revenue stood at \$87.5 billion and employing over 316,303 as at 2000. The starting point for process improvement within the organisation was in the early 1980s with the implementation of Just in Time manufacturing. The mid-1980s saw the introduction of Quality Cycle, process improvement teams and the use of Belbin approach across the organisation and the use of problem solving techniques. In 1990, the company developed an approach and this was the first time they had a rigorous methodology. The Company found it difficult to operate a single corporate methodology because of different practices within the organisation.

Another methodology was developed but failed to consider the organisation, the culture and the change management aspect. This led to the study of soft methodology within the corporation focusing more on the change and project management through process improvement. This soft methodology to process improvement is used internally in various forms within the organisation. As a service provider, the Consulting group has a business transformation methodology which covers aspects of business transformation, strategy, organisational design, change management, customer value management and business process reengineering. In house material showed that the consulting group worked with Michael Hammer to develop their four-phase business transformation methodology.

Appendix A.5.1: Methods Used for BPI

1. BPI METHODS CURRENTLY BEING USED								
Questions	A	B	C	D	E	F	G	H
Methods used	Methodology used for managing strategic change is proprietary. SSADM, PRINCE	No real formal procedure. Ad hoc basis Once used proprietary methodology for ERP implementation	No formalised methodology	Kaizen Techniques Product life cycle approach SPEDE knowledge acquisition method	Use participative methodology -5 steps Identify customer needs and assess business vision Process prioritisation Process Flow Mapping Generate new alternatives Implement alternatives Also use project handbook	Use strategic business reengineering methodology -5 steps Mobilisation Defining Context Streamlining Implementation Securing the benefits	5 Stage Framework Initiation Visioning Designing new process Implementation	4 Phases of Business Transformation Methodology Energise Focus Invent Launch
How method is formed	Consultancy proprietary	Some proprietary Others from quality tools		Some proprietary Quality tools Knowledge Mgt	Research Experience	Research Experience Books	Research Experience Books	Research Experience Books
Key Issues that impact on the success.	Functional silos Product centred organisation rather than customer focus Lack of group sponsorship Reluctance to enforce project complexity and risk by functions. Business migration	Quality Focus	Benefits of simulation tool Integrating process and people Educate people on modelling Capturing experts knowledge		Cultural differences Company structure Measures Business type	Senior management commitment Project Management User Involvement Process Focus Analysis of the problem situation	Strategic vision Performance Measures	Change Management Soft System methodology Project Management

Appendix A.5.1 Contd: Methods Used for BPI

Strengths	Alignment process. Well-defined policies, guidelines and standards		Stimulate people to think objectively and broadly and get people involved.	Change is process and people centred with lots of leadership, vision and IT support	Methodology integrates risk assessment and ABC	Provides a structured road map for clients projects	Methodology available to all consultants in a CD ROM Methodology drawn from good implementation and management consultancy	Methodology used for consulting is world-class.
Weaknesses	Lack of consistency in the use of methods	No formal methodology	Elusive structure	Changes are top down. Sustaining change is difficult	Lack of process capture	Bulky	Methodology not formally assessed in a controlled environment	Difficult to have a single corporate methodology because of different views

Appendix A.5.1 Contd: Methods Used for BPI

BPI METHODS CURRENTLY BEING USED						
Questions	I	L	M	N	O	P
Methods used	Develop Strategy	Uses 4 Steps Analyse Simplify Integrate Develop	PADM Method and SPRINT Methodology 3 Phase Analysis Design Implementation	4 Step Methodology Blank Sheet of Paper Identify current state Identify the desired state Understand the problems & issues from stakeholders	Process Dependency Network. It starts with: Business objectives Stakeholders Processes Activities Changes that need to happen Projects Results	8 Stage Develop business vision and process objectives Understand Existing process Identify process for redesign Identify Change levers Implement the new process Make new process operational Evaluate the new process Ongoing continuous improvement
	Identify Process Analyse Process Re-design Process Implement					
How method is formed	Talk with experts Clients views Workshops	Research Experience	Research Project experience Workshops	Research Project experience Workshops	Research Consulting	Evaluation of existing methodologies using success rate Talked to experts Methodology reviewed by practitioners
Key Issues	Performance Measures Strategy Process Architecture Human Factors Information Technology	Value Chain Process efficiency	Project management Modelling and Goals Metrics	Lack of understanding of clear vision Senior management commitment Aligning processes with strategy Measuring success	Implementation Differences in mapping processes and activities	People Organisational issues Evaluation

Questions	I	L	M	N	O	P
Strengths	Methodology developed as a handbook supported with Multi-media materials	Focuses on value elimination and time reduction	Methodology developed as a handbook and deployed on Intranet Methodology developed specifically for a city local authority. Methodology is descriptive	Methodology developed from research and implemented in industry	Methodology is very high level and carried out in a workshop environment with case study examples and application by participants	Development of evaluation criteria of process change context Implementing evaluation
Weaknesses	Methodology only designed for the Small-Medium Enterprise	Methodology fails to address strategic intent of change		Element of doing the project personally because of ownership Tendency of oversight Easier with a trained assessor who understands the methodology	Not a methodology in a structured stage. More of a softer approach used in teaching and consulting	Not a rigorous testing. Evaluation is the implementation of the project but the result reflects on the methodology

Appendix A.5.2: Research Process

Questions	D	E	G	H	I	M	N	O	P
How do you know your methodology works?	Result from the project assessed not so much the methodology	Assessment is carried	Through informal assessment	Use local assessment	Assessment carried out	Based on the project assessment itself.	Assessment	Based on the project result	Evaluation of BPR project implementation
What methods are used?	Success of the project is measured using secondary metrics	Phased approach - checkpoints and gates used. Post implementation -Customer Satisfaction survey, Measure of success publicity in the newspaper.	Internal workshops held with consultants finding out which areas work and don't work	Process Vitality Index was used by the team based on the criteria to see if the process is: Defined Owned Mapped Analysed and improved Audited Employee Survey Questionnaire also used as part of the verification	Series of workshops lasting three hours by going through each stage of the methodology	Semi-structured interviews. Project is judged on its success	Informal debrief sessions in a workshop environment	Workshop	Semi-structured interviews, participant observation were used to evaluate the project during and after the change project, using the criteria of Business performance improvement Organisational effectiveness User acceptability
What is lacking in the approach used to assess the methodology (weaknesses)	Not good in identifying measures	Assessment is not done to assess the methodology. Critical Success factors outweigh the actual method used.	Not assessed in a controlled environment	Execution problem with people working across countries	Not a rigorous testing in the real world. Concerned if the methodology would work for the SME because they want quick approach.	No formal critical assessment	Lacks critical and rigorous testing	Informal. Lacks critical and rigorous testing	Testing on methodology was not comprehensive in comparison with the project assessment. Some gaps are noticed in the measurement criteria. Unclear if methodology was evaluated before, during and post application.

Appendix A.5.3: Comments Specific to Pilot Methodology

4. COMMENTS SPECIFIC TO PROPOSED METHODOLOGY	
Questions	Response Data
How would you improve this methodology?	<p>Step 1: Assess Readiness</p> <ul style="list-style-type: none">• Linking process objectives with the business strategy and objectives• Need an assessment of the business drivers and change drivers Include a case for "why the need for change"?• Different route map required reflecting the different nature of business process change following the initial assessment.• Widen the scope of readiness assessment questionnaire• Benchmark against ISO 9000 on management representation• Use EFQM guideline to form the questions on business strategy objectives• Identify Stakeholders and customers <p>Step 2: Outline Process under review</p> <ul style="list-style-type: none">• Combine Step 2 and 3 to reduce time when there is a need to change the process very quickly. This should be reflected in the risk assessment <p>Step 3: Detail data collection</p> <ul style="list-style-type: none">• Need a guiding framework to steer what data to collect, why and when• Change step name <p>Step 4: Form Model of current process</p> <ul style="list-style-type: none">• Align modelling objectives and process objectives set out in Step 1 through communication with the business analyst. State the purpose, scope and level of detail of modelling.• Integration of advanced modelling techniques and simple visual diagrams to follow to satisfy people (users) who understand BPI process (experts) and people who understand the process (basic).• Keep models high level. Detailed level can be left to the process owners.• More user involvement in modelling and analysis <p>Step 5: Assess and Redesign process</p> <ul style="list-style-type: none">• Incorporate Gap Analysis and Benchmarking <p>Step 6: Implement improved process</p> <ul style="list-style-type: none">• Remove 'improved'• Pilot process before full implementation as an alternative to simulation model <p>Step 7: Review process</p> <ul style="list-style-type: none">• Introduce improvement approaches• Deming's Plan Do Check Act cycle of improvement• Opportunity Cycle• Review the EFQM model and see how it fits in with the methodology to manage processes?

Appendix A. 5.3 Continued: Comments on the Pilot Methodology

How would you improve this methodology?	<p>General comments:</p> <ul style="list-style-type: none">• Loop back between Step 5, Step 4 and Step 3- can the model tell much information about the process? No, go and do more model and collect more data.• Good practice to include risk assessment to the effect that each step contains conditions. Identify key risk areas in the methodology - low, medium and high risk areas.• Incorporate process alignment of two steps and more iteration• Incorporate checklists at the end of each step to restrict jumping to next step• Use commercial terms to introduce the techniques• Make Methodology independent of a modelling tool• Build measurement into the process• Incorporate Proof of Concept - visualisation, prototype and computer simulation• Look into Project Management Methodology• Assessment checklists to prove each step is performed stating what works well and does not work well• Avoid paralysis by analysis• Incorporate assessment as a step of the methodology post implementation
What factors would help you to use this method?	<ul style="list-style-type: none">• Make workbook more descriptive rather than prescriptive• Flexibility and adaptability -give users the choice of doing what they want to do• Simple visual representation for less experienced users• Not time consuming• Embraces all in the organisation so allow involvement• Make it non-linear approach
What do you consider to be the strength of this methodology? What makes this methodology different from other methodologies?	<ul style="list-style-type: none">• Tailoring methodology to the specific organisational terminology and culture• The model is generic for wider application• Balancing flexibility and rigidity in the methodology• To be clinically tested• Application of the methodology• To save money, time and improve process effectiveness

Appendix A.5.4: Tools and Techniques Used to support BPI

3. TOOLS AND TECHNIQUES CURRENTLY BEING USED			
Questions	Response Data		
What tools and techniques are used to support the business process change?	SSADM Rational Rose Visio IDEF0 Role Activity Diagram (RAD) Simulation Rich picture Affinity Diagram Cause and Effect Situation Analysis	Post it Notes Flowcharts Process mapping Facilitated workshops Brainstorming sessions Focus groups Culture Mapping Mckinsey's 7s Cultural model Activity Based Costing Force-field analysis Swimlanes LOVEM Value Chain Analysis	Process walkthroughs Interviews Stakeholder Analysis Skill and Competency Matrix PDCA cycle Gantt Chart Whiteboard
What method and tool of process modelling is used?	System development lifecycle Adaptive Framework Rational Unified Process CaseWise IDEF0 Rich Picture (Soft System methodology) ProcessWise Workbench ARIS ABC Flowcharter		
Is modelling tool dependent/Independent of the methodology?	Most agree methodology and modelling tool should be separate and independent. Users should be thought the techniques so that they understand the type of model		
How do users get involved in the modelling exercise?	People need to be more objective in what they are doing Users are educated on the use of modelling technique Guide on the diagrams Introductory workshop with examples		
What do you like about these tools and techniques?	Information Repository to seek information at different levels Graphical interface Web front end for publication		
What don't you like about them?	IDEF0 was found to be a specialist and not a generalist tool as it's too complicated to use. Not for less technical users People get lost in the detail		
What should modelling techniques and tools start doing to make it more useful for BPI projects?	Flexible meta-model Simple to understand and use in notations Integration with case tool Graphical user interface Web front end Database repository Educate people to the idea of modelling Link with knowledge intensive tasks		

Appendix A.5.5: Future Research Challenges

5. FUTURE RESEARCH CHALLENGES IN BPI	
What are future challenges in this field and what is likely to emerge?	<ul style="list-style-type: none"> • How methodology can help to move organisations towards achieving world-class processes • Buying processes like a brand and knowledge? • Using knowledge management as the key to facilitate change • Reuse of methodology irrespective of technology • Mobilising people ability • Provision of simple tool and methodology for non-specialists users of BPI • Effect of e-Commerce on business process change • Technology changes • Link between process improvement, process management and knowledge management • Opportunity to validate frameworks • Deploy methodology as an intranet document for general use
What should we be doing next?	<ul style="list-style-type: none"> • Modelling Strategy • Modelling people skills and thinking • People centred methodology • Integrate creative thinking into the process • Extracting business information • Tool to capture the process information and knowledge • Raise awareness of dynamic modelling in business • Sharing learning and knowledge • Use of the EFQM or Business Excellence Model • Sustaining changes through leveraging learning and knowledge • Public sector - use formal business process methods and models to generate performance metrics bottom up as opposed to top -down. • Public sector - need some standards and local differentiation

APPENDICES FOR CHAPTER 7

Appendix B.1: Definition of Performance Indicators

Feasibility

Could the methodology be followed?

INDICATORS

Completeness

Was the workbook methodology followed in its entirety?

Consistency

Were actions taken consistent with the methodology?

Success Factors

Was each step completed satisfactorily?

Contingency

Did the methodology offer alternatives for failure?

Usability

How easily could the methodology be followed?

INDICATORS

Time

Time committed to the methodology

Ease of use (user friendliness)

User friendliness

Understanding/Frustration

Did each step provide clear direction?

Participation

Did everyone get the chance to contribute?

Flexibility

Were changes in the methodology found necessary?

Utility/Usefulness

Did the methodology provide an output that met users' expectation?

INDICATORS

Effectiveness

Did the methodology produce a useful output?

Efficiency

Was the output of the methodology worth the time and effort put into it?

Satisfaction

Was the methodology credible?

Context

Factors internal and external to the organisation that impact on the methodology

INDICATORS

Confidence

Have people used structured methodology before?

Organisational Structure and Culture

Politics and leadership

Business Environment

Government policies, rules and regulations, standards

**Appendix B.2: Pre- Methodology Risk Assessment
Questionnaire**

Appendix B.2: Pre- Methodology Risk Assessment Questionnaire

This questionnaire is to be filled out by the facilitator and participants before Step 1 of Business Process Improvement (BPI) methodology.

Name: _____

Position: _____

1. What are the internal and external risks to the methodology application being successful?

2. What are the specific risks in the workbook methodology?

3. How likely is it to occur?

4. What will be the consequences if it does occur?

5. What are the risks of not using this methodology?

6. What could happen to undermine the feasibility, usability and usefulness of the Methodology?

7. What are the generic risks to timescale?

8. What is the overall risk to the BPI project?

9. With hindsight, what plans would you make for dealing with problems in the workbook?

Appendix B.3: Pre-Methodology Context Questionnaire

This questionnaire is to be filled out by the facilitator before Step 1 of BPI methodology.

Name: _____

Position: _____

Organisational Structure and Culture

- 1. What is the structure of [name of organisation] (Please provide organisational chart)
- 2. Is there a senior-level champion for the application of the methodology? (Please state).

Yes	☐	No	☐

Confidence

- 3. Have you used structured methodologies for similar situations before? If yes, please state.

Yes	☐	No	☐

- 4. Were they successful?

Yes	☐	No	☐

Business Environment

- 5. Have there been any recent changes (internal/external) in policies that may impact on the use of the Methodology? (If yes, please state).

Yes	☐	No	☐

Appendix B.4: Sample Questionnaire during BPI Methodology Application



MIPIM METHODOLOGY:

PARTICIPANT USABILITY QUESTIONNAIRE

(STEP 2: UNDERSTAND THE PROCESS)

Assessment of the BPI Methodology to the [Process Name]

Name:

Position

Date:

This step should have helped you understand how your business processes currently operate. The assessment questions are designed to capture your opinions and feelings about the content and delivery of Step 2 Methodology and at seeking your suggestions for improvement. Try to express how you actually see things now and how you would like to see them.

The questionnaire is structured, in sections. Please feel free to look back over the methodology step and the tools and techniques you have used to help you respond to some of the questions. At the end of the questionnaire, a section is provided for more general comments.

STEP 2: UNDERSTAND THE PROCESS	
Participant Usability Questionnaire (How easily could this methodology be followed? Is this step workable?)	
Ease of use [user friendliness]	
Would you please tell me how you found using this step?	
1a	Did you find this step of the methodology easy to follow? Yes ☐ No ☐
1b	How often did you find it easy to understand? Please tick the appropriate response: Never ☐ Seldom ☐ Frequently ☐
2a	Did you stall at this step? Yes ☐ No ☐
2b	Why did you stall?
3a	Did you find this step labour intensive? Yes ☐ No ☐
4a	Was this step necessary in achieving improvements? Yes ☐ No ☐
4b	Could it have been skipped? Yes ☐ No ☐
5	Was anything in the step unnecessary or redundant? If yes, please state Yes ☐ No ☐
6a	Which of the tools and techniques used in this step to collect process information did you find easy to follow? Please continue on a separate sheet if necessary.
6b	Which of the tools and techniques used in this step did you find difficult to follow?
6c	Why? Please continue on a separate sheet if necessary.
Time [time committed to the step in the methodology]	
Would you please tell me how much time was expended on this step?	
1	Was sufficient time allocated for this step? Yes ☐ No ☐
2a	Were there any delays in getting this step done? Yes ☐ No ☐
2b	If yes, please state

Understanding and Frustration [Did this step provide clear direction?]		
Would you please tell me about your understanding and frustration?		
1	Were you confused at any point during the execution of this step and why?	Yes ☐ No ☐
2a	Were any terms unfamiliar or unacceptable to you and why?	Yes ☐ No ☐
3a	Did you encounter any problems following this step?	Yes ☐ No ☐
3b	If yes, did you feel these problems were due to the methodology itself, or the facilitation and why?	
3c	Did you feel that some of the activities in this step could have been done earlier, or merged or left for Step 3? Please state which.	
Participation [Did everyone get the chance to contribute?]		
Would you please tell me about participation during meetings/workshops?		
1	Did you feel actively involved in your contribution during this step?	Yes ☐ No ☐
2	Did you feel uncomfortable at any point during the meetings/workshops?	Yes ☐ No ☐
Flexibility [Are changes in this step of the methodology necessary?]		
Would you please tell me about changes necessary to this step?		
1a	Did you, at any time during this step, notice any diversion from the workbook methodology?	Yes ☐ No ☐
1b	How often did you notice diversion from the workbook?	Never ☐ Seldom ☐ Frequently ☐
1c	What was done that was different from the workbook methodology?	What diversion occurred? Why was diversion necessary?
2a	What changes would you make to this step - 'Understand the Process' to help you understand the current process better?	What modifications? Why is it necessary?

2b	Having used the Expert Process Analysis Technique (XPat) for process definition and mapping, what modifications would you recommend making it much easier to use?	What modifications?	Why is it necessary?
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Appendix B.5.1: Facilitator's Post Assessment Questionnaires

Appendix B.5.2: Participants' Post Assessment Questionnaires

BUSINESS PROCESS IMPROVEMENT METHODOLOGY:

FACILITATOR POST-ASSESSMENT QUESTIONNAIRE

**PLEASE COMPLETE THIS QUESTIONNAIRE IN ADVANCE AND
BRING IT TO THE DISCUSSION SESSION.**

The BPI Methodology pilot has come to an end. The purpose of this assessment is to:

1. Review the 'usability' of the BPI Methodology.
2. Assess the effectiveness of the approach.
3. Seek to establish improvements in the methodology

The questionnaire is made up of four sections.

1. If the methodology could be followed (Feasibility)
2. How the methodology has been carried out (Usability)
3. If the methodology has helped the project to produce a good result (Usefulness)
4. If there are factors affecting how the methodology was carried out (Context).

Please answer as many questions as possible and feel free to add additional comments anywhere within the questionnaire. The information you enter will not be disclosed to anyone.

The information will be summarised and disseminated as a report.

Thank you for taking the time to complete this questionnaire.

Many thanks for your co-operation.

BUSINESS PROCESS IMPROVEMENT METHODOLOGY

**POST ASSESSMENT QUESTIONNAIRE
FACILITATOR**

FEASIBILITY (F): COULD THE METHODOLOGY BE FOLLOWED?

The purpose of this section is to discover if the BPI Methodology could be followed. Please tick the answer(s) which correspond to your opinion. Please add comments as necessary.

1 Completeness: Were all the steps in the methodology completed?

No/Not at all ☐ Partly ☐ Don't Know ☐ Mostly ☐ Yes ☐

Comments:.....
.....

2 Consistency: Did you feel there was enough time to address each step?

No/Not at all ☐ Partly ☐ Don't Know ☐ Quite ☐ Yes ☐

3 Success: Did the re-engineering project follow the workbook methodology satisfactorily?

No/Not at all ☐ Partly ☐ Don't Know ☐ Mostly ☐ Completely ☐

Comments:.....
.....

4 Contingency: If the project encountered problems, did the methodology provide an alternative solution?

No/Not at all ☐ Partly ☐ Don't Know ☐ Mostly ☐ Completely ☐

USEABILITY(USAB): HOW THE METHODOLOGY WAS CARRIED OUT

The purpose of this section is to discover how you structured and followed the methodology. Please tick the answer(s) which correspond to your opinion. Please add comments as necessary.

5 Where the project was carried out by a team, please indicate your function and role in the team?

.....

6 Was an external consultant used in the project?

☐ Yes ☐ No

If "Yes" what tasks did the consultant perform?

1. Ensured that the workbook methodology was followed
2. Collected/Verified data used
3. Promoted/Facilitated discussion
4. Provided solutions/Action Plans

5. Other, Please Specify

7 Was the methodology structured around the following which dealt with the issues covered by the workbook?

☐ Workshops

☐ Meetings

☐ Both

8 How long did the workbook methodology application take? Elapsed time

Calendar months.....

Man-days effort.....

9 How well did the timing of the methodology to the project fit into your other duties?

No/Not at all ☐ Not very well ☐ Don't Know ☐ Quite well ☐ Very Well ☐

10 If you were to carry out a business improvement task in the future,, would you consult the BPI methodology?

No/Not at all ☐ Not very likely ☐ Don't Know ☐ Very likely ☐ Yes, Definitely ☐

Comments:.....

11 Did you find the methodology and techniques robust?

No/Not at all ☐ Partly ☐ Don't Know ☐ Quite ☐ Very/Yes ☐

Comments:.....

12 Did you find the methodology and the tools and techniques reasonably easy to follow and explain?

No/Not at all ☐ Not very easy ☐ Don't Know ☐ Quite Easy ☐ Very Easy ☐

Comments:.....

13 Which of the following steps would you like to modify or combine? Please add comments

☐ Step 1: Understand Business Needs

☐ Step 2: Understand the Process

☐ Step 3: Model and Analyse Process

☐ Step 4: Redesign Process

⊖ Step 5: Implement New Process

⊖ Step 6: Assess New Process & Methodology

⊖ Step 7: Review Process

Comments:.....

14 Did you have sufficient preparation prior to each step of the methodology application and assessment?

No/Not at all ☐ Little Sufficient ☐ Don't Know ☐ Quite Sufficient ☐ Very Sufficient ☐

15 Did you give sufficient preparation advice to the project team prior to each step of the methodology application and assessment?

No/Not at all ☐ Little Sufficient ☐ Don't Know ☐ Quite Sufficient ☐ Very Sufficient ☐

16 Were the aims and actions of the methodology clear at each step of the workbook?

No/Not at all Clear ☐ Partly Clear ☐ Don't Know ☐ Quite Clear ☐ Very Clear ☐

Comments:.....
.....

17 Would it help if case study examples were to be provided in the workbook methodology?

No/Not at all ☐ Of Little use ☐ Don't Know ☐ Useful ☐ Very Useful ☐

18 What elements of the BPI methodology would you say worked well?

.....
.....
.....

19 What elements of the BPI methodology would you say did not work well?

.....
.....
.....

20 Please detail below any significant deviations you made from the methodology specified.
Please say why these were made.

.....
.....

21

What changes would you make if you were to repeat the methodology?

.....

.....

.....

.....

.....

22

What else in the methodology structure would you like the steps to define?

.....

.....

.....

23

Was there sufficient time to discuss the important issues during the project?

No/Not at all ☐ Not always ☐ Don't Know ☐ Nearly always ☐ Very/Yes ☐

24

Which of the Methodology steps and activities were most useful and why? Please provide examples.

.....

.....

25

Which of the Methodology steps and activities were least useful and why? Please provide examples.

.....

.....

26

Is there anything in the tools and techniques that you would like to change to make it more workable?

.....

.....

.....

27

Please state what you consider to be the major strengths and weaknesses of the suggested BPI methodology?

.....

.....

.....

USEFULNESS (USF): RESULT OF THE METHODOLOGY

The aim of this section is to establish how useful the methodology was and what type of results were produced. Please tick the answer (s) which corresponds to your opinion.

SUCCESS OF THE METHODOLOGY

28 Was the BPI Methodology successful in your organisation?

Most ☐ Not ☐ Don't Know ☐ Was ☐ Very successful ☐
unsuccessful successful

Comments:.....

.....

OUTPUT OF THE METHODOLOGY

29 Was the re-engineering project successful?

Most ☐ Not ☐ Don't Know ☐ Was ☐ Very successful ☐
unsuccessful successful

30 Please rate the contribution of the BPI methodology to the success of the project?

Very Little ☐ Little ☐ Average ☐ Strong ☐ Very Strong ☐

31 Please tick the answer(s) which correspond to your opinion.

The Methodology resulted in a new strategic direction (Long Term Plans) for the business. ☐

The Methodology resulted in radical changes to the existing processes ☐

The Methodology resulted in a few changes to the existing processes ☐

The Methodology confirmed the existing processes ☐

The Methodology did not produce a result. ☐

If the methodology did not produce a result, please say why not.

.....

32 How much influence do you think the BPI methodology had on achieving the project result?

None ☐ Very Small ☐ Don't Know ☐ Average ☐ Large ☐

33 Did the methodology consume excessive resources of time and people?

No/Not at all ☐ Partly ☐ Don't Know ☐ Quite ☐ Very/Yes ☐

34 Is there any evidence of change to the process which can be attributed to the Business Process Improvement Methodology?

☐ Yes ☐ No

If yes, please give details:

.....

35 In terms of the seven-step BPI methodology, was the methodology applicable to your organisation?

No/Not at all ☐ Partly ☐ Don't Know ☐ Quite ☐ Very/Yes ☐

Comments:.....

36 Will you find the methodology and its tools and techniques useful in your work?

No/Not at all ☐ Partly ☐ Don't Know ☐ Quite ☐ Very/Yes ☐

- 37

Would you use the BPI methodology again in your organisation and why?

⊖

Yes

.....

⊖

No

.....
- 38

Can you envisage the methodology being adopted in your organisation?

⊖

Yes

.....

⊖

No

.....
- 39

Are there any lessons learnt from the BPI methodology application to the project?

.....

.....

**CONTEXT (CONT) INTERNAL & EXTERNAL FACTORS THAT MAY
IMPACT ON THE USE OF THE METHODOLOGY**

The final section is intended to identify if there are particular factors which affect either the way in which the methodology was carried out or the success of the methodology. Please tick the answer (s) which corresponds to your opinion. Please circle the number of the statement which corresponds most closely with your views..

- 40

Organisational culture: Which of the following cultural factors in your organisation were attributed to the BPI methodology in a positive and negative ways? Please mark "-" or "+" against each statement.
- Willingness to improve

☐
- Willingness to share resources across functions

☐
- See process as a way to achieve targets

☐
- Work to a process

☐
- Work in a team

☐
- Internal customer orientation

☐
- External customer orientation

☐
- Work to a plan

☐☐
- See process as a way of communication

☐☐

Please give other examples of cultural factors that help or affect the results:

.....
.....
41 If there were organisational restructuring during the project, how much impact did it have on the Methodology?

Please comment
.....
.....

42 If the BPI methodology produces positive results, will its success become known in the wider organisation?

Not likely ☐ Most Unlikely ☐ Don't Know ☐ Likely ☐ Very Likely ☐

43 Has your organisation carried out any other business improvement programmes in the last 10 years?

ISO 9000 ☐
Total Quality Management ☐
Business Process Reengineering ☐

44 What methodologies have you used in the past and why?

Please comment
.....
.....
.....

45 Where did these methodologies differ from the BPI methodology used in this project?
:.....
.....
.....

46 Was the format of presenting the methodology in a workbook useful to your organisation?

No/Not at all ☐ Not very useful ☐ Don't Know ☐ Useful ☐ Very Useful ☐

If No, please state alternative preferred delivery means
.....
.....

47 What is the turnover of business unit to which methodology was applied? (£million)

0 - 2 ☐ 2 - 5 ☐ 5 - 10 ☐ 10 - 20 ☐ 20 - 50 ☐ over 50 ☐

48 Number of employees

0 - 50 ☐ 50 - 100 ☐ 100 - 200 ☐ 200 - 500 ☐ 500 - 1000 ☐ over 1000 ☐

49 Please briefly describe the structure and style of your organisation?

.....

.....

.....

50 Any other Comments

.....

.....

.....

YOUR DETAILS

Name:

Position:

Business Function:



BUSINESS PROCESS IMPROVEMENT METHODOLOGY:

PARTICIPANT POST-ASSESSMENT QUESTIONNAIRE

**PLEASE COMPLETE THIS QUESTIONNAIRE IN ADVANCE AND
BRING IT TO THE DISCUSSION SESSION.**

The BPI Methodology pilot has come to an end. The purpose of this assessment is to:

4. Review the 'useability' of the BPI Methodology.
5. Assess the effectiveness of the approach.
6. Seek to establish improvements in the methodology

The questionnaire is made up of four sections.

5. If the methodology could be followed
6. How the methodology has been carried out
7. If the methodology has helped the reengineering project to produce a good result
8. If there are internal and external factors affecting how the methodology was carried out.

Please answer as many questions as possible and feel free to add additional comments anywhere within the questionnaire. The information you enter will not be disclosed to anyone.

The information will be summarised and disseminated as a report.

Thank you for taking the time to complete this questionnaire.

Many thanks for your co-operation.



**BUSINESS PROCESS IMPROVEMENT
METHODOLOGY**

**POST ASSESSMENT QUESTIONNAIRE
PARTICIPANT**

FEASIBILITY (F): COULD THE METHODOLOGY BE FOLLOWED?

The purpose of this section is to discover if the BPI Methodology could be followed. Please tick the answer(s) which correspond to your opinion. Please add comments as necessary.

8

Completeness: Were all the steps in the methodology completed?

No/Not at all ☐ Partly ☐ Don't Know ☐ Mostly ☐ Yes ☐

Comments:.....
.....

9

Consistency: Did you feel there was enough time to address each step?

No/Not at all ☐ Partly ☐ Don't Know ☐ Quite ☐ Yes ☐

10

Success: Did the re-engineering project follow the workbook methodology?

No/Not at all ☐ Partly ☐ Don't Know ☐ Mostly ☐ Completely ☐

Comments:.....
.....

11

Contingency: If the project encountered problems, did the methodology provide an alternative solution?

No/Not at all ☐ Partly ☐ Don't Know ☐ Mostly ☐ Completely ☐

USEABILITY(USAB): HOW THE METHODOLOGY WAS CARRIED OUT

The purpose of this section is to discover how you structured and followed the methodology. Please tick the answer(s) which correspond to your opinion. Please add comments as necessary.

5

Was the reengineering project carried out by one individual?

☐ Yes ☐ No

If " Yes" please give that person's position in the organisation?
.....

6

Where the project was carried out by a team, please indicate your function and role in the team?
.....

7

Was one person within the team allocated the responsibility of facilitating the methodology?

☐ Yes ☐ No

If " Yes" please give that person's position in the organisation

.....

8 **Was the BPI methodology structured around the following which dealt with the issues covered by the workbook?**

☐ Workshops

☐ Meetings

☐ Both

9 **How well did the timing of the methodology to the project fit into your other duties?**

No/Not at all ☐ Not very well ☐ Don't Know ☐ Quite well ☐ Very Well ☐

11 **If you were to carry out a business improvement task in the future,, would you consult the BPI methodology?**

No/Not at all ☐ Not very likely ☐ Don't Know ☐ Very likely ☐ Yes, Definitely ☐

Comments:.....

.....

11 **Did you find the methodology and techniques robust?**

No/Not at all ☐ Partly ☐ Don't Know ☐ Quite ☐ Very/Yes ☐

Comments:.....

.....

12 **Did you find the methodology and the tools and techniques reasonably easy to follow?**

No/Not at all ☐ Not very easy ☐ Don't Know ☐ Quite Easy ☐ Very Easy ☐

Comments:.....

.....

13 **Which of the following steps would you like to modify or combine? Please add comments**

☐ Step 1: Understand Business Needs

☐ Step 2: Understand the Process

☐ Step 3: Model and Analyse Process

☐ Step 4: Redesign Process

⊖ Step 5: Implement New Process

⊖ Step 6: Assess New Process & Methodology

⊖ Step 7: Review Process

Comments:.....
.....

14 Were you given sufficient preparation advice prior to each step of the methodology application and assessment?

No/Not at all ☐ Little Sufficient ☐ Don't Know ☐ Quite Sufficient ☐ Very Sufficient ☐

15 Were the aims and actions of the methodology clear at each step of the workbook?

No/Not at all ☐ Partly ☐ Don't Know ☐ Quite ☐ Very Clear ☐
Clear Clear Clear Clear

Comments:.....
.....

16 Would it help if case study examples were to be provided in the workbook methodology?

No/Not at all ☐ Of Little use ☐ Don't Know ☐ Useful ☐ Very Useful ☐

17 What elements of the BPI methodology would you say worked well?

.....
.....
.....

18 What elements of the BPI methodology would you say did not work well?

.....
.....
.....

19 Please detail below any significant deviations you made from the methodology specified.
Please say why these were made.

.....
.....
.....
.....

20

Can you suggest improvements to the BPI workbook methodology?

21

What else in the methodology structure would you like the steps to define?

22

Was there sufficient time to discuss the important issues during the project?

No/Not at all ☐ Not always ☐ Don't Know ☐ Nearly always ☐ Very/Yes ☐

23

Which of the Methodology steps and activities were most useful and why? Please provide examples.

24

Which of the Methodology steps and activities were least useful and why? Please provide examples.

25

Was there anything in the tools and techniques that you would like to change to make it more workable?

26

Please state what you consider to be the major strengths and weaknesses of the suggested BPI methodology?

USEFULNESS (USF): RESULT OF THE METHODOLOGY

The aim of this section is to establish how useful the methodology was and what type of results were produced. Please tick the answer (s) which correspond to your opinion.

SUCCESS OF THE METHODOLOGY

27 Was the BPI Methodology successful in your organisation?

Most unsuccessful ☐ Not Successful ☐ Don't Know ☐ Was successful ☐ Very successful ☐

Comments:.....
.....

OUTPUT OF THE METHODOLOGY

28 Was the re-engineering project successful?

Most unsuccessful ☐ Not Successful ☐ Don't Know ☐ Was successful ☐ Very successful ☐

29 Please rate the contribution of the BPI methodology to the success of the project?

Very Little ☐ Little ☐ Average ☐ Strong ☐ Very Strong ☐

30 Please tick the answer(s) which correspond to your opinion.

- ☐
- The Methodology resulted in a new strategic direction (Long Term Plans) for the business.
- ☐
- The Methodology resulted in radical changes to the existing processes
- ☐
- The Methodology resulted in a few changes to the existing processes
- ☐
- The Methodology confirmed the existing processes
- ☐
- The Methodology did not produce a result.

If the methodology did not produce a result, please say why not.

.....

31 How much influence do you think the BPI methodology had on achieving the project result?

None ☐ Very Small ☐ Don't Know ☐ Average ☐ Large ☐

32 Did the methodology consume excessive resources of time and people?

No/Not at all ☐ Partly ☐ Don't Know ☐ Quite ☐ Very/Yes ☐

33 Is there any evidence of change to the process which can be attributed to the Business Process Improvement Methodology?

☐ Yes ☐ No

If yes, please give details:

.....

34 In terms of the seven-step BPI methodology, was the methodology applicable to your organisation?

No/Not at all ☐ Partly ☐ Don't Know ☐ Quite ☐ Very/Yes ☐

Comments:.....

.....

35 Would you use the BPI methodology again in your organisation and why?

☐ Yes

.....

☐ No

.....

36 Can you envisage the methodology being adopted in your organisation?

☐ Yes

.....

☐ No

37 Are there any lessons learnt from the BPI methodology application to the reengineering project?

CONTEXT (CONT) INTERNAL & EXTERNAL FACTORS THAT MAY IMPACT ON THE USE OF THE METHODOLOGY

The final section is intended to identify if there are particular factors which affect either the way in which the methodology was carried out or the success of the methodology. Please tick the answer (s) which correspond to your opinion. Please circle the number of the statement which corresponds most closely with your views..

38 Organisational culture: Which of the following cultural factors in your organisation were attributed to the BPI methodology in a positive and negative ways? Please mark "-" or "+" against each statement.

- Willingness to improve ☐
- Willingness to share resources across functions ☐
- See process as a way to achieve targets ☐
- Work to a process ☐
- Work in a team ☐
- Internal customer orientation ☐
- External customer orientation ☐
- Work to a plan ☐
- See process as a way of communication ☐

Please give other examples of cultural factors that help or affect the results:

39 If there were organisational restructuring during the project, how much impact did it have on the Methodology?

Please comment

40 If the BPI methodology produces positive results, will its success become known in the organisation?

Not likely ☐ Most Unlikely ☐ Don't Know ☐ Likely ☐ Very Likely ☐

41 Has your organisation carried out any other business improvement programmes in the last 10 years?

ISO 9000 ☐
Total Quality Management ☐
Business Process Reengineering ☐

42 Was the format of presenting the BPI methodology in a workbook useful to your organisation?

No/Not at all ☐ Not very useful ☐ Don't Know ☐ Useful ☐ Very Useful ☐

If No, please state alternative preferred delivery means

.....
.....

43 What is the turnover of the business unit to which the methodology was applied? (£million)

0 - 2 ☐ 2 - 5 ☐ 5 - 10 ☐ 10 - 20 ☐ 20 - 50 ☐ over 50 ☐

44 Number of employees

0 - 50 ☐ 50 - 100 ☐ 100 - 200 ☐ 200 - 500 ☐ 500 - 1000 ☐ over 1000 ☐

45 Please briefly describe the structure and style of your organisation?

.....
.....
.....

46 Any other Comments

.....
.....
.....

YOUR DETAILS

Name: _____

Position: _____

Business Function: _____

Appendix B.6: Case 1 Application of BPI Pilot Methodology

This appendix describes the application of the pilot methodology to the case project.

The primary test is aimed at achieving three things, namely:

1. To know whether we need to refine the workbook and in what areas.
2. To know whether we need to think carefully about the way we test the workbook.
3. To help to improve Case 1 training and development process.

The intervention approach was initiated in April 2000 and the researcher had followed the methodology, tools and techniques from the workbook. The biggest problem was the design of training framework and procedure as this often gets ignored. The timescale of the research precluded a full evaluation of the entire methodology steps; instead, only five steps were followed closely. The core of testing this methodology was how the workbook supports people. A half day meeting was held to introduce the content and process of the workbook methodology to the project team, discuss and agree project specification and scope the project. At the end of the day, risk and context assessments were conducted. The team were asked to evaluate the suggested methodology in terms of likely risks perceived in using and continuing to use the methodology during the project, and the potential risks of not using the methodology. By talking with the project sponsor, the facilitator was able to collect data on the business organisational structure and culture, any experience of using standard methodology in the past and the general business environment, to determine if there were potential internal or external context factors that may affect using the methodology. The next stage was to launch into the workbook methodology, redesign the training process based on the five steps of the BPI MIPIM methodology. The activities below describe how each step of the pilot methodology was applied by the facilitator (researcher) to the training and development improvement project.

Step 1: Assess Readiness

The aim of this step was to assess readiness of PDC in the redesign of the training process. Assessment for change readiness was carried out by the facilitator, asking

series of project related questions on the need for change, commitment, reporting lines, improvement team, roles, responsibilities, expectations, and project plan. From this group exercise, involving the project sponsor, champion and the process owner, project aim and objectives were established. The following objectives and expectations were agreed for the training design process based on key development objectives from the unit's vision statement:

- An efficient training system
- Accuracy of data
- Business focus and relevance to the business unit
- Workable and agreeable process by staff
- Able to provide management Information system
- IT or manual training tool capability
- Developing and learning modelling skills

This process step took two man-days. The workbook methodology recommended studying other similar processes, hence; a mini benchmarking study was informally conducted looking at the training and development processes in Cranfield University in three areas of: personnel development; computer training course, and library services. The outcome of this study helped formed a background of useful processes.

Step 2: Outline Process under study

Step 2 aims to establish boundaries so that the project can be clearly focused and to determine appropriate metrics to analyse the chosen process steps. This was the beginning of scoping the training process boundaries, establishing customers' requirements and expectations, defining baseline measures and defining interfaces with other processes and hand-overs. People involved in this process included training and development personnel, customers and suppliers. Outlining the training process was an important factor in order to attempt a redesign work. By using flow chart, process deployment matrix, three sub processes were mapped: in-house training process, closed event process and cancellation process. With this step, they have acknowledged the complexity of administrative process and lack of autonomy in managing own training system. The team faced challenges due to stakeholders' interest within the larger

organisation in the provision of training services, for instance, internal training providers are also stakeholders. By following the step, the project having identified the processes, decided to focus on the training booking process starting from identifying training needs to training evaluation. This step took approximately 3 working days.

Step 3: Detailed Data Collection

Capturing process information was a daunting and time-consuming task, nevertheless, formed a significant part of the BPI process. Planning for the data collection involved discussion over who to see, sampling size and method of interviewing. Issues addressed during the planning stage concerned over suppliers' value of information, number of employees that will be sufficient for sampling and method of approaching the suppliers without making it academic. A formal letter was sent to all training providers inviting them to participate in the process. Discussion with people involved took the form of one-on-one interviews and workshop and a half-day observation session with the Training Coordinator.

The draft process map from step 2 was used to gather process data from users and suppliers of the process. The whole data collection process took four weeks to complete; this was due to availability and geographical location of the suppliers. The total number of people interviewed for process capture were nine, consisting of internal customers, staff and partners, located in Sheffield, London, Midlands and Leeds. Interviewees were asked to confirm their key activities from the high-level process maps. Questions were designed around IDEF0 activity modelling notation, to facilitate the data collection including the use of process flowchart. Additional elements were used to elicit more information where possible, such as, process costs, measures, time and possibly risks in the process that may impact other processes.

The outcome of this step was the use of the data to produce flowcharts of PDC's AS IS model representing the current processes.

Step 4: Form Model of Current Process

The interesting aspect of this step was the role that a business modelling tool, Enterprise Modeller could potentially play in modelling processes for the purpose of analysis and redesign. The purpose of the step was to understand in detail, how the training process

is currently being performed and to provide baseline models that can be used for subsequent analysis. The impact of Enterprise Modeller was demonstrated in both this step and in the redesign step below. Initial modelling commenced in parallel with the data collection step by flowcharting the current processes, which were then exported into a detailed process models using the Enterprise Modeller. Top level view of the training process was constructed grounded on IDEF0 context diagram. This was then decomposed into hierarchical end to end process diagrams. These diagrams may be populated with process data such as roles and responsibilities, process and activity costs, measures, time etc.

Based upon the initial verification with modellers, the process models were reviewed and rebuilt, to comply with the modelling programme standards, objectives and the outputs. The current processes were further validated with the process experts to build consensus among process users and clarify final AS IS process model for completeness. The outcome of this exercise was a validated AS IS process model showing how PDC operated its training system.

Step 5: Assess and Redesign Process

After days of modelling and validation of the process models, a one-day workshop with the process experts was carried out. Subjects covered included analysing and revising the current processes. The aim of the session was to identify value and non-value added activities in the baseline ABM process model and overcome these to specify a more efficient and effective new process. The current ABM process models was used as a starting point in the process analysis, the team were able to apply Value Added Analysis and Process Categorisation techniques to identify value added and non-value added activities in the process. The other issue addressed was to measure the current process before changes were made. The step resulted in identifying opportunities for redesign.

As a result of the analysis of the training process, PDC has also recognised the importance of replacing the old system with an improved process, where all members are encouraged to participate more actively in the business process. The objective was to standardise the training event booking procedures to ensure PDC staff were given the right learning at the right level at the right time. An interesting aspect of this exercise

was the focus on development and learning, not solely on training, hence the name development and learning booking process was coined. Learning was considered as the key factor in the staff development. The team generated three business models: training needs analysis, training events booking and training evaluation. After a long brainstorming session, the redesign effort was primarily focused on training events and evaluation. The training event booking had three sub processes: external training events, closed events and training cancellation, as described below.

An appropriate external learning and training event can be requested by any member of staff to meet individual, team and business needs, this is conducted at the training provider's premises. Closed Events training are for a specific group of staff with specific training needs, held at a chosen location. These events are usually advertised by the Development & Training Co-ordinator to the relevant staff, and most are provided by the specialist training centre within the larger department, while some by external provider. This activity is triggered by profiling event request from the Training Contract Manager or identified through request from the team leaders and project managers. Every effort is made by both the delegate and the line manager to avoid cancelling events. Where cancellation is deemed necessary, there is a procedure that must be followed. Training is a learning process and the focus is usually based on improving individual, team behaviour, and performance and on results of the organisation. Evaluation of training and learning is often overlooked and it is important to see the economic benefits. Training Evaluation is a generic baseline process that applies to the external training event, closed events and cancellation processes.

Learning is evaluated based on Kirkpatrick four stage model: reaction, learning, on the job application and business result. There are three stages of evaluation in the learning process. First, pre-learning and development discussion gives a structure to the discussion between the line manager and individual to enable them to identify the appropriate development. This means the learning will equip them to meet their key work objectives. Second, post learning development evaluation is the immediate evaluation to be carried out within two weeks after the training event, to check if the learning has met the objectives for the individual at this early stage. It aims to achieve trainee's reactions to the training. Third, 3-month post learning and development

evaluation discussion allows the results of learning activities once the individual has put the new skills into practice. This is an opportunity for line managers to look for value for money, identify business impact and a learning need or a consolidation if required. The results from the evaluation will be used for departmental reporting and to the programme management team.

Mapping of top level process view using XPat tool

Processes were initially flow-charted, top-level view were mapped using XPat tool (eXpert Process Knowledge Analysis). XPat (Adesola et al, 2000) is a structured process based technique used to elicit top level and detailed level data on input, process and output knowledge and can be used to aid process analysis. XPat provides an enhancement to IDEF0 method, because of the flexibility to add further elements to generate information about the process by providing additional variables to represent knowledge elements in a process (see Figure B.6.1). The approach is an attempt to generate deeper understanding of the tasks involved in the new process. A closer interaction of the process experts in mapping out their knowledge is a major strength of XPat. The aim of process mapping is to develop a shared understanding of the key processes, activities and knowledge involved in the development and training process.

The process elicitation was directed by the facilitator with the aid of prepared probing questions. The process map was then constructed on a brown paper, which was divided into three sections: 'input', 'process' and 'output' as shown in Figure B.6.2). Each response to questions was captured on post-it notes, and mapped onto pre-allocated areas on the brown paper. The starting point was to ask process users to list all relevant physical and non physical outputs on post-it notes, list the destination or target of each output and, finally, ask to identify frequency of all process outputs. It was observed this helped them to focus onto tasks needed to deliver those outputs. The input view needs to be considered from the internal and external domain. As with outputs, experts were asked to list all internal and external inputs, to list all sources of input, and, finally to identify frequency.

Mapping process elements is where the bulk of process analysis is realised. The elements for collecting data and describing process are shown in Table B.6.1. Each post

it note is numbered, the first response to each output question is labelled 1.2 for physical or non-physical outputs, 1.1 for destination of output and 1.3 for frequency of output. The numbering regime will continue for the next question about output. This applies also to top-level inputs and processes. The process map developed is based on IDEF0 notations with additional elements elicited during the discussion. XPat has thus enabled the change facilitator to elicit additional process functionality to support description of input/process/output. An example of how the XPat tool has been used to structure and elicit the knowledge inherent in the revised training process is shown in Appendix B.7.

Analyse and Model process knowledge elicited

The main deliverables for PDC from the 'assess and redesign' step are the following:

- XPat process mapping described above.
- ABM process model developed with the input of team members, fully validated by the expert modellers, for correctness and consistency with the ABM standards, resulting in a better modelling awareness within the Training and Development unit.
- Training Process Description forming a management information system.
- Training Event and Evaluation Form

The process model is a graphical representation of the activities and tasks populated in an Enterprise Modeller tool. Enterprise Modeller is a descriptive model designed to model the hierarchical and end to end process diagram of an organisation. The output of this is the process model. The process description standardises the training process based on the ABM process model. The input to the document is a detailed input, process and outputs knowledge from XPat used to populate data in Automated Business Model using Enterprise Modeller tool to reflect the terminologies used. The ABM process model was structured to show both hierarchical and process diagrams of the training business model.

Recommendations for Implementing the New Training Business Models

The redesign step highlighted critical issues on human, organisational, information technology and performance measurement issues, which became factors for implementation. This includes the design of new roles and responsibilities, purchase of

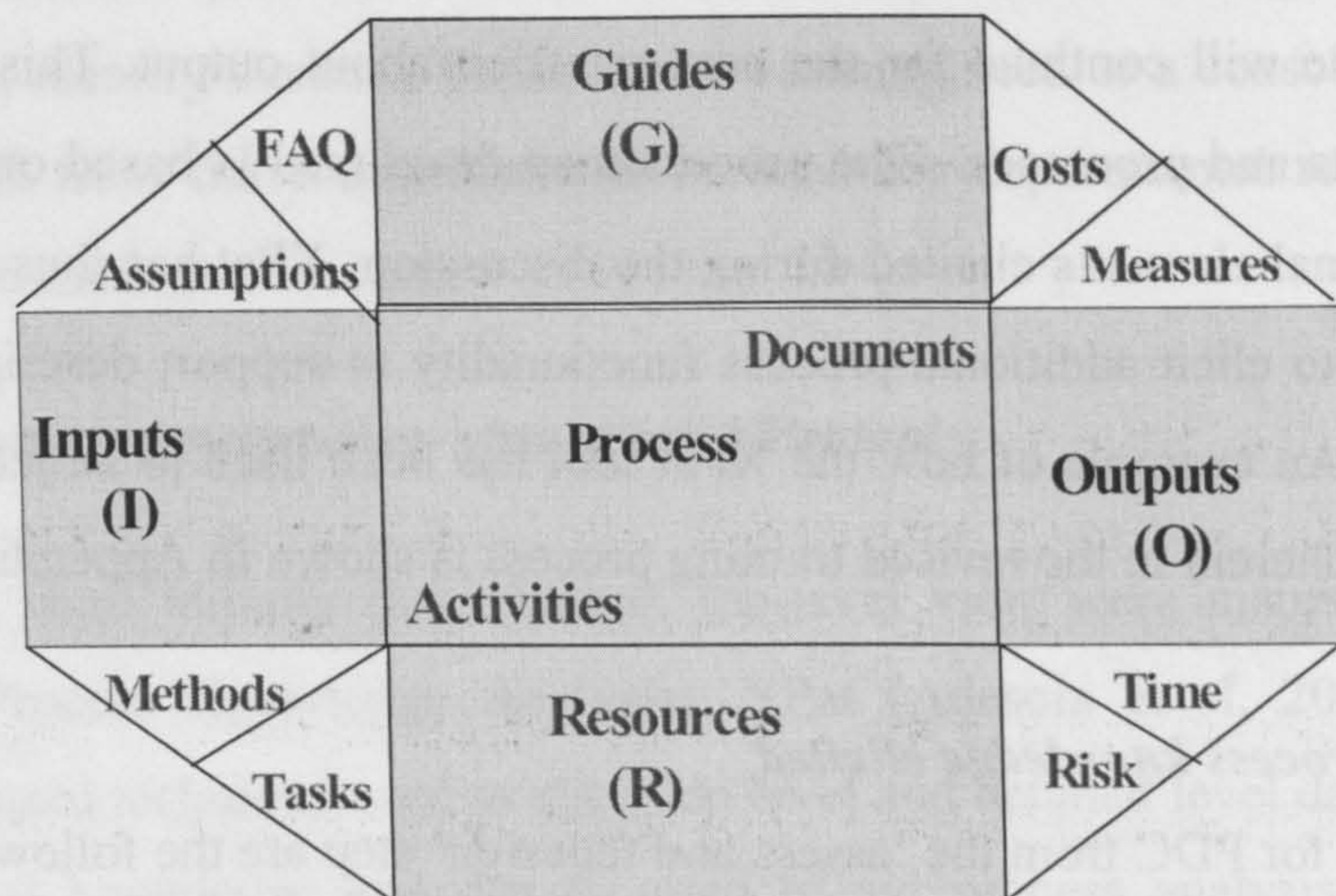


Figure B.6.1: Enhanced Process View based on IDEF0 notation

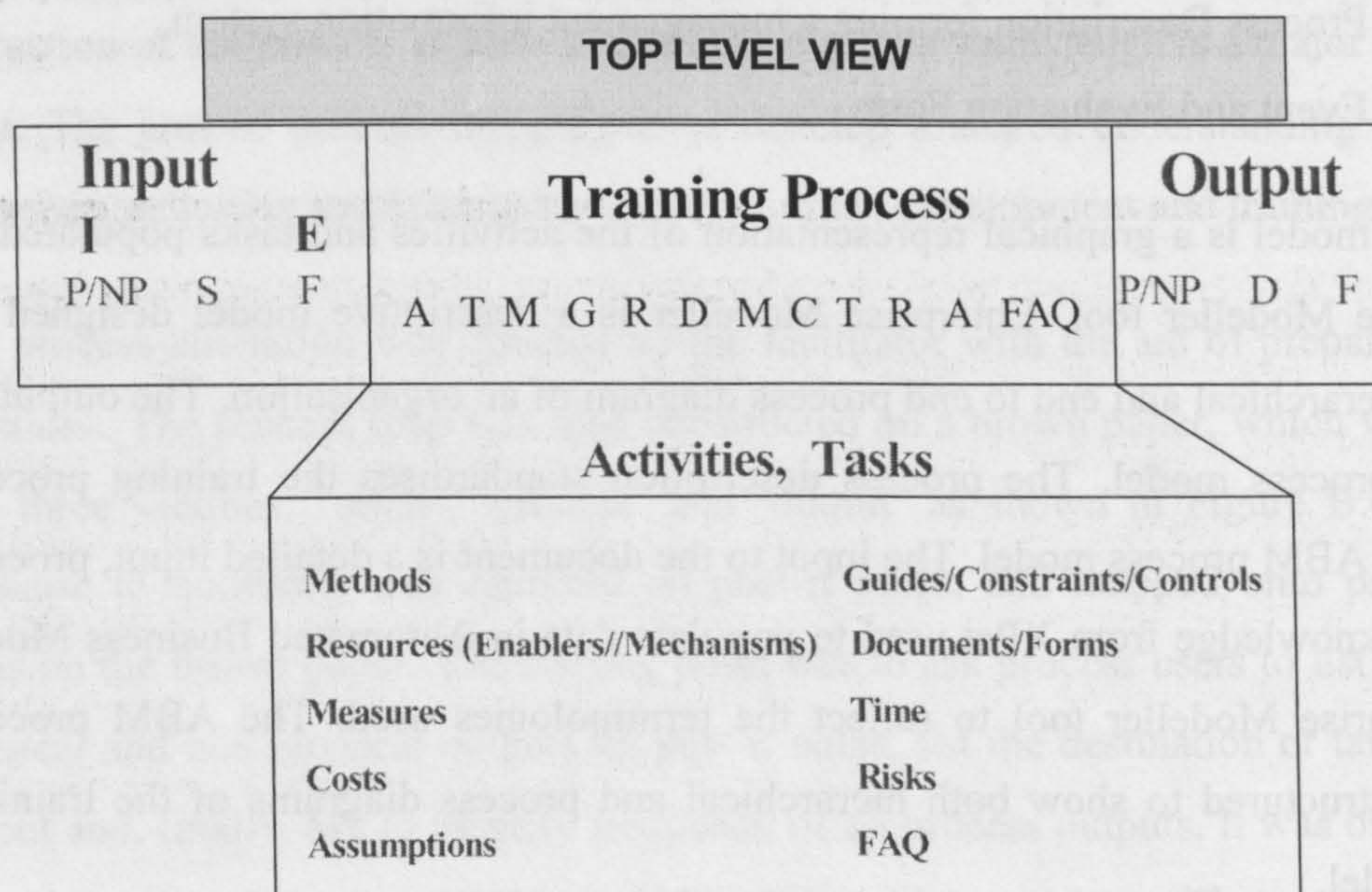


Figure B.6.2: XPat Process Top Level View

a Time Recording system, benefits to the organisation approving the new training event booking form and the need for the involvement of line managers, trainees and process owners. Staff and Managers should feel comfortable with the new system. The key to tailored, targeted, effective and successful development and training is the participation of every individual to actively play their part in the process.

PDC has realised that an incremental approach to BPI is more appropriate to their training business model, due to many bureaucratic rules, which cannot be eliminated. It has also been recognised that the implementation of a new system may create resistance to change. PDC's training management team has therefore, decided to improve communication and offer awareness not only at the beginning of the improvement process, but also during the redesign process. An immediate implementation was agreed by the project team, plans were made to obtain approval from the senior management as well as organising a further one-day awareness session with the PDC staff to seek their views on the new process and obtain buy in. A full bang implementation of the whole process was agreed upon, meanwhile, changes made to the process were publicised and updated on PDC intranet and newsletter.

As a result, the PDC new training business model is in use following the revised form, process model and the process description. The implementation of the Time Recording system is underway.

Table B.6.1: XPAT Process Elements

Elements	Descriptions
Outputs	The result of the activity which adds value to the customer
Inputs	Information and things which go into the process
Activities	Activity is a step in the problem solving method.
Tasks	What do you have to do to perform the activity
Methods	How do you do this activity?
Documentation	What documents do you need to perform this activity
Guides	What governs how the activity is carried out?
Resources	Means to solve the problem in the activity
Measures	How do you know you have achieved this activity. It describes how a process is measured in qualitative or quantitative terms
Time	How long this activity takes to complete.
Cost	Can you cost this process or the activity?
Risks	Are hard constraints that must not be violated
Assumptions	Describes beliefs, ideas and or proof that a process is true or false – the reasoning process
FAQ's	Frequently asked questions are illustrative examples, which can be used to enhance a future training process.

Appendix B.7: Example of the Use of XPat tool for Mapping Training Process

Physical/Non Physical	Source (S)	Frequency (F)	Activities (A)	Document (D)	Measures (M)	Timing (T)	Risk (R)	P/Non P (P/NP)	Destination (D)	Frequency (F)
1.1 P	1.2 Trainee/Line Manager	1.3 Ad Hoc	1.1 Receive Booking & Pre Course Discussion form from Trainee	1.2 Application form and Pre Course Form	1.3 Accuracy of Completion (i.e full)	1.4 30 mins	1.5 High Correct course no booked. Wrong dates	1.1 P Completed App form	1.2 Training Budget Manager	1.3 Ad hoc
2.1 P Application forms	2.2 Line Mgr	2.3 Ad hoc	2.1 Check Budget (TMgr)	2.2 Budget D/B Price List Applic Form	2.3 Budget Database	2.4 5 mins	2.5 High Over/ under spend	2.1 NP Information	2.2 Nowhere	2.3 Ad hoc
3.1 P Application forms	3.2 Budget Mgr	3.3 Ad hoc	3.1 Authorise Training Request (TMgr)	3.2 Application Forms	3.3 Cost? Business need Key Work Objectives	3.4 10 mins	3.5 Medium Not processed	3.1 Signed off form	3.2 Training Co-ordinator (T/C)	3.3 N/A
4.1 NP Tel call to TP	4.2 Training Co-ord	4.3 N/A	4.1 Check Training dates available with TP	4.2 Application form	4.3 N/A	4.4 5 mins	4.5 Medium Rejected Application	4.1 NP Availability Established	4.2 T/C	4.3 N/A
5.1 Booking form	5.2 T/C	5.3 N/A	5.1 Return (& complete if applicable Ext Pro) Bkg Form to TP	5.2 Booking form	5.3 Accuracy of completion	5.4 5 mins	5.5 Medium Place on Course is lost	5.1 None	5.2 Training Provider (T/P)	5.3 N/A
6.1 NP Data input & P - Application form	6.2 T/C	6.3 N/A	6.1 Update Training Database	6.2 Application form	6.3 Accuracy of database	6.4 5 mins	6.5 Low Inaccurate info on database	6.1 NP Information on database	6.2 Database Budget spreadsheet	6.3 N/A
7.1 P Confirmation form / letter	7.2 T/P	7.3 N/A	7.1 Copy & Distribute Confirmation form & Update D/B	7.2 Confirmation form/letter	7.3 SLA with BA Training	7.4 5 mins	7.5 Low Inconvenience to Customer	7.1 P Confirmed Letter NP Database	7.2 Trainee	7.3 N/A

Physical/Non Physical	Source (S)	Frequency (F)	Activities (A)	Document (D)	Measures (M)	Timing (T)	Risk (R)	P/Non P	Destination (D)	Frequency (F)
8.1 Call up letter	8.2 T/P	8.3 N/A	8.1 Receive Call up letter & issue to Trainee	8.2 Call up letter	8.3 Volumes of enquiries re non receipt from Trainee	8.4 10 mins	8.5 Med Inconvenience. Course not attended. TP affected	8.1 P Call up letter	8.2 Trainee	8.3 N/A
9.1 NP D/B & Outlook updates and P Call up letter	9.2 T/C	9.3 N/A	9.1 Save electronic copy & (MS Outlook)	9.2 Call up letter	9.3 Volumes of forms returned and reminders	9.4 5mins	9.5 File lost due to computer crash	9.1 NP Electronic copy	9.2 Nowhere	9.3 N/A
10.1 NP Outlook	10.2 T/C	10.3 N/A	10.1 Set BF for return of Post course Evaluation form	10.2 BF	10.3 Volumes of reminders	10.4 5mins	10.5 Med No Evaluation form	10.1 BP prompt	10.2 Nowhere	10.3 N/A
11.1 Verbal - Email message, post it	11.2 Trainee	11.3 N/A	11.1 Receive Request for Cancellation	11.2 Mail Message. Note on desk	11.3 Volumes of cancellation costs	11.4 N/A	11.5 High Impacts budget & TP's relations	11.1 Cancellation sub process	11.2 Nowhere	11.3 N/A
12.1 NP Outlook BF D/B info	12.2 MS Outlook	12.3 N/A	12.1 Attendance & Post Course Evaluation not returned	12.2 None	12.3 Volumes of reminders required	12.4 5mins	12.5 Low Inaccurate evaluation of info. Delay payment of invoice?	12.1 NP Email reminder	12.2 Trainees Line Managers	12.3 N/A
13.1 P Invoice	13.2 T/P	13.3 N/A	13.1 Invoice Received & Checked	13.2 Invoice	13.3 Accuracy of invoices received	13.4 5 mins	13.5 High Inaccurate payment to TP. Loss of funds	13.1 P Invoice for payment Letter to TP (Inaccurate bill)	13.2 Budget Manager T/P	13.3 N/A
14.1 NP- Outlook or D/B	14.2 3 Months BF	14.3 N/A	14.1 Check 3 month Evaluation	14.2 None	14.3 Volumes of reminders. Level of info on D/B Meeting business needs	14.4 5mins	14.5 Low Inaccurate evaluation of info. Delay payment of invoice?	14.1 P Management info TCM info	14.2 Management TCM - negative feedback?	14.3 N/A

Appendix B.8: Pre-Methodology Risk Result

Prior launching into the methodology application, members of the project team were given a short risk questionnaire designed to obtain their views on perceived risk factors so as to prepare them in the advent of problems. The following were the results from the six questions:

1. ***Internal and external risks for the success of the methodology:*** Participants expressed concerns for more detailed explanation of the BPI principles to aid understanding. The methodology was thought to make prior assumptions of process design knowledge. Other risks factors foresaw lack of consultation with customers of the process, and lack of time and staff to complete the project.
2. ***Specific risks in the methodology:*** PDC representatives envisaged the following specific risks could affect the use of the methodology, namely, not user friendly, time consuming, participants did not fully utilise the tools and techniques, or difficult to obtain commitment, participation and recognition in the organisation.
3. ***Risks of not following the Methodology:*** This provided an interesting result. PDC recognised that if the methodology was not followed, this could result in no change to the current process achieved, and therefore, duplication and poor process remain and unidentified, leaving them with ineffective procedures in place affecting people, cost and time.
4. ***Factors undermining testing criteria of feasibility, usability and usefulness:*** the views were split. One representative used the word “not following the methodology as outlined and not using the tools and techniques mentioned” to indicate factors that could undermine its success. Another participant referred to lack of commitment and time, whilst another raised the issue of staff availability. As one team leader put it “alternative approaches already in place within the team may undermine this methodology”.
5. ***Risk of time:*** Everyone agreed that this may pose serious problems to staff availability and business needs, especially during the peak period leave. This suggested that other business units were not allowing time for people to attend and take the project forward because of pressing business needs in other areas.

6. ***Contingencies:*** There was a noticeable gap in the response made by the participants. Two representatives thought that contingencies should be included in step 1 ‘assess readiness’ as part of the questions. The other respondent questioned if there were alternative tools that could be used readily by PDC instead of relying on the availability of Enterprise Modeller software.

Appendix B.9: Pre-Methodology Context Result

Understanding the context of PDC from the internal and external perspectives was important in order to understand changes in the organisation and its likely impact on the project. On the criteria of confidence, most felt that they had in the past, partly followed a structured procedure for the Investors in People. Business environment was fluid and everyone agreed that PDC had faced recent departmental policy changes, for example, the setting up of the new Directorate called Working Age Services, causing low morale within the business team.

Appendix B.10: Immediate Reactions to the Methodology after application

Following the completion of each methodology step, the researcher wanted to find out the reactions of the team to the BPI methodology. Based on the questionnaire completed by each team member, the researcher wanted to know whether the team found the methodology easy to follow, whether they understood or experienced frustration, whether they noticed any modification, and how well they participated in the process. The result of the usability test for each step is reported qualitatively, some of them were subjective.

Step 1: Assess Readiness

Fewer problems were experienced on the ease of use and understanding of the need to assess readiness of PDC for the change project. PDC used this step to clarify and understand their role and commitment to the project. The consensus view expressed was that it did not require intensive labour, the step was necessary and could not have been skipped. On the use of relevant tools and techniques recommended for conducting the readiness assessment, it was generally felt that the team had not acquired much technical knowledge from it.

Everyone agreed that the step was completed on time, and no delays were reported. The criteria of understanding/frustration raised few initial problems in unfamiliar concept of BPI, and its inadequate detailed discussion, but their understanding improved as the workshop progressed. The team encountered no problems other than the concept. It was evident however, that participation was recognised as important. Those involved in the process felt that they were given the chance to contribute, and the team accepted each other's opinions. On the indicator of flexibility, none of the representative mentioned noticing modifications or changes to the activities in the step by the facilitator during use, and no suggestions for improvement were made.

Step 2: Outline Process under Review

Scoping the current training process was an important task of the redesign work. It was expected that there would be some difficulty in defining the boundaries and interfaces

of the processes, particularly the use of the tools and techniques. With the exception of one, many felt this step was very easy to follow and understand. Most found it very labour intensive, and most felt the step was important to include in the BPI process to enable process understanding. During the testing, an event resulting in stepping out of the pilot methodology and use of alternative tools and techniques was witnessed. Although obtaining process measurement data was outlined in the methodology, it was realised due to time commitment of the team, that this data could be collected in the next step.

PDC did not feel constrained with time and instead, completed the step just under four hours of discussion producing lists of processes against the various departments. This was one area where flexibility in using the methodology became evident. Only a minority in PDC observed a slight modification to the activities listed in the step. The rationale for the variation was due to the fact that the number of activities increased as the training process was discussed in detail with the input of process users. The facilitator felt the need to get the team members involved in the exercise by using a simple process flowchart diagram. The problem was that more visual mapping tool could have been employed, this however proved a learning point for the research to counteract.

Step 3: Detailed data collection

It was generally during this stage of the project that few difficulties were experienced. This provided a detailed understanding of the current process. It was expected that there would be some difficulty in obtaining the basic process data. The basis for data gathering was the IDEF0 top level diagram of input, process, output, controls and mechanism, together with the process variable of XPat tool to enhance the elicitation of process knowledge. Participants were reminded of the process elements involved in data collection questions to get answers. Evaluation of this step was limited to five internal PDC staff members who participated in the interviewing process, external customers and training providers were excluded.

One representative expressed problems in understanding the definitions of process terminology; this was resolved by repeating the definitions in the workbook

methodology. An interesting remark on the ease of use of IDEF0 was the early identification of, as one member put it “assumed basic level of understanding of technical terms not necessarily familiar with”, “I could have done with time to absorb information, continued the same person”. One comment received on the lessons learnt from this step was: “I gained full picture, sometimes I think I know what occurs throughout a process as a manager, but this is not always the case”. Furthermore, everyone felt that the overall quality of information gathered appeared good and accurate.

Step 4: Form Model of Current Process

The objective of this step was to build models of current processes using the data collected in step 3. PDC required awareness of process modelling method, tools and techniques to meet the project objective. During the project, process flowcharting, XPat process analysis tool and Enterprise Modeller (EM) software were used to complete this task. This was another example where problems were experienced. Most people generally found the modelling exercise reasonably easy to use, follow and understand. Although all five respondents agreed that this was a very time consuming and tedious task, one respondent found that using IDEF0 notation “allowed discussion and reviews”, another said, “the use of XPat brown paper tool for mapping was good”. Another response warned against the temptation to start redesign.

There was clear evidence that all had basic understanding of the main thrust of modelling, this may be due to their previous involvement, training and education in business modelling tool. The difficulties reported with the Automated Business Model, using the Enterprise Modeller (EM) pointed to the fact that some flows in the model needed remodelling, because of non-compliance with PDC modelling standards. Although all seemed to have modelling skills and could easily understand and follow the model, one other comment received was whether Visio flowcharting tool could have been more appropriate at this stage to map the process flow instead of the EM. The mapping of PDC’s processes has been completed using more than one the tools and techniques including Visio, but only EM was capable of structuring the models graphically. With the exception of one modeller who could not participate due to other commitments, the level of involvement was generally high.

Step 5: Assess and Redesign Process

Three major problems experienced from the 'assess and redesign' step validation were as follows.

1. Confusion arose with the interpretation of process categorisation for identifying waste in the current process, in addition to the value added analysis technique. During the redesign exercise, most people found that the XPat tool used to map out the new processes took a while to understand at first, most felt lost until they started to do it themselves. The level of motivation however, heightened as the team grasped the process and saw the immense data generated. One explanation for this difficulty was that the facilitator was fast and needed to be more visual for beginners to follow through. The other reason was that XPat was a new development tool and is still undergoing reviews.
2. There was a temptation to start redesign whilst still doing process analysis
3. Lack of time for redesign - this step ended up in a rush at the end, this exercise should have been arranged for a whole day workshop, but the facilitator took into consideration the time constraints of the participants.

Appendix B.11: Organisation of the BPI Methodology Process

In Chapter 5, the operationalisation of the methodology was discussed based on Platts' four main characteristics required for a successful methodology. These were Procedure, Participation, Project Management and Point of Entry. This appendix considers how the BPI methodology was organised during the application; this was the other aspect of the usability testing. Procedure, the step-by-step application of the methodology has been covered in section 7.3.2. The other three, are concerned with the organisation and management of the methodology, and are discussed below.

Participation

Involvement: The core team consisted of the Business Improvement Manager, Training and Budget Manager, and four staff members; two of them had backgrounds in human resource, others had process design and modelling backgrounds. Specialists in business model supported the core team on a part time basis. At specific time during the process capture exercise, other staff members were involved, e.g. team leaders. However, most contact outside PDC was informal as a staff member; their involvement in the process was not evaluated since access to the parties was restricted by PDC. It was expected that wide participation in some steps of the methodology would happen. This was particularly so in the data collection, redesign and modelling steps. Overall, participation was considered to be important for the methodology process.

Communication: The communication of the results of the process was a good strength. The methods used, from the presentation in team awareness training, to the project meetings and reality check review meetings with the staff and managers, focussed group involved in promoting and reinforcing the BPI methodology. Beyond this level, communication was undertaken by the Training and Budget Manager and the Development & Training Co-ordinator.

Project Management

The researcher as facilitator managed the project. To ensure the project was adequately resourced and worked to a timescale, roles and responsibilities among the core team

members were assigned formally and agreed by the project sponsor. The managing team consisted of the Sponsor (the executive who granted access and approved the project), the external facilitator (Researcher) and a review panel. The sponsor was the Training and Budget Manager and although she sponsored the exercise, this will not ensure that it progresses satisfactorily unless she has a close involvement on a day to day basis.

As part of her internal responsibility for authorising all training applications from a budgetary perspective, she also developed the new strategy for development and learning process. The facilitator (researcher) was specifically responsible for leading the project, providing and expediting a process which would solve PDC's training problems. The review panel consisted of the Business Improvement Manager, researcher as facilitator and academic supervisor, charged with the responsibility of reality checking. The supporting group consisted of the Development & Training Coordinator (process owner) and the rest of the project team members, charged with providing detailed process information and project administration.

It was difficult to be prescriptive about the length of time to be spent on each step of the methodology. At the time, however, there were good reasons why activities such as: data collection and modelling needed to be prolonged. In other cases, the result was that the workshops tended to lose focus and direction if held for too long. There was sufficient time to collect data and conduct the AS IS validation and process analysis, but the timescale was tight enough to complete both assess and redesign in the same day and maintain momentum. A whole day redesign workshop may be possible but this was not tried at PDC.

Point of Entry

For the case project, the point of entry was at a middle level in PDC, as discussed in the project management above, this was seen as important in obtaining the right perceived status for the exercise. The workbook and the assessment research procedure were used as templates to develop the project management plan. The objectives for the project were:

- Efficient training system
- 100% accurate in information

- Monitors budget
- Generate management information
- Business focus and relevance to PDC
- Basic common modelling language for inexperienced staff

The change project team worked closely to achieve the objectives developed in the training process improvement objectives.

Appendix B.12: Case 1 Participants’ Reactions to the Methodology Post Completion

Case 1

QUANTITATIVE ANALYSIS OF POST COMPLETION ASSESSMENT

Criteria		Feasibility			
Respondents	R 1	R 2	R 3	R 4	Average
Q.1 Completeness	4	3	4	4	3.75
Q.2 Consistency	3	3	2	4	3
Q.3 Success	4	2	4	4	3.5
Q.4 Contingency	1	3	3	3	2.5
					12.75
					79.69%

Criteria		Context			
Respondents	<i>R 1</i>	<i>R 2</i>	<i>R 3</i>	<i>R 4</i>	<i>Average</i>
Q.5 Organisational Culture	4	4	2	2	3
Q.6 Culture help or inhibit actions	3	2	2	0	1.75
Q.7 Success known in wider organisation	3	2	4	4	3.25
Q.8 Threat of methodology	1	3	1	2	1.75
					9.75
					60.94%

Criteria		Usability			
Respondents	R 1	R 2	R 3	R 4	Average
Q.9 Job easier	3	2	3	2	2.5
Q.10 Timing with other duties	2	2	2	1	1.75
Q.11 Methodology consultation	4	2	2	2	2.5
Q.12 Robustness	4	2	2	3	2.75
Q.13 Specific/Vagueness	3	2	2	2	2.25
Q.14 Appropriateness of Terminology	4	2	2	4	3
Q.17 Preparation advice	3	1	2	4	2.5
Q.18 Clarity of aims of assessment	3	2	2	3	2.5
Q.19 Provision of Templates	3	4	2	3	3
Q.20 Management of assessment	3	3	2	3	2.75
Q.24 Issues Discussion	3	2	2	3	2.5
					28
					63.64%

Criteria	Utility				
Respondents	R 1	R 2	R 3	R 4	Average
Q.28 Usefulness of result	4	2	4	3	3.25
Q.29 Influence of methodology	4	1	3	3	2.75
Q.30 Resources of time and people	3	3	3	1	2.5
Q.32 Useful procedure	4	0	3	3	2.5
Q.33 Usefulness of methods & tools	3	2	2	2	2.25
Q.35 Methodology embedded	3	1	2	4	2.5
Q.36 Future of methodology	3	1	2	4	2.5
					18.25
					65.18%

APPENDICES FOR CHAPTER 8

Appendix C.1: Wider Test Letter of Invitation



SIMS
Manufacturing Systems Department
College Road
Bedford MK43 0AL
01234 750111 Ext. 2401
01234 752159
Email: m.adesola.1998@cranfield.ac.uk

Dear All

Within Cranfield University, we have developed a workbook methodology for business process improvement. The goal of this workbook is to inform and guide business improvement managers and team on 'how to conduct' business process change as efficiently and effectively as possible by applying the methodology to guarantee rapid implementation. The workbook has been applied and tested within the public sector and is currently being applied within a service organisation for wider test.

We are at a second stage of wider testing and now looking for participants in both the service industry and service operations within manufacturing industry to take part in applying and assessing the workbook methodology to a process change within your domain. We would like to test this within a medium sized firm. Basically, this will involve your business improvement team using the workbook and our role is merely to observe the application, offer assistance where necessary, record observations and feedback for analysis and refinement to the methodology.

I have prepared a short questionnaire for data collection and would be grateful if you could kindly help by filling it out. I also enclose a one-page flyer outlining the methodology, our requirements and the benefits to you from participation.

You may be assured of complete confidentiality. The results of this testing will be used to improve further the business process improvement implementation methodology.

I will be most happy to answer any questions you might have. You may ring me on the above direct number or via email.

Many thanks for your assistance.

Yours sincerely,

Sola Adesola (Ms)
Researcher

Appendix C.2: Wider Test Flier

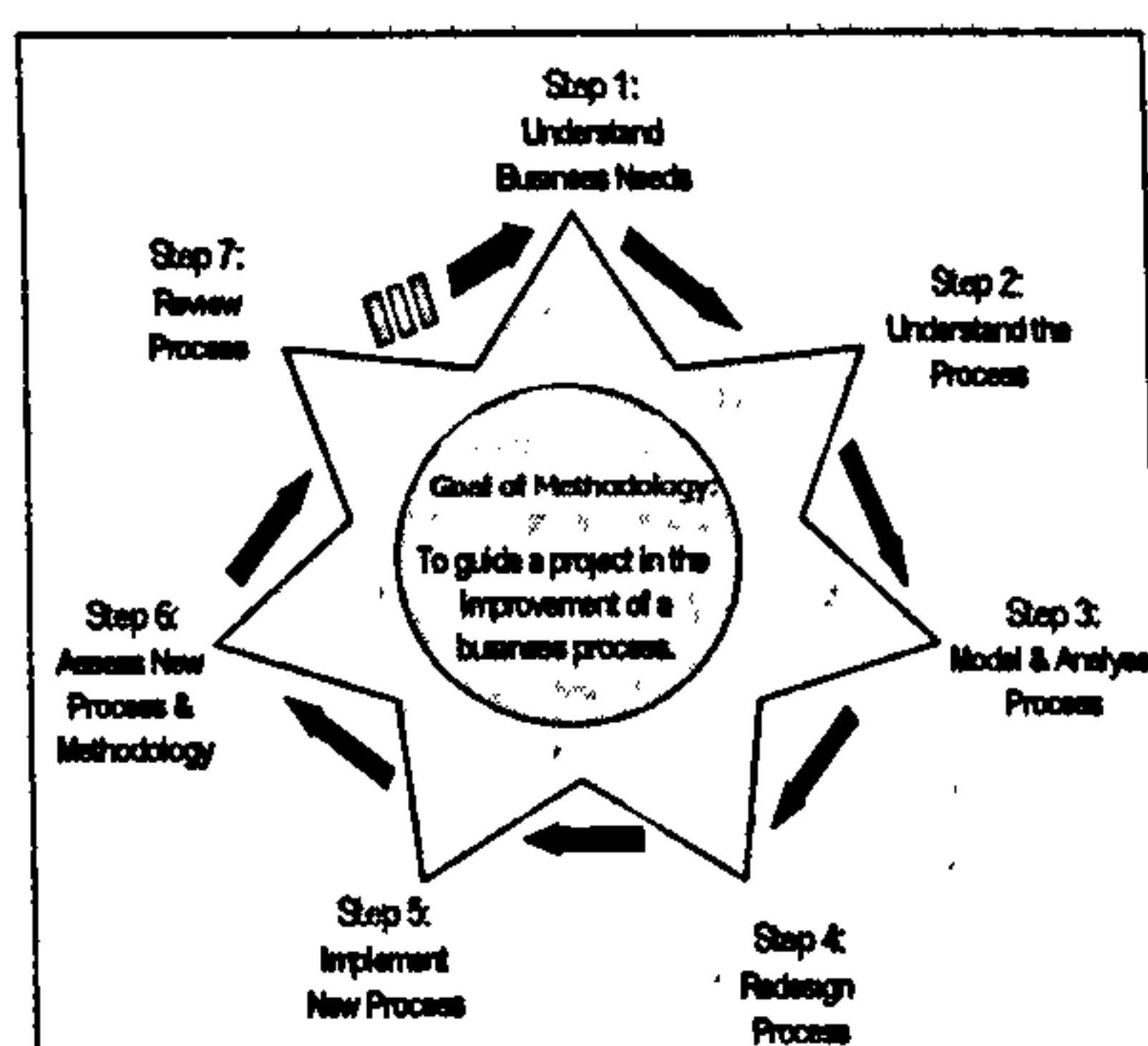
Business Process Improvement: A Workbook-Based Methodology for Rapid Implementation

Do you need toChange your existing working practices?

Do you have aMethodology to implement your business process change?

Are you interested in a... Business Process Improvement programme in your company?

Our Methodology



M
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P
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M

How it works

The seven step MIPIM implementation methodology provides a workbook-style tool that companies can use to accelerate and improve their process based change implementation. It is action-oriented, self-learning and is designed to be used without hiring external consultants.

Each step in the methodology is logically structured to include the aim, actions, outcome/gateways/exits, people involved, hints and tips, checklists, relevant *tools and techniques* and *workbook methodology assessment tool*.

What We want

- Need companies to apply the workbook-based Methodology to a process based change project over a 3 month period.
- Assess if the workbook methodology is potentially widely applicable and robust.
- Companies to feedback on the usability, usefulness and feasibility of the workbook-based methodology.

What Do You Get?

- Workbook Methodology
- Tools and Techniques to support the workbook
- Assessment Tools to assess the workbook after use
- Bottom line results in your improved process

How can I learn more and take part in the BPI Pilot study?

Contact us at:

Sola Adesola (Ms)

Manufacturing Systems Department
Cranfield University

Tel: +44 (01234) 750111 Ext. 2401

Fax +44 (01234) 752159

Email: m.adesola.1998@cranfield.ac.uk

The Benefits/Deliverables

- Maximise the benefits while reducing implementation costs, risk and time.
- Align your process objectives to business objectives to support the business strategy
- Measure the efficiency and effectiveness of your business process
- Identify risk factors to the workbook implementation methodology
- Learn to assess and improve the workbook methodology
- Use for training and coaching employees to develop knowledge, skills and competence within your organisation
- Learn state of the art process capture and modelling techniques
- Utilise specific tools and techniques that you can immediately apply to improve your business processes
- Learn to plan, conduct and implement process change

Appendix C.3: Wider Case Study Applications

This appendix forms an integral part of section 8.2 which is located in chapter 8.

Introduction

The purpose of this appendix is to describe the application and experience of using the methodology in three different BPI projects by the participating companies. It considers application of the methodology within each individual company. The three participating companies applied and evaluated the change process in real life projects, based on the refined seven steps of the MIPIM methodology (see section 7.8). Each company description is followed by an interpretation of the corresponding MIPIM seven-step approach.

Case 2: Application of BPI MIPIM methodology

The company is a medium sized developer and marketer of strategic business software to simplify complex businesses for over 30 years. The company has expanded to become one of the world's largest independent software companies, and operates worldwide. Case 2 offers enterprise-manufacturing applications, customer relationship management, document production, database management system and other stream of applications and systems. Its corporate headquarters is located in Cincinnati, USA. The company's UK branch where the project was conducted was established in 1972 and located in South-East England. With more than 1,200 employees globally, about 100 in UK and turnover of over £5m, Case 2 serves large multinational clients on five continents. The Client Services Director of UK branch is extremely concerned with developing and maintaining an effective service delivery in terms of the quality and value of the services provided by the company. One area vital to its success is service ordering and delivery business process.

Key change event – service ordering and delivery

The ordering and delivery service was recognised by the Client Service Director as vital to the success of Client Services and Support and the company as a whole. Process effectiveness and customer satisfaction were top priorities for the Company. The project selected was to review and reengineer the processes within Client Services, which are

used to handle the ordering, and delivery of services, both of which are core and support processes. The company felt that improvements could be made to the current processes and shortcomings are felt to include:

- No common process for recording service requests
- No professional acknowledgement of the request
- No statistics available in terms of requests/communications from the client and response times
- No formal approach to keeping the client informed of the request progress
- Shortcomings in information provided to the Finance departments
- Lack of formality in the chasing of payments
- Lack of management reporting from the computerised system
- No tracking of project costs
- Inaccuracies and lack of clarity of invoices

Two sets of objectives were established for a streamlined, effective process: internal and external. Internally, the process should work efficiently without being wasteful of resources, be clear and understood by all, ensure effective information dissemination and result in recovering all payments in a timely manner. Externally, the client must feel the services are friendly, professional and efficient, that needs are understood, relevant services are delivered, and that correct and self-explanatory invoices are provided. There should be a single common process for all to follow, no matter what service is requested to achieve uniformity. Business benefits can be measured in terms of revenues accurately received, but also subjectively in terms of building the clients' confidence in doing business with the company.

Step 1: Understand Business Needs

This was about Case 2 determining what and where improvement was needed. The team outlined a business model of all processes. This was followed by defining and clarifying the scope of the project. The team concluded that the start of the process was the receipt of a service request. The end of the process was defined as the receipt of payment or the writing off of a bad debt. From the readiness assessment exercise conducted through interviews with the steering group, Case 2 made the decision to reengineer and spend

less time on the current process. Once it became clear where problems and opportunities lay, the project team formulated high level process objectives and measures on time, cost, quality, frequency, and accuracy against client's expectations of processes. The step was then signed off by the project sponsor.

Step 2: Understand the Process

The company has recognised the importance of an effective service delivery process because the quality of service can affect the professionalism, and as a result the financial result and the confidence level of their clients. Although the team had decided spending less time on the current process, they felt it was important to have a baseline understanding of the operations. Within the target process, five sub-processes were identified. These included: request for service; order for service; effort reporting; invoicing and debtor management. Both the internal facilitator and observer (researcher) spent days at company site interviewing employees involved with the order and service delivery process, using an outline process maps. XPat process capturing tool was used together with flowcharting tool for the bidding and invoicing processes. The interesting aspect of this step was the communication breakdown between the client services, accounts and sales departments. Another problem was the sudden departure of the lead project facilitator half way through the project, resulting to the researcher's assistance without corrupting the research process.

Step 3: Model and Analyse Process

The modelling task of this step had to be performed in parallel with Step 2. Although the facilitator was comfortable in understanding IDEF0 process activity modelling, the facilitator decided to use an alternative method such as a flowchart diagram to describe the entire target process. The detailed processes were modelled using ABC Flowcharter mapping tool from the request for service to the debtor management. The information included in the flow chart diagram originated from the end users involved in the interviews. Process models were validated with the process users during a full day workshop. A number of processes were identified as opportunities for improvement and assessed for their adherence to business objectives in step 1, their practicality, and their potential cost/benefit to the business. The objective of this exercise was to identify

which processes covered the best opportunities. From this analysis, request for service process scored highest and given that result, it was decided to analyse the process for value-added analysis and categorisation of any non-value added tasks. It was also agreed that if only one thing was achieved from this exercise, then invoicing and debtor management process would generate far greater benefits. Two problems became noticeable; first, the tendency to ignore other objectives in the business case, and second, it was realised they needed to consult with other company management if to reengineer the whole process.

Step 4: Redesign Process

The key aspect of this step was remembering what the project was trying to achieve, by referring back to the business case. Two key processes have been singled out for redesign from the opportunity assessment, namely; invoicing/debtor management and request for service processes. A review of the invoicing process was done to see if access to CODA financial package was granted to Client Services Financial Controllers to generate order confirmation, as significant efficiencies would be generated and produce a number of cost benefits, such as time saving, image enhancement and revenue improvement. These benefits were proposed as recommendations for the Client Services Director to present before the Board for approval.

The other option for improvement was a single integrated process supported by a single system. This solution was not discussed in detail due to low priority on the corporate list. In order to test the process of re-design, one of the highest scoring opportunities was chosen for design possibilities, the creation and management of the bid review procedure within the request for service process. This new process took the clean sheet approach; ideas were generated from brainstorming session asking users what they want from having a bidding process and what type of process would meet the pre defined criteria. Taking the criteria into consideration, the first iteration of a bid management process design was created with additional documents and individual responsibilities. A number of standards and procedures needed to be written in the form of ISO 9000 flowchart and approved by the steering group for implementation. The Company plans to implement the bidding management process.

Project Management

The internal facilitator managed the project but external assistance was provided when required. A project team of four was set up for the study comprising, the client service staff and finance department, while the Client Service Director sponsored the project. The process owner was the business consultancy manager. Equivalent of one full time resource was allocated to the project at the start.

Case 3: Application of BPI MIPIM methodology

This company is a small to medium wholly owned subsidiary and independent distribution division of the UK arm of Folens, the largest educational publisher in Ireland. The company branched out in 1999 but still managed by the parent company. As an independent operation, the company continues to serve its parent's logistics requirements. Its philosophy is to provide quality results, no matter how complex the challenge or how modest the request. The company applies a modular approach to logistics, offering a range of complementary services that can be tailored to client's specific needs. Services provided included total distribution, storage, order processing, inventory management and sales and marketing. The company currently manages 20 third party customers and 30,000 end users at schools, book and gift shops. The company makes use of information technology in its warehouse management and order tracking. The group employs 600 and 160 in UK, with UK annual turnover of £1.62 million. The managing director of the group was particularly concerned of the bad financial report and the need to review the processes.

Key change event – sales order processing and warehousing processes

A number of indifferent practices have been allowed to exist as the norm under the stewardship of the parent company. There was recognition from the senior management that the past had to be challenged, evaluated and improved with the full involvement of staff from top to bottom and a new environment of ownership, understanding and accountability created. Fundamentally, the processes were right at the time, but the business planned to establish new standards that are not just acceptable to the

customers. Attitudes towards training, a new culture of ownership and change have to be in place to help grow a highly profitable business and to be the BEST in distribution.

Improvements were felt to be required in the following areas:

- To identify, measure, reduce and eliminate picking errors in the warehouse
- To understand and deliver client needs on an equal basis
- To create an environment of high reward for high level of effort
- To create an environment in which all employees care and committed to the same goals and ambitions through mutual ownership and understanding
- To return a net operating profit of 15%.

Step 1: Understand Business Needs

The main goal of Case 3 through their involvement in MIPIM methodology application was to be proactive and positive, to break away from the old norm, be independent from the parent group and take ownership and accountability. According to the General Manager: “ the past has to be challenged, evaluated and improved with the full involvement of staff from top to bottom and a new environment of ownership, understanding and accountability created”. The company has recognised that the processes are right for now but not for the future. Time needs to be built into staff training and developing new culture of ownership. Company representatives acknowledged the impact that the current order booking system and process were having on their daily work operations. Given the internal frustration of picking errors in the warehouse, lack of training, procedures not driven from the top and cultural problems, two main processes were identified as problem areas from the high level processes. These were: the order requisition and processing and warehousing processes. Additionally, three key issues were addressed: product knowledge, management information and delivery by carriers.

Step 2: Understand the Process

This logistics company fundamentally faced two operational problems in tracking customers' orders and managing inventory discrepancy. This led to processing and

picking errors accounting for 86% error rates. The cultural problem was the picking error and the team realised that once the order and picking was carried out correctly, this would reflect on customer service satisfaction, credit control and delivery. This step proved to be fairly useful in collecting data on process measures, and getting people involved to capture their working practices. The process understanding step was co-ordinated and performed by the team leaders working in the sales order processing and warehousing. The output of this step was a flowchart of the two processes. The process capturing exercise revealed major problems on communication, training issues including product knowledge, customer representatives and discounts. The general issues raised concerned system problems, shippers' details, invoice instruction, duplication of orders etc.

Step 3: Model and Analyse Process

This step was carried out simultaneously with step 2, and there was tendency to mix the steps. Being a non-technical small organisation, the team felt comfortable using simple flowchart to map out the processes as this was well understood by all. The team pointed out that the use of process flowchart gave them the opportunity to better comprehend their processes. It gave them a clearer picture of their current working practices. The team leaders approached employees to verify the process flowcharts and to identify critical processes for redesign or streamline as described in the next step. The process models were validated in a workshop as a true representation of the current processes. The value added analysis and Pareto 80/20 rule gave the team the opportunity to analyse the sales order processing and warehouse processes and identify areas for improvement. Some quick wins were identified and immediately implemented, this included logging of pick errors during quality control check, recording data on who made mistakes, what mistakes and why it happened.

Step 4: Redesign Process

Having understood the existing processes along with their weaknesses, the team together with the observer now needed to focus on some of the key issues raised by employees to direct a new or revised process. With the Sales Order Processing, the

representatives recognised there were not many changes to be made in the process; however, the team agreed the following:

- the amendment sheet should be redesigned,
- number of sorting should be cut down,
- non-conformance form should be created for all third party customers for legibility of orders and;
- Staff should be trained.

With the warehouse process, various solutions were proposed including:

- changing pick locations
- warehouse layout
- an interim stock record to be handled by the office staff to ensure accuracy, on the long term, to install a stock control system
- weekly productivity check to ensure pick and check accuracy
- all to do stock take, codes must match invoice and product.

A lot of these proposals represented cultural changes across the company and would take some time to fully implement them as it would require a complete restructuring of the business. As part of this exercise, the company used the opportunity to carry out a team and cultural assessment. An interesting aspect of this step was the move by the management team to monitor employees who made mistakes, coach them and give them ownership. The team also decided to appoint an in-house trainer to do 100% quality check as a short term measure, long term plan will be to carry out sample checking on pick error rates.

Project Management

The project champion was the Group Managing Director, but project was sponsored by UK General Manager/Operations Manager. Two employees from the company facilitated the project over a period of four months with the support of seven dedicated project team members and the researcher as observer.

Case 4: Application of BPI MIPIM methodology

The authority is a development agency for the provision of leisure, sports, recreation and conservation for the London Region, covering some 10,000 acres in North East London stretching 27 miles from the Thames to Hertfordshire, including the proposed National Athletics Centre. Since its establishment in 1967 by an Act of Parliament, the authority employs 400 staff with a turnover of £13million, mostly funded through a levy on the councils in Essex, Hertfordshire and London. The Park Authority have been reviewing and applying change in the last five years using various quality approaches and have been looking for a methodology to use with teams. Change evolved from strategic business plan to deliver and review its performance annually. More recently, the authority has proactively adopted the Government Best Value approach in pursuit of enhancements to the operation and delivery of services to all stakeholders, as part of the strategic review. This case project is clearly a typical example where the Methodology has been customised to fit the Best Value four Cs principles: challenge, compare, consult, and compete.

Key change event – Corporate Marketing processes

Notwithstanding its achievement and successes to date, the Authority has become increasingly mindful of its duty as a regionally funded body to be serving its subscribers at a regional level. Services have been targeted at serving only local communities, whilst this was good, the Authority recognised that they were no longer representing value for money for people living away from the immediate vicinity of the Park. In order to deliver the services, the steering group decided to conduct a Best Value Review of the Authority's approach to Marketing and how marketing thinking and activities are used to help achieve local business plans and the corporate objectives of the Strategic Business Plan. Within this, the particular roles and responsibilities of the Corporate Marketing Department can be reviewed, together with how those roles and responsibilities can best be fulfilled. The project aims were to::

- Define the role of marketing in the context of the Authority's Strategic Business Plan.
- Define the Corporate Marketing services required by the organisation.

- Define a marketing process essential to the operation of the business including visitors and users.
- Define the relationship between Corporate Marketing Department and the Operations.
- Define the role of marketing in performance evaluation.

The project would be achieved by developing a strategic marketing approach that considers: organisational goals, core businesses, service delivery and communications. Clearly, the project attempts to promote an integrated departmental approach to marketing.

Step 1: Understand Business Needs

The scope of the project was defined and agreed, to include corporate marketing function and the delivery of projects, the function and centre based marketing activities. This part of the process 'challenged' why Corporate Marketing was done and identified the reasons for doing and not undertaking the service. This step was found useful because it had become evident from the envisioning workshop that the current marketing process was not working, and therefore it would be pointless in carrying out the detailed analysis in Step 3. The team had decided on reengineering the whole process. There was recognition that the initiative had to be customer and strategically focused to achieve better marketing and delivery of services. A lot of problems were generated with the current marketing process, for example, corporate marketing not always involved in functional process, shortage of skills/knowledge, financial focus rather than customer led, budget allocation constraints, lack of business planning skills, bureaucracy and outcome management. Opportunities that arose from the problems were identified.

There was a reflection of the cultural problems as there was a lack of process to bring everyone together. Senior management teams were still departmentalised and not strategically structured.

Step 2: Understand the Process

This part of the process ‘challenged’ what Corporate Marketing did. The first exercise was carried out with the aid of a marketing audit questionnaire and collected data on the current marketing activity in departments. The discussion then followed the view of what the drivers were, and what they should be. The team agreed that the planning process and the Corporate Marketing Department must drive the future marketing process.

This aspect looked at; who was the service for, and how the department manager fitted into the marketing process?, what people thought about the service, and what people wanted. A process map was drawn based on the results of the marketing audit survey. Additionally, team members were tasked to map out their processes. It was clear from the information obtained that many of the departments did not fully understand marketing and the terms used. The process map, documented in flowcharts, highlighted the shortcomings of the current process. Discussion then followed on the key issues of lack of marketing knowledge applications and lack of business planning knowledge. It also highlighted the issue of the effectiveness of marketing strategies within a department.

This was one area where the methodology was tailored to fit with the Best Value principle of ‘consultation’ with service users. Through this discussion, a service users’ mapping was documented to build up a picture of the typical user types. Also, the team was able to identify users that did not use the service at the moment. The point of this was to identify problems, and prioritise stakeholders and non-users. The step explored wider issues of what people wanted other than satisfaction with the existing service provision. Discussion also identified another question of why do people want the service, i.e. the expectations of departments. This was answered by defining the products, objectives and consistent measures for each department. To complete the step, a process mapping of expectations of department within the Authority was carried out.

Step 3: Model and Analyse Process

Omitted because the organisation had decided to reengineer the marketing process.

Step 4: Redesign Process

Having understood the gaps with the current process, the team from the Authority finally agreed to assess alternative ways to provide marketing service. A key question addressed was, what should marketing be doing now?. This step fitted in with the 'compare' principle of Best Value. There was the need to proactively progress this aspect. The best way to deliver marketing services was to link the future with the opportunities and solutions identified in step 1. Discussion focussed on data analysis and current performance. Other discussion during the workshop addressed issues like: how did the service compare in terms of key performance indicators? Who was the best in the class and their performance level, and how was performance currently monitored? In order to begin the redesign process, a benchmarking exercise was carried out by the team in five other similar authorities, to compare what they were doing in service delivery. The benchmarking study sought to obtain best practice in the following areas:

- Target market
- Marketing budget
- Sources of money
- Number of employees in marketing department
- Structure of marketing department
- Whether it is carried out internally/externally and by whom

Examples of solutions identified are as follows:

- Business planning process to instil discipline and longer term perspective
- Cultural change- re-education of different people to the application of co-ordinated market approach.
- Marketing Information System would help provide an ongoing programme for trends and changes.
- Direct championing to gain ownership and success of projects, and sign off business planning.
- Performance data on measuring the effectiveness of actions towards the customers, and to cascade the knowledge from the gap analysis.
- Communication of the ethos of the whole organisation and focus of delivery channels.

- Outcome management – the overall outcome achieved by removing bureaucracy with discipline and remaining within a set framework of continuous improvement.

At the time of the study, the authority was still continuing with the redesign process, but the case project had to stop due to time constraint for the research completion.

Project Management

The project was managed and facilitated by the Best Value Manager, who has the responsibility to carry out service reviews of all the Authority's activities.

This appendix has described how the MIPIM methodology has been used by the three companies to different sets of improvement projects.

Appendix C.4: Wider Methodology Application Risk Results

A pre-methodology risk assessment was conducted to identify the types of risk factors in the methodology. The following analysis is based on the 16 participants who responded to the risk questionnaire. This time, the questions were categorised into nine risk elements:

1. **Internal and external risks for the success of the methodology:** In all the companies, the following risk type have been identified: resource availability, workload, lack of understanding and experience in the methodology, lack of internal acceptance. In the case of Case 3, staffing, illness, workload pressures and resource were key risks, whilst Case 4 identified shortage of time, hidden agenda, fear of change and vested interest.
2. **Specific risks in the methodology:** Each company had different specific risks, in Case 2, house style for projects may differ or incorrect use of tools, comprehensive nature of the methodology was cited by all, technical language in Case 3, and tailor made for best value review in Case 4.
3. **Likelihood of occurrence:** this varies from frequent, never, quite likely to moderate.
4. **Consequences of occurrence:** Design of bad process, no real progress made, resource expense, customisation, insufficient time devoted to the project, failure to complete review, incomplete project.
5. **Risks of not following the Methodology:** In all cases, the team realised the following risks: project not carried out, no framework for change, no starting point, unstructured approach to change. In the case of Case 3, continuing to run an inefficient business due to non identification of improvement is apparent, whilst in Case 4, Best Value review will not happen as desired.
6. **Factors undermining testing criteria of feasibility, usability and usefulness:** Deviation from methodology, understanding and acceptance, resistance to use, lack of knowledge of the team. Lack of team and management commitment, and change in management direction were crucial to Case 3. Taking staff out of the comfort

zone, lack of enthusiasm, misinterpretation of the methodology, poor communication within the organisation.

7. **Risk of time:** pressure resource availability, other workload takes priority, lack of time.
8. **Overall risk to the BPI project:** costs, withdrawal of resources, customer interference, lack of commitment. Political and cultural reasons, failure to deliver on time were directly relevant to Case 4
9. **Dealing with methodology problems:** Only Case 4 was able to identify ways of handling problems. Responses included: discussion of issues, adapt the methodology and the tools, better time management, consultation with others, pre-workshop information.

Appendix C.5: Wider Methodology Application Context Results

The context assessment was an ongoing exercise. Its purpose was to establish the internal and external impacts on the methodology, and to record ongoing changes in the organisations. The confidence in the use of structured methodology varied, but all seemed to have been exposed to one form of approach or another. Within Case 2, structured methodology in software implementation has been employed successfully but nothing in the area of business improvement. The sudden departure of the facilitator early on in the project seemed to have no major impact on the project continuity. Case 2 has previously implemented a team based ISO 9001, but there was little success due to continual changes in the organisation.

Appendix C.6: Immediate Reactions to the Wider Test after Application

Following the completion of each methodology step, the research wanted to find out the reactions of each company to the methodology. The following analysis is based on the feedback obtained immediately after completion of each step of the methodology. Not all companies completed the four steps that were tested and not all answered all the questions, and so, it was possible to identify some descriptive statements from experts about MIPIM. Five criteria were established for the assessment of usability. These were:

- ease of use, the methodology must be user friendly;
- time, sufficient time must be allocated to completing the step;
- understanding and frustration, the concepts and terminology must be easily understood without struggle;
- participation, the methodology must allow contributions and active involvement of users; and
- flexibility, users should be able to modify to suit own purpose.

These criteria are considered in the following four steps of the methodology as applied by the companies.

Step 1: Understand Business Needs

As expected, the major problems experienced lay with the terminology and navigation causing confusion and the lack of weighting rate for the readiness assessment. Within Case 2, most of the tools and techniques were used except readiness assessment and scope for change. Otherwise, everyone agreed that the step was necessary, participation was very good and sufficient time was allocated, average of four and a half hour was spent with the exception of Case 2 spending 15 hours. The step gave them the flexibility to modify certain aspect slightly. In all the cases, a business case was a useful document. The tools used were: brainstorming, problems and opportunity exercise and SWOT analysis.

Step 2: Understand the Process

In general, Cases 2 and 4 felt this step of the methodology was much straightforward, and were able to follow and understand the specifics. With Case 3, the problem was attributed to the fact that it was a small company that wanted quick improvement to the business problems, and had not spent adequate time to understand the methodology due to lack of time to commit to the project. Project team was often used to discuss office matters owing to lack of communication. In all cases, the known problems were due to individual availability for process capture discussion causing prolonged delay and in other cases, some activities were shortened to save participants' time. Few people found it labour intensive within Case 3, this was due to the level of discussion involved to tease out the working procedures.

The use of different tools and techniques was evident, in particular, Case 2 tried XPat tool, IDEF0 and flowcharting, Case 3 used simple flowcharting, whilst Case 4 incorporated IDEF0 top level view with the process capture questionnaire template to map the processes. This step was a typical example where modification was witnessed to comply with the Best Value review principle of consultation with people. The general problem faced with the users was not having full understanding of the techniques.

Step 3: Model and Analyse the Process

This step of the methodology was completed by Cases 2 and 3. Case 4 decided against detailed process models and analysis as they have opted for radical approach to process improvement. Those that followed the modelling step, the feedback on the criteria of ease of use were generally positive. The facilitators' level of modelling and analytical skills in Case 2 was very good, whilst Case 3 showed less than average knowledge. However, through the workshop exercises, their knowledge of modelling and analytical techniques had improved. With process users, the level of understanding seemed to be positive in both cases, but overall skill varied, Case 2 demonstrated a good grasp of basic process modelling and analysis principles, whereas, the general level of skill amongst process users in Case 3 was between fair and poor. Level of involvement during the modelling exercise and process analysis sessions are promising in both cases amongst users.

Step 4: Redesign Process

The redesign step in all the companies yielded positive feedback. There were no problems with the ease of use criteria, with only one facilitator finding it labour intensive, perhaps due to the radical approach being taken. Benchmarking tool was used in Company 2 and 4, whilst the nature of the project in Case 3 only required brainstorming and flowcharting tools to be employed. The two facilitators in Cases 2 and 4 did not experience unfamiliar concepts, but this was different in Case 3. In spite of this, the Company showed improvement in the knowledge gained owing to their participation. The level of modification during the testing also varied. An example of diversion in Case 2 was skipping some techniques because of their inappropriateness to the exercise. Timing varied in all the cases, Case 2 allocated two half days, 2 days in Case 3 and Case 4. The length of discussion in the last company meant the step was time consuming due to the philosophical nature of the marketing process.

Appendix C.7: Organisation of the Methodology during wider application

As in section 7.4.4, the wider test considered how the MIPIM methodology was organised during the application. In all the cases, the projects were carried out by cross-functional teams and managed by in-company selected facilitator. Two of these facilitators had background in business process reengineering. Departmental representation of the teams was as follows. In Case 2, this included Client Services Director, Financial Controller, Business Consultants, Programme Manager, Finance Manager and Client Service credit controller. Within Case 3, the team comprised of the General Manager (until resignation), Operations Manager, Finance Manager, Credit Control Officer, Warehouse Section Leaders and IT Manager. Customer Service Manager. In the last company, Best Value Manager, Marketing Director, Park Operations Manager, Marketing Communication Manager, Sport and Leisure Manager and Business Development Manager formed the team.

In all these companies, the facilitators were nominated by the team, two of these at manager level, and the other at business consultant level. Overall, participation was considered to have been promising. The elapsed time for the three case projects was 11 months, all running in parallel, which was more than planned for. In line with the elapsed time found in the pilot case study, the effort involved during process understanding step was longer in all three cases. The point of entry was at an upper level in all the cases, to secure the sponsorship of top management for the exercise. In Case 2, access to the company was initiated by the Business Consultancy Manager and directed by the top management, the Client Services Director. Within Case 3, the Managing Director of the group allowed access, whilst in the last company, the Best Value Manager in consultation with the Marketing Director provided access for the review.

Appendix C.8.1: Case 2 Facilitator’s Post Assessment Result

Case 2

QUANTITATIVE ANALYSIS OF FACILITATOR POST COMPLETION ASSESSMENT

Criteria	Feasibility
Respondents	Score
Q.1 Completeness	5
Q.2 Consistency	5
Q.3 Success	4
Q.4 Contingency	4
	Very good

Criteria	Usability
Respondents	Score
Q.9Timing with other duties	4
Q.10 Methodology consultation	4
Q.11 Robustness	5
Q.12 Ease of following T&T	4
Q.14 Preparation advice	2
Q.15 Preparation advice to the team	2
Q.16Clarity of aims of assessment	4
Q.17 Provision of Case study examples	4
Q.23 Issues Discussion	5
	Very good

Criteria	Usefulness
Respondents	Score
Q.28 Methodology successful?	4
Q.29 Project successful?	3
Q.30 Contribution of Methodology	4
Q.32 Influence on project result	4
Q.33 Resources on time and people	2
Q.35 Was it applicable?	2
Q.36 Useful as a facilitator?	5
	Good

Criteria	Context
Respondents	Score
Q.42 Making success known	2
Q.46 Format of the methodology	4
	Average

Appendix C.8.2: Case 2 Participants' Post Assessment Result

Case 2:

QUANTITATIVE ANALYSIS OF PARTICIPANTS POST COMPLETION ASSESSMENT

Criteria		Feasibility		
Respondents	R 1	R 2	R 3	Average
Q.1 Completeness	4	4	4	4.0
Q.2 Consistency	5	5	4	4.7
Q.3 Success	5	5	4	4.7
Q.4 Contingency	0	4	3	2.3
Total Average				15.7
Total				78.33%

Criteria		Usability		
Respondents	R 1	R 2	R 3	Average
Q.9 Timing with other duties	4	4	2	3.3
Q.10 Methodology consultation	3	3	5	3.7
Q.11 Robustness	4	4	4	4.0
Q.12 Ease of following T&T	4	4	4	4.0
Q.14 Preparation advice	4	4	2	2.0
Q.15 Clarity of aims of methodology	4	4	4	4.0
Q.16 Provision of Case study examples	4	4	5	4.3
Q.22 Issues Discussion	4	4	2	3.3
Total Average				28.7
Total				71.67%

Criteria		Usefulness		
Respondents	R 1	R 2	R 3	Average
Q.27 Methodology successful?	4	4	4	4.0
Q.28 Project successful?	4	2	3	3.0
Q.29Contribution of Methodology	3	3	4	3.3
Q.31 Influence on project result	3	3	5	3.7
Q.32 Resources on time and people	2	2	4	2.7
Q.34 Was it applicable?	4	4	5	4.3
Total Average				21.0
Total				70.00%

Criteria		Context		
Respondents	R 1	R 2	R 3	Average
Q.40 Making success known	4	4	3	3.7
Q.42 Format of the methodology	4	4	4	4.0
Total Average				7.7
Total				76.67%

Appendix C.8.3: Case 3 Facilitator’s Post Assessment Result

Case 3

QUANTITATIVE ANALYSIS OF FACILITATOR POST COMPLETION ASSESSMENT

Criteria	Feasibility	Feasibility
Respondents	F 1	F 2
Q.1 Completeness	2	5
Q.2 Consistency	4	5
Q.3 Success	2	4
Q.4 Contingency	1	4
	Average	Very good

Criteria	Usability	Usability
Respondents	Score	Score
Q.9Timing with other duties	2	1
Q.10 Methodology consultation	2	4
Q.11 Robustness	1	2
Q.12 Ease of following T&T	1	4
Q.14 Preparation advice	3	4
Q.15 Preparation advice to the team	3	4
Q.16Clarity of aims of assessment	2	4
Q.17 Provision of Case study examples	4	5
Q.23 Issues Discussion	4	4
	Average/Poor	Good

Criteria	Usefulness	Usefulness
Respondents	Score	Score
Q.28 Methodology successful?	3	2
Q.29 Project successful?	3	3
Q.30 Contribution of Methodology	2	2
Q.32 Influence on project result	4	4
Q.33 Resources on time and people	4	1
Q.35 Was it applicable?	2	4
Q.36 Useful as a facilitator?	1	1
	Poor	Poor

Criteria	Context	Context
Respondents	Score	Score
Q.42 Making success known	3	1
Q.46 Format of the methodology	2	2
	Poor	Poor

Appendix C.8.4: Case 3 Participants' Post Assessment Result

Case 3

QUANTITATIVE ANALYSIS OF PARTICIPANTS POST COMPLETION ASSESSMENT

Criteria	Feasibility					
Respondents	1	2	3	4	5	Average
Q.1 Completeness	2	2	3	5	2	2.8
Q.2 Consistency	2	2	5	2	4	3
Q.3 Contingency	2	2	3	2	3	2.4
Q.4 Success Factor	1	1	1	3	0	1.2
Total Average						9.4
Total						47.00%
On a scale of 1 to 5 = 4 X 5 = 20						

Criteria	Usability					
Respondents	1	2	3	4	5	Average
Q.9 Timing with other duties	2	2	2	2	3	2.2
Q.10 Methodology consultation	2	2	2	3	2	2.2
Q.11 Robustness	3	3	2	3	5	3.2
Q.12 Ease of following T&T	3	2	1	2	1	1.8
Q.14 Preparation advice	2	2	2	2	2	2
Q.15 Clarity of aims of methodology	2	2	1	2	4	2.2
Q.16 Provision of Case study examples	4	4	5	4	5	4.4
Q.22 Issues Discussion	4	4	2	2	4	3.2
Total Average						21.2
Total						53.00%
On a scale of 1 to 5 = 8 X 5 = 40						

Criteria	Usefulness					
Respondents	1	2	3	4	5	Average
Q.27 Methodology successful?	3	3	2	2	4	2.8
Q.28 Project successful?	0	3	3	2	3	2.2
Q.29Contribution of Methodology	3	3	3	2	3	2.8
Q.31 Influence on project result	2	3	4	3	4	3.2
Q.32 Resources on time and people	2	2	5	5	4	3.6
Q.34 Was it applicable?	1	1	3	2	2	1.8
Total Average						16.4
Total						54.67%
On a scale of 1 to 5 = 6 X 5 = 30						

Criteria	Context					
Respondents	1	2	3	4	5	Average
Q.40 Making success known	2	2	4	4	5	3.4
Q.42 Format of the methodology	2	2	1	4	2	2.2
Total Average						5.6
Total						56.00%
On a scale of 1 to 5 = 2 X 5 = 10						

Appendix C.8.5: Case 4 Facilitator’s Post Assessment Result

Case 4

QUANTITATIVE ANALYSIS OF FACILITATOR POST COMPLETION ASSESSMENT

Criteria	Feasibility
Respondents	Score
Q.1 Completeness	2
Q.2 Consistency	4
Q.3 Success	4
Q.4 Contingency	4
	Good

Criteria	Usability
Respondents	Score
Q.9Timing with other duties	2
Q.10 Methodology consultation	4
Q.11 Robustness	4
Q.12 Ease of following T&T	4
Q.14 Preparation advice	4
Q.15 Preparation advice to the team	4
Q.16Clarity of aims of assessment	4
Q.17 Provision of Case study examples	4
Q.23 Issues Discussion	5
	Very good

Criteria	Usefulness
Respondents	Score
Q.28 Methodology successful?	4
Q.29 Project successful?	4
Q.30 Contribution of Methodology	4
Q.32 Influence on project result	5
Q.33 Resources on time and people	2
Q.35 Was it applicable?	4
Q.36 Useful as a facilitator?	5
	Very Good

Criteria	Context
Respondents	Score
Q.42 Making success known	4
Q.46 Format of the methodology	4
	Very Good

Appendix C.8.6: Case 4 Participants' Post Assessment Result

Case 4

QUANTITATIVE ANALYSIS OF PARTICIPANTS POST COMPLETION ASSESSMENT

Criteria	Feasibility						
Respondents	1	2	3	4	5	6	Average
Q.1 Completeness	4	2	4	4	2	2	3.0
Q.2 Consistency	2	1	2	4	5	2	2.7
Q.3 Contingency	3	2	4	4	4	4	3.5
Q.4 Success Factor	3	3	4	5	3	4	3.7
Total Average							12.8
On a scale of 1 to 5 = 4 X 6 = 24							64.17%
Total							

Criteria	Usability						
Respondents	1	2	3	4	5	6	Average
Q.9 Timing with other duties	2	4	2	2	4	2	2.7
Q.10 Methodology consultation	2	2	3	4	4	3	3.0
Q.11 Robustness	3	4	4	5	3	2	3.5
Q.12 Ease of following T&T	2	2	2	4	4	4	3.0
Q.14 Preparation advice	2	1	4	5	4	4	3.3
Q.15 Clarity of aims of methodology	4	2	4	4	4	4	3.7
Q.16 Provision of Case study examples	2	4	4	5	4	2	3.5
Q.22 Issues Discussion	4	2	2	2	4	2	2.7
Total Average							25.3
On a scale of 1 to 5 = 8 X 6 =46							63.33%
Total							

Criteria	Usefulness						
Respondents	1	2	3	4	5	6	Average
Q.27 Methodology successful?	3	2	4	4	4	3	3.3
Q.28 Project successful?	3	3	3	3	3	3	3.0
Q.29Contribution of Methodology	3	4	3	4	4	3	3.5
Q.31 Influence on project result	3	4	4	4	4	3	3.7
Q.32 Resources on time and people	2	5	5	4	4	2	3.7
Q.34 Was it applicable?	2	4	2	3	4	2	2.8
Total Average							20.0
On a scale of 1 to 5 = 6 X 6 = 36							66.67%
Total							

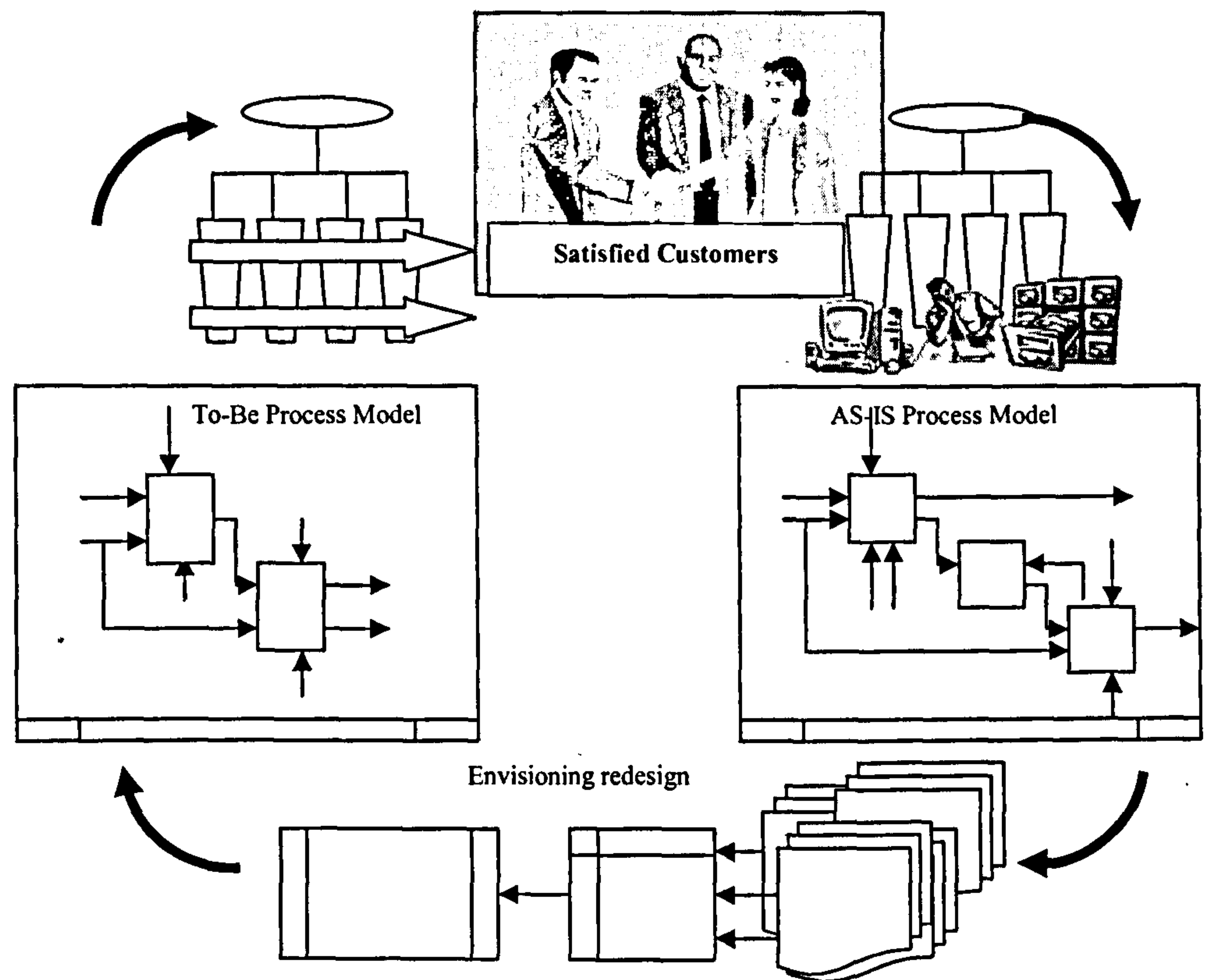
Criteria	Context						
Respondents	1	2	3	4	5	6	Average
Q.40 Making success known	3	4	4	3	5	3	3.7
Q.42 Format of the methodology	2	3	4	4	4	4	3.5
Total Average							7.2
On a scale of 1 to 5 =2 X 6 = 12							71.67%
Total							

Appendix D.1:

Workbook Methodology for Business Process Improvement

Business Process Improvement Methodology

A Practical
Step-by-Step
Guide for
Business
Process
Improvement
Implementation



Sola Adesola

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Section 3– Tools and Techniques to support BPI

Section 4– Glossary of Terms

Introduction

Welcome to the workbook for the business process improvement. This workbook is split into four sections.

Section 1 introduces the general concepts of the business process improvement, who should use the workbook, how to use it, the benefits of using the approach, issues to consider and risks to be aware of, the MIPIM model and the structure of the workbook and flows of the methodology.

Section 2 sets out the approach to improve and redesign business processes. Each step of the methodology is introduced with aim, actions, persons involved, deliverables, relevant tools and techniques and hints and tips to help guide you through the step.

Section 3 provides set of library of tools of techniques structured to include what it is, why is it used, when you can use it and how to use it.

Section 4 contains a glossary of terms used within the methodology

NB The workbook is one of the deliverables of a 3 year PhD research project entitled "Development and Assessment of a Methodology for Business Process Improvement" under the guidance of Dr Tim Baines. The workbook is a result of research into the business process change and improvement within the UK Government and Service Industry and it is intended to be used as a template and guide for the development and redesign of Business Process.

If you have any comments on the usability, format, content or process of the workbook, please contact

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Section 1:

Introduction and Overview of the Methodology

1.1 Business Process Improvement

Business Process Improvement (BPI) is a challenging undertaking for any organisation. BPI is about the way your business processes are operated and changed. As long as organisations have a functional structure, there will be a need to improve and implement business processes that integrate activities in the functions. BPI is a process based change management approach for the improvement and reengineering of business processes in an organisation.

Why must we change?

- Provide new services / products
- Constant competitive forces
- Increase market share / corporate mergers
- Focus on global commerce / e-business
- Address Operational Issues
- New technologies
- Fix the problems and improve service

1.2 Who Should Use the Workbook

This workbook is designed to provide a framework to guide, inform and support you through the planning, design and implementation involved in a business process improvement project. It is hoped that the guidelines given in this workbook will help those undertaken a BPI initiative for the first time and also those who are continuing an existing BPI initiative. It is primarily aimed at the practitioners together with a facilitator or solely by the practitioner and their in house project team members.

However, this is not a workbook that claims to have all the answers, It is expected that an organisation will tailor the steps outlined in this workbook to fit its resources, visions and business objectives and use the materials discerningly.

1.3 Benefits of using the Workbook

As with any tool or technique, it is important to explain the benefits of using the methodology together with the research behind the development of the approach. The benefits of using the methodology are summarised below:

- All stakeholders are encouraged to participate in the change process
- The approach takes a model and integrated view of the business operations
- Helps to take a fresh look at what you do;
- Assesses the current situation and future options
- Plans and implements improvement options
- Evaluates the methodology
- to adopt a continuous improvement technique

1.4 Issues to be considered whilst following the Methodology

- Is the business process improvement objectives aligned with strategic business objectives of the organisation?
- What is the scope of change ?
- How do we build confidence in the process architecture?
- Who is the process owner?
- Are the current processes performing well
- What are the measures for the processes?
- Are all stakeholders and process users involved in the change programme to get their buy in?
- Are their risks in the methodology to be prepared for?
- How can we embrace IT to support the new process?

1.5 Risks to be aware of whilst following the Methodology

- Culture – motivating people, building trust, keeping the enthusiasm high
- People – the stakeholders
- Lack of management buy-in (management)
- Suppliers and partners
- Customers
- Lack of resources
- Politics, ethics and law (legislation)
- Environment

1.6 The 7 step Model for Business Process Improvement

This workbook describes a step-by-step business process improvement model, called MIPIM (Model based and Integrated Process Improvement Methodology), which can be used to managers with a generic description of a sequence of recommended steps for BPI.

MIPIM Methodology

The model shown in Figure 1 shows seven steps of a BPI implementation which provides a continuous loop through the steps. It is important to note that the length of time it takes to complete a cycle through the MIPIM model will vary from organisation to organisation. Organisations will find many activities that can be pursued in a parallel fashion.

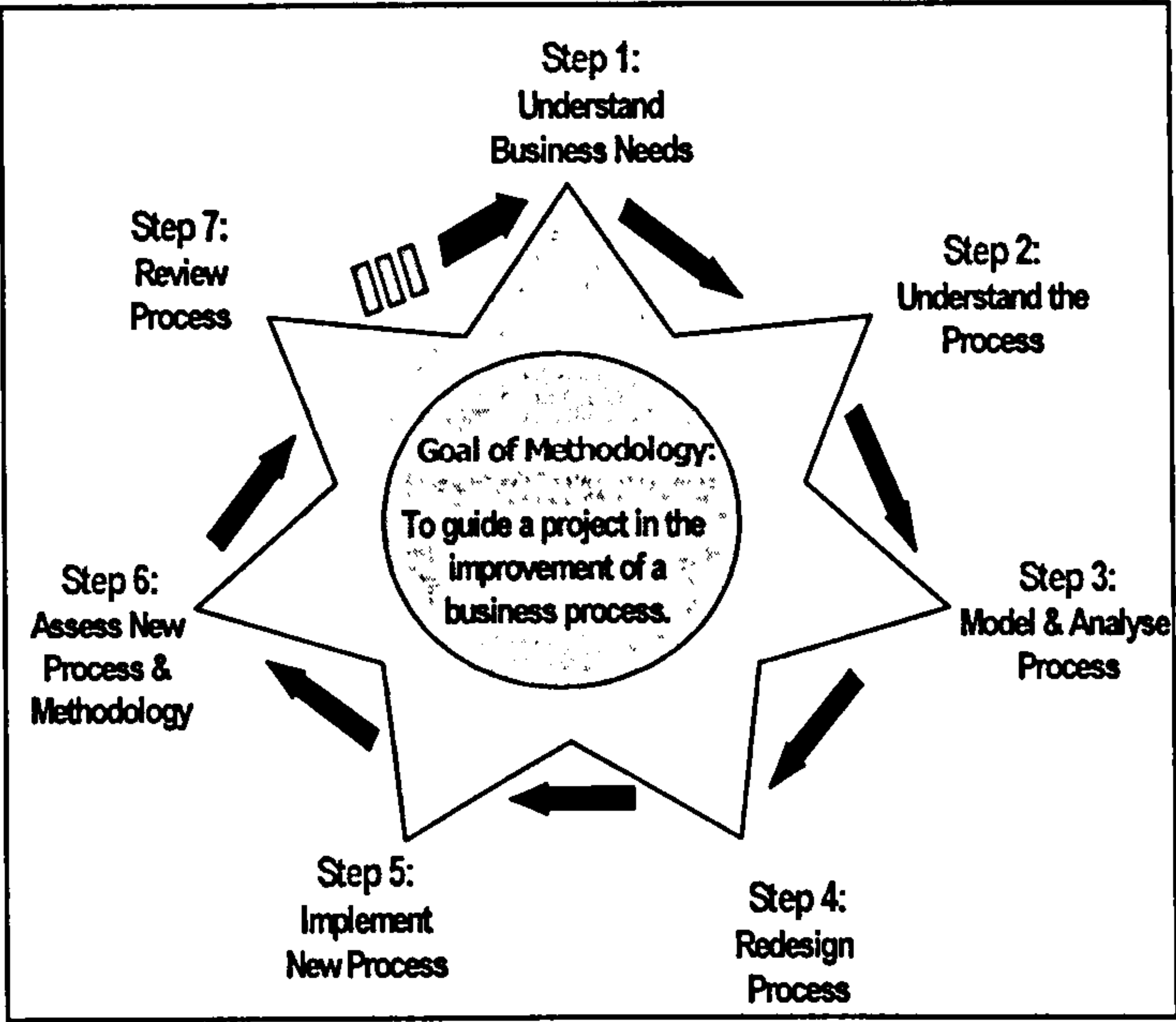
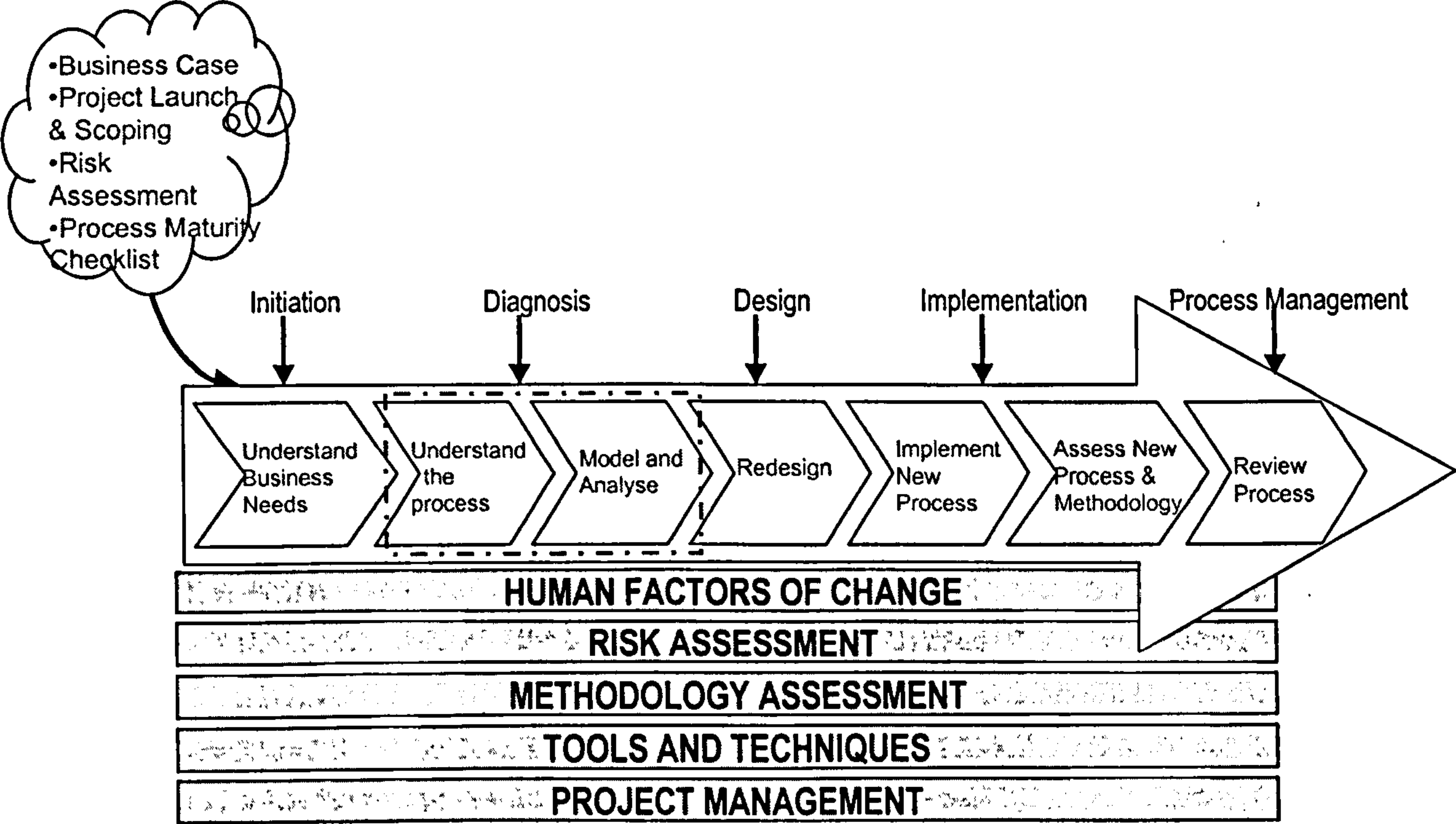


Figure 1: MIPIM 7 Step Model



Project Phases and Methodology Steps

During organisational change process, the Methodology is executed according to project management life cycle as shown Figure 2 below. This shows how the methodology turns an improvement idea into reality.

The key activities for the project phases are listed in Table 1, together with the associated tasks performed under the methodology steps to achieve each phase.

Figure 2: BPI Delivery Framework

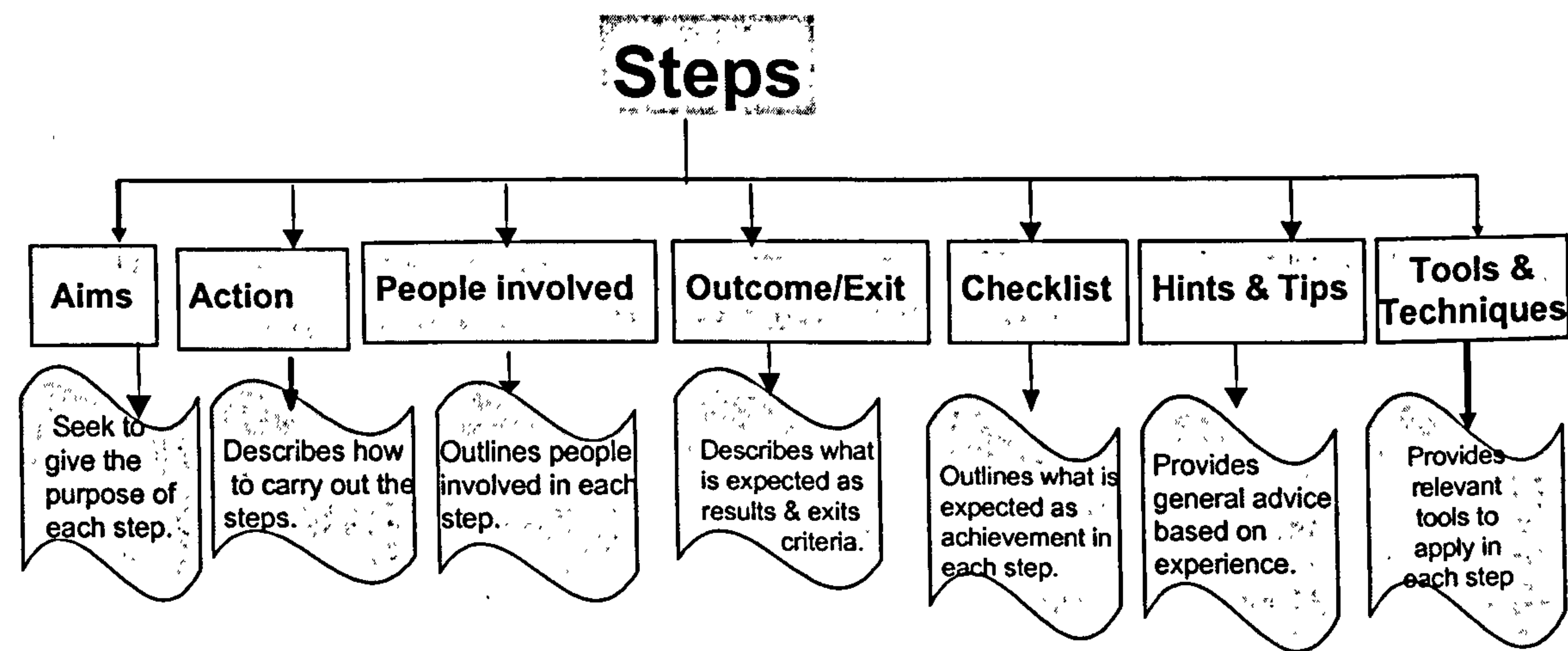
Project Phases	Step	Step Description	Activities
Initiation The Initiation phase of the MIPIM methodology is the starting point. Define project goals and perform readiness assessment.	1	Understand Business Needs	Organisational Model Develop Business Objectives/Strategy Scope Of change Develop Process Objectives and Assess readiness Obtain approval & initial project resource Benchmark the process
Diagnosis The purpose of this phase is to understand the structure of what already exists, and to identify the causes of any problems. In this phase, processes are scoped and boundaries identified to establish baseline of the current state. Detailed process data is gathered, modelled and analysed. Metrics necessary to monitor the performance of the current processes are also defined.	2	Understand the Process	Identify the Business Process Architecture Scope & Define the Process Capture and Model the AS IS Process Information
	3	Model and Analyse Process	Model the Process Verify & Validate the Model Measure the existing Process Performance Analyse the Business Process
Design the issues that the organisation has decided to address with its improvement activities are prioritised; strategies for pursuing the new process designs are also developed	4	Redesign Process	Benchmark the process Identify Performance Criteria for Re-design process Identify focus of re-design activity Model & validate new TO BE process Model Identify IT requirements Estimate Performance of Re-designed process
Implementation Plans will be developed to execute pilots to test and assess the new or improved processes plans to assess the impact of MIPIM methodology will be developed and executed.	5	Implement New Process	Plan the Implementation Obtain Implementation Approval Review change management plan <i>Communicate the Change</i> Technological Development <i>Make new process operational</i> Rollout Changes
	6	Assess New Process and Methodology	<i>Conduct Process Deployment & Performance Reflections</i> Revise Organisational Approach
Process Management to carry ongoing evaluation of the new process in practice.	7	Review New Process	<i>Problem Selection</i> Analyse Correction Phase Measurement Phase Rewarding Phase Learning Phase

Table 1: BPI Phase, Step and Activity

1.7 Workbook Structure.

It is important to note that the structure to accomplish BPI will play a significant role in the success or failure of a BPI initiative. The value that the structure brings to a BPI initiative, its understanding of its roles and responsibilities, cannot be underestimated.

The structure of the MIPIM seven steps is shown below. Each step consists of the aim, activities, people involved, outcome, checklists, hints and tips and relevant tools and techniques.



Checklist & Assessment

At the end of each step of the workbook, space is provided to check all actions have been carried out and to record personal and team reflection of activities, achievements, difficulties and future actions. The knowledge built during a BPI project is useful and can contribute to business performance if it is fed into future work.

Section 2:

Getting started for the Seven- step BPI Methodology

PRE-METHODOLOGY ACTIONS

- Launch and Scope the BPI project
- Develop and write a BPI Proposal/Business Case
- Send Draft Proposal to the Senior Management for review and comment
- Obtain approval for BPI Proposal and initial resources through presentation
- Conduct context and risk assessment exercise
- Train and Educate (Induction Sessions)

Before deciding or developing a plan there is a need to build a business case for change. It may be a progressive well thought out explanation that starts with a creative idea and assessed for risks, costs and benefits. Business case is another name for a proposal in a BPI effort.

The BPI business case is the one place where all relevant facts are documented and linked together into a cohesive story. This story tells people about the what, when, where, how and why of the improvement effort.

- Why the improvement effort is needed (issues & opportunities)
- How will the effort solve the issues or opportunities facing the organization?
- What is the recommended solution(s)?
- How does the solution address the issues or opportunities (benefits)?
- What will happen to the business if the BPI effort is not undertaken (the do nothing scenario)?
- When will the solutions be deployed?
- How much money, people, and time will be needed to deliver the solution and realize the benefits?

Another important role of a base is to verify that the solution substantiates or meets the needs of the business. The final, important role that the business case plays is to provide a consistent message to many different audiences. It is a high level view of the entire project and enables everyone affected by the effort (customers, management, operations, research & development, service, sales, accounting, finance, etc.) to be cognizant and knowledgeable about the effort.

1. Select the BPI team
2. Select a Process Champion with the necessary leadership skills to lead the team and do early planning and sponsorship building.

3. Select representatives from the Stakeholders groups to be involved in the development of the BPI plan.
4. Select external Consultant/Facilitator or internal facilitator
5. Train the improvement team
6. Prepare an effective change management and communication plan
7. Create awareness and build support through series of briefings
8. Identify sponsors
9. Gain senior management support for the project

The time frame and resource required to complete the workbook is shown in the table below.

Risks/Contingency

What should be the risks of starting a BPI projects?

Identify current policies, regulations, and initiatives that will impede the launching of a BPI project.

e.g your company may be subject to government agency regulation or may have an initiative to achieve ISO 9001/2000 certification. These may affect a BPI project.

Outcome/Gateway

The BPI Team exists.

Existing and future initiatives, policies, and regulations that will affect the creation of a BPI project have been identified and analysed.

Relevant Tools and Techniques

Facilitated Workshops

Briefings

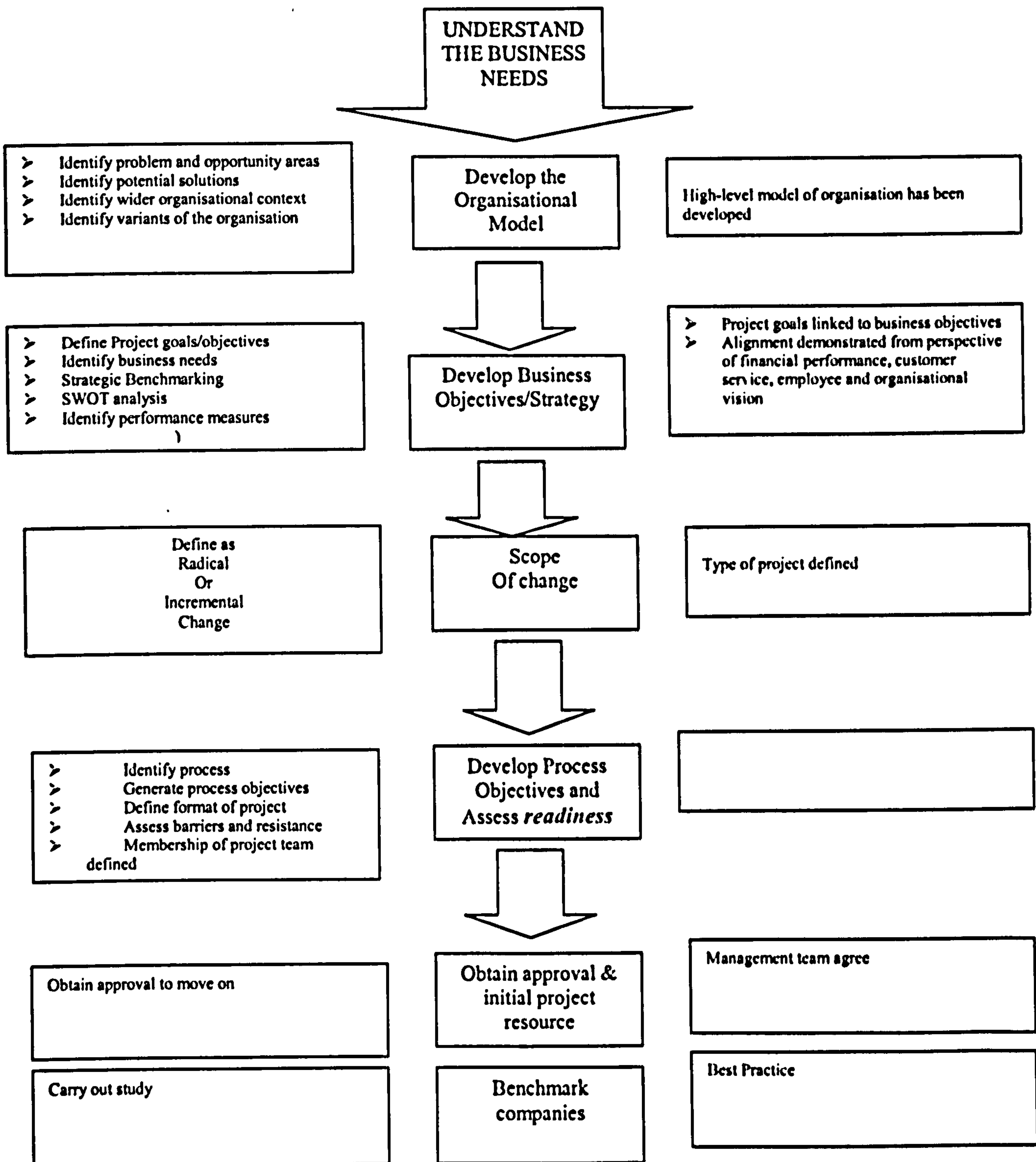
Training and Seminar

Time Frame and Resource Requirements for BPI Implementation Methodology

Delivery	Steps	Time Required *	Resource Required
Launch/Scoping Meeting	Launch and Project Scoping Business Case	2 hrs - 3 days	Sponsor Team Leader Change Agent
Induction Session	Point of Entry	2 hrs - 2 days	Assessment Team Leader
Education/Training	Pre-Methodology Assessment Context and Risk	2 hrs - 1 day	Assessment Participants
	Step 0	2 days Training	
Envisioning Workshop	Understand Business Needs	2 hrs - 4 days	Sponsor/Snr Mgt
	Step 1	2 days Step assessment and analysis	BPI Team Process Champion Change Agent Assessment Team Leader
Workshop	Understand the Process	2 days - 15-22 days	Process Users
Focus Group	Step 2	4 wks	Process Experts
Interviews		2 days assessment and analysis	BPI Team
Walkthrough			Other Customers
AS IS Validation Workshop	Model and Analyse Process	2 days - 15-22 days	Process Users
	Step 3	4 wks	Process Experts
		2 days assessment and analysis	BPI Team
			Other Customers
			Modellers
Envisioning Workshop	Redesign Process	4 hrs - 8 days	Modellers
1-2 days	Step 4	Prep - 1day	HR Personnel
		Workshop day - 1-2 days	IT Specialists
		To Be Validation -1 day	
		Design new requirements - 1day	
		Gap Analysis -1 day	
		Step Assessment -2 days	
Implementation Approval	Implement New Process	10-16 days	Senior Mgt
Presentation to Mgt	Step 5	inc 2 days Assessment	Staff
Awareness Day			Process Owner Change Agent
Debrief Session	Assess New Process and BPI Methodology	2 hrs - 7 days	BPI Team
	Step 6	Post Implementation Review	Process Users
		2 days incl results	Assessment Team Leader
		Methodology Assessment -	Assessment Participants
		Questionnaire + Interviews	
		5 days	
	Review Improved Process	On Going	Process Owner Departmental Units
TOTAL PILOT EFFORT	89 DAYS		
REPORT + EVALUATION	14 DAYS		
TOTALS DAYS	103 DAYS 3MONTHS + 13 DAYS		

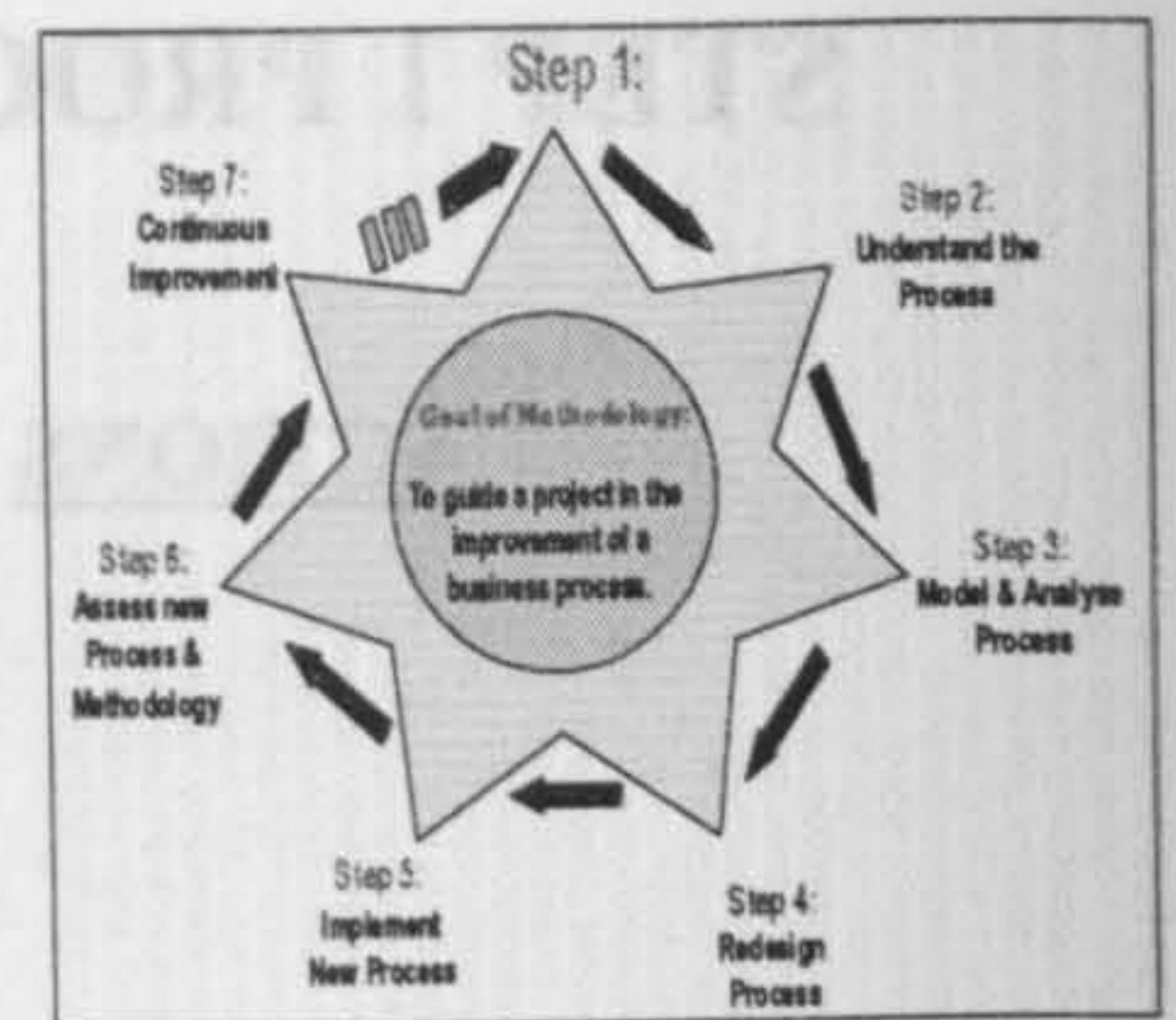
* Time is illustrated as a range from minimum to maximum and is intended as a guide only to the commitment that a company would be ready to make. Minimum refers to a situation where a very simple project is being addressed. Maximum is the time taken for an ambitious project.

STEP 1 PROCESS MAP: UNDERSTAND THE BUSINESS NEEDS

ACTIONSOUTCOMES

STEP 1

Understanding Your Business Needs For Change



Aim

The aim of this step is to understand and assess from the management perspective, the key business needs driving the requirement for improvement and define the role of BPI in filling these needs.

Actions

- Review the BPI proposal
- A pictorial representation of the activities associated with Step 1 of the initiation phase is shown in the next page.
- Benchmark other similar companies

Outcome/Gateway

By understanding your business needs for BPI you will have:

- Identified what you want to achieve from this change programme.
- Developed a holistic business/organisation model
- Developed a set of strategic BPI objectives based on your business strategy
- Considered if a radical or incremental approach to BPI is appropriate to your business
- Decided on your process objectives
- Assessed the readiness for change in your organisation

Establish initial organisation communication plan for the BPI.

What is your current organisation model?

Aim

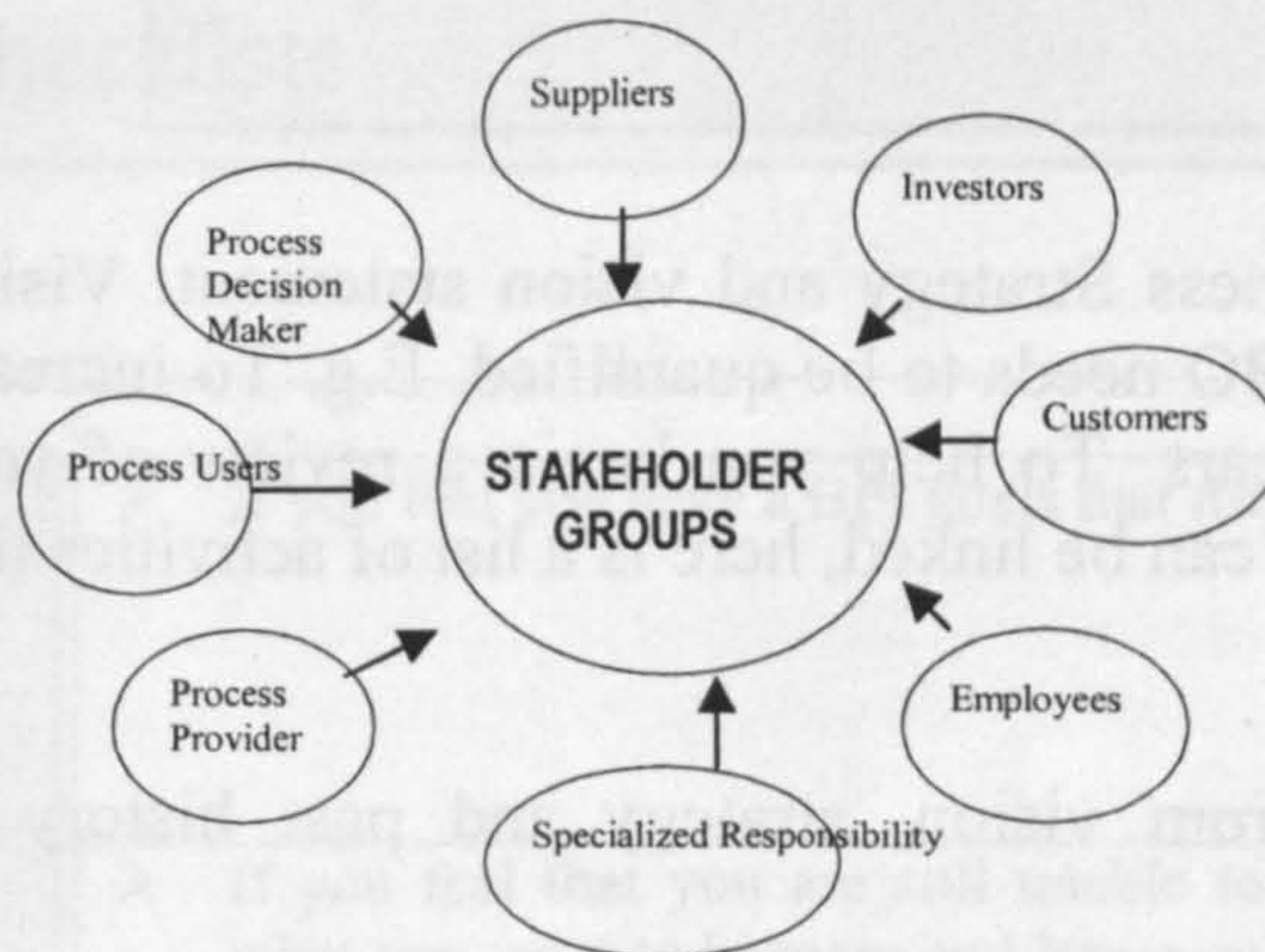
To keep track of organisational environment in which business process has to operate and to deal with relevant organisational issues.

Actions

The activities in organisational analysis are the following:

- Identify problem and opportunity areas
- Identify potential solutions
- Identify wider organisational context
- Identify variants of the organisation

People Involved



Stakeholder are people or organisations with an interest in the activities and performance of the business.. For any change programme, they will need to be consulted according to the nature of the change and their likely involvement

Outcome/Gateway

What is the result of completing this activity?

- High level model of the organisation has been developed

Relevant Tools and Techniques

The following worksheets are designed to help you think about your organisation. They are presented around two tables. You can develop your own using the templates provided in section 3.

Worksheet OM-1: Problem, Context and Solutions Portfolio

Worksheet OM-2: Focus Area in the Organisation

What is your current BPI objectives/strategy?

Aim

To develop a focus for change, provide the means to make change strategic and to better understand business.

Actions

Business Objectives are derived from Business Strategy and vision statement. Vision falls out of strategy and strategy from BO. BO needs to be quantified. E.g. To increase market share from 12% to 30% in four years. To help you begin a review of your organisation's objectives and how BPI goals can be linked, here is a list of activities that you may wish to consider.

1. Define general BPI goals/objectives from vision, strategy and past history of improvement efforts.
2. Identify business needs and drivers for improvement
3. Conduct strategic benchmarking to establish performance targets.
4. Conduct SWOT analysis.
5. Identify core competencies.
6. Develop business-level goals & objectives (SMART Objectives)
7. Identify performance measures.

A business strategy determines the direction of your business through the development of goals and provides an action plan to achieve these goals.

People Involved

- Senior Management
- BPI Leader
- Facilitator

Outcome/Gateway

- Link your BPI project goals back to key business objectives and the overall strategic direction for the organisation.
- Demonstrate alignment from the perspective of financial performance, customer service, employee and the organisation’s vision.

Relevant Tools and Techniques

Go to Section 3, Step 1 for the type of tools and techniques you may want to use.

Checklists

Tick	
Yes	➤ If you feel you have a BPI goals that meet the strategy of your organisation.
O	
No	➤ If you feel that you are still unable to explain where your business is going, what you want to become and how you think BPI project will help you achieve these, you will still need to do some work on your business objectives and strategy before continuing.
O	

BPI =
Process
Based
Change
and
Orientation

Scope of Change: *radical or incremental?*

Do you want to be radical – completely change the way you work in one go?

**Radical
change**

or

Do you want to be more incremental in your change, such as changing the business a step at a time?

**Incremental
change**

Aim

To define, understand and decide on the type of project so as to direct and focus on a vision to implement.

Actions

There are several factors, which drive the business process change in organisations. The goal of a BPI is to make business processes efficient and effective. But to determine if a business process should be improved, eliminated or re-engineered, strategic decisions have to be made. Reaching a decision on the scope of project involves a methodical thought process. The *decision process* outlined here will help you make that decision.

- Identify the decision to be made and define the objective or goals it should achieve – Do you know what you are trying to achieve. Be clear about where you want to get to.
- Get the facts and relevant information – Some of it will be immediately apparent, but other data may be missing.
- Generate feasible options or possibilities- list all the options including the choice of doing nothing. There are five types of BPI project you may want to consider.
 1. Documentation of Business Processes
 2. Improvement – document and make small changes (incremental)
 3. Renewal –thorough study and restructure (redesign)
 4. Development – totally new process
 5. Maintenance/Management – continuous improvement

- Make the decision
 - Prioritise options – using *Pareto “80/20 rule”* to prioritise significant factors. 80% of a problem results from 20% activities –the principle of “vital few and trivial many”

Alternatively, you may want to try:

 - Selection Criteria in order to divide your options into different levels of priority.

MUST = Essential
 SHOULD = Highly desirables
 MIGHT = Pleasant addition

 - List the advantages and disadvantages of radical and incremental change by referring to the table above
 - Examining the consequences of each course
 - Test the proposed course against the measures of your business objectives
 - Assess the risks against the expected gains
 - Identify the right time to make your decisions
- Assessing risk
- Don't forget to implement the decision and then evaluate the implementation. This implementation will normally be the roadmap to implement your preferred scope of project.

People Involved

Be aware of the people who will be affected by the change decision. The following is a list of potential people to consult.

- Senior Management
- Cross functional departments
- Clients
- Suppliers
- Employees

Be prepared to accept people's advice

Outcome/Gateway

- Scope of the change project defined and understood
- By minimising the risks, this will reduce the chance of failure and optimise your chances of success in the BPI project.

Relevant Tools and Techniques

The following tools and techniques will help decide where you fit in within the scale.

Pareto Analysis

PMI – Plus/Minus/Interesting

Checklists

- ? Have you agreed the aims and objectives with the BP team?
- ? Have you looked at all the issues involved in the change scenario?
- ? Have you involved the BPI team and senior managers in the collecting of facts and relevant information?
- ? Have you secured everyone's commitment to make your decision work?
- ? Have you considered fully all the options?
- ? Have you assessed and compared probabilities?

Hints and Tips

- Lack of complete information must not be allowed
- Don't jump far too quickly to the either –or alternatives
- Define the worst downside- what happens in the worst scenario?
- Address your mind to doing all you can to minimise the risk – experience, practice and consultation may all be relevant techniques.
- You will not be able to eliminate risk altogether
- Keep a list of trade-offs

Each approach has benefits and drawbacks. Decide which approach you would favour and how it would benefit your business or improvement programme.

Performance Measures: Developing Business Process Objectives

Aim

To ensure the focus of the BPI project is linked to the business needs of the organisation.

Action

Objectives for your improvement process should be agreed and shared with your team. These objectives should be developed from your strategy and the needs of your customers and stakeholders. Generally, they will fall into the areas of quality, time, costs and flexibility, though others may be required.

- Identify the process for change
- Review organisational structure and roles
- Identify customers and stakeholders and their needs
- Review business drivers for BPI
- Identify the baseline measures
- Generate process objectives (what do you want to achieve?)
- Determine timescale for achieving your objectives

People Involved

Senior Management
Process Champion
Process Owner

Outcome/Gateway

- Key process objectives identified, agreed and shared with team
- The activities involved should result in a set of improvement targets for the identified project, and a set of performance indicators for the change process (i.e. what we want to achieve, by when).

Relevant Tools and Techniques

If you are able to identify your stakeholders and their needs you can then balance and generate the objectives for your improvement process using the technique.

Use the template: High Level Process Objectives and Measures

Checklists

? Do your measures meet your customers' expectations?

Hints and Tips

Participation: Senior representatives from all the business functions need to be involved in populating the performance matrices.

Time Required: As the process requires detailed input from the individual functions, it is best to have an initial one hour session involving everyone, followed by short individual sessions for each function.

Materials Required: Blu-tac to mount the flip chart on the wall

Post-it labels

Flipchart pens

Handwriting pens



Assess Readiness:**Are you ready for change?****Aim**

To understand the issues, problems, and risks that are encountered in improvement, and to develop effective plans to ensure that the BPI project is brought to a successful conclusion.

Actions

Using the *BPI readiness assessment diagnostics* below, evaluate your organisation against criteria that are key to the success of a BPI project.

Assess your organisation's culture and identify related barriers.

Assess sponsorship for BPI and determine what is needed to improve it

Assess current resistance to a new BPI project

Identify other improvement activities and determine how to interact with them

Develop change management strategies to reduce barriers, manage resistance to changes

Update your organisation communication plan including messages, media to implement the strategies.

Analyse the assessment findings and present findings to the team

Obtain approval to move to Step 2, the Understanding the Process.

The template will enable you to answer questions to assess, strategic, activities, people and IT:

People Involved

Your Contact at the organisation

All involved

Outcome/Gateway

BPI readiness assessment diagnostics are complete

Sponsorship, approval and initial resources for BPI obtained

BPI communication Plan completed

Interfaces and interactions with other projects and initiatives have been defined

Change management strategy developed

Checklists

- Have you completed the assessment questionnaire?
- Have you reviewed the results?
- Have you feedback summary of findings to all participants
- Are you monitoring levels of commitment?
- Has approval been granted to move to Step 2?

Relevant Tools and Techniques

- BPI Readiness Assessment Diagnostic.
- Search Conference may be useful
- Visioning Workshop

Hints and Tips

- Allow 1-2 hours for the completion of the assessment
- Give copy of the Workbook methodology to BPI team
- Decide on format of interviews and focus groups
- Identify who needs to be interviewed
- Set up and hold interviews and focus groups
- Send out questionnaire giving clear instructions for completion and return
- Work with key internal sponsor to identify all "key influential" (including those who will be positive and negative)
- Interview each sponsor and assess level of sponsorship if need be
- Agree objectives of team building
- Assign responsibility to someone for organising and designing team meetings.
- Assess effectiveness of session

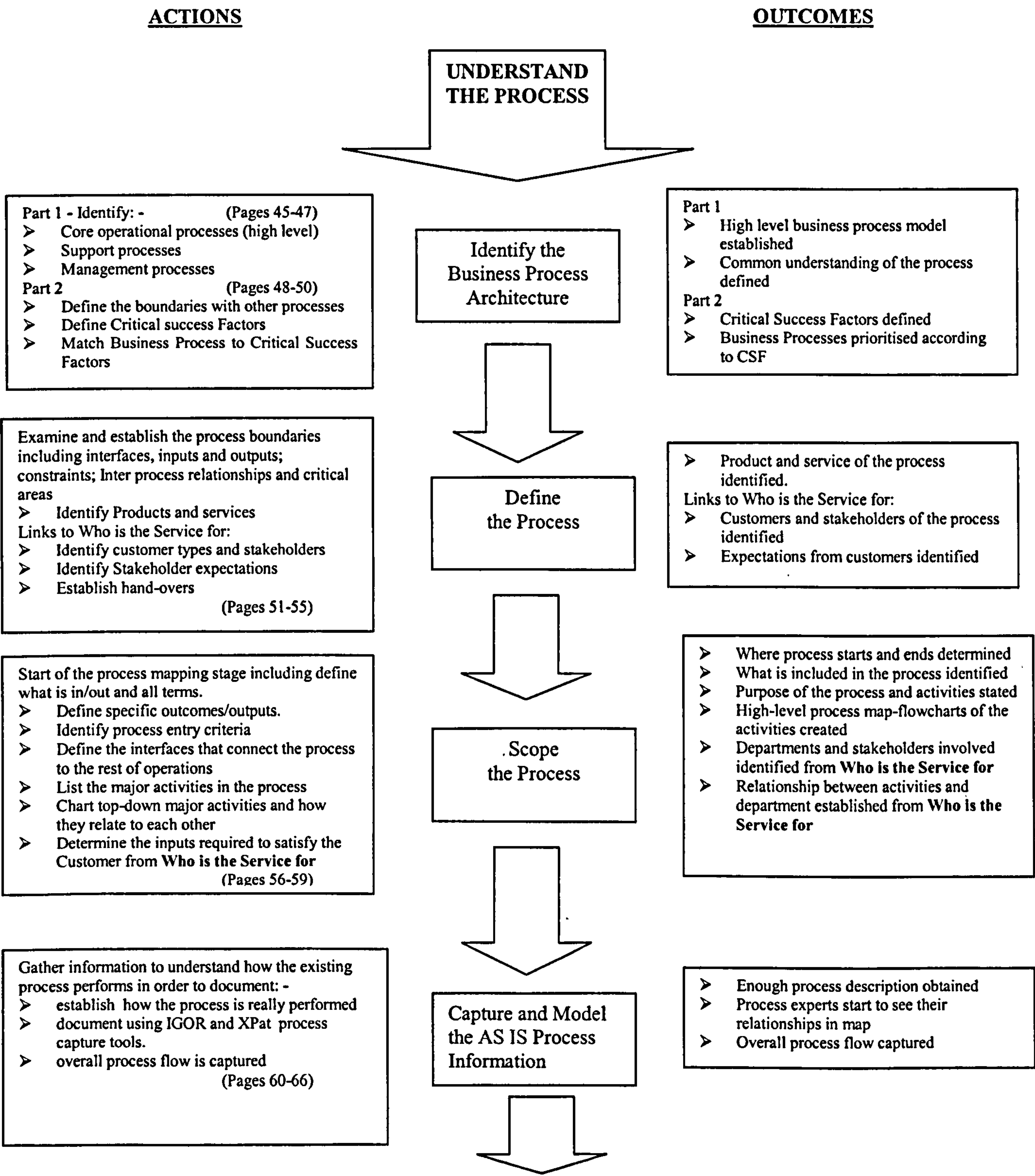
Step 1

Assessment

On completion of this step, you will have drawn out your business objectives, considered the implications of a radical and incremental BPI programme developed a set of balanced objectives and considered the readiness of the organisation to change.

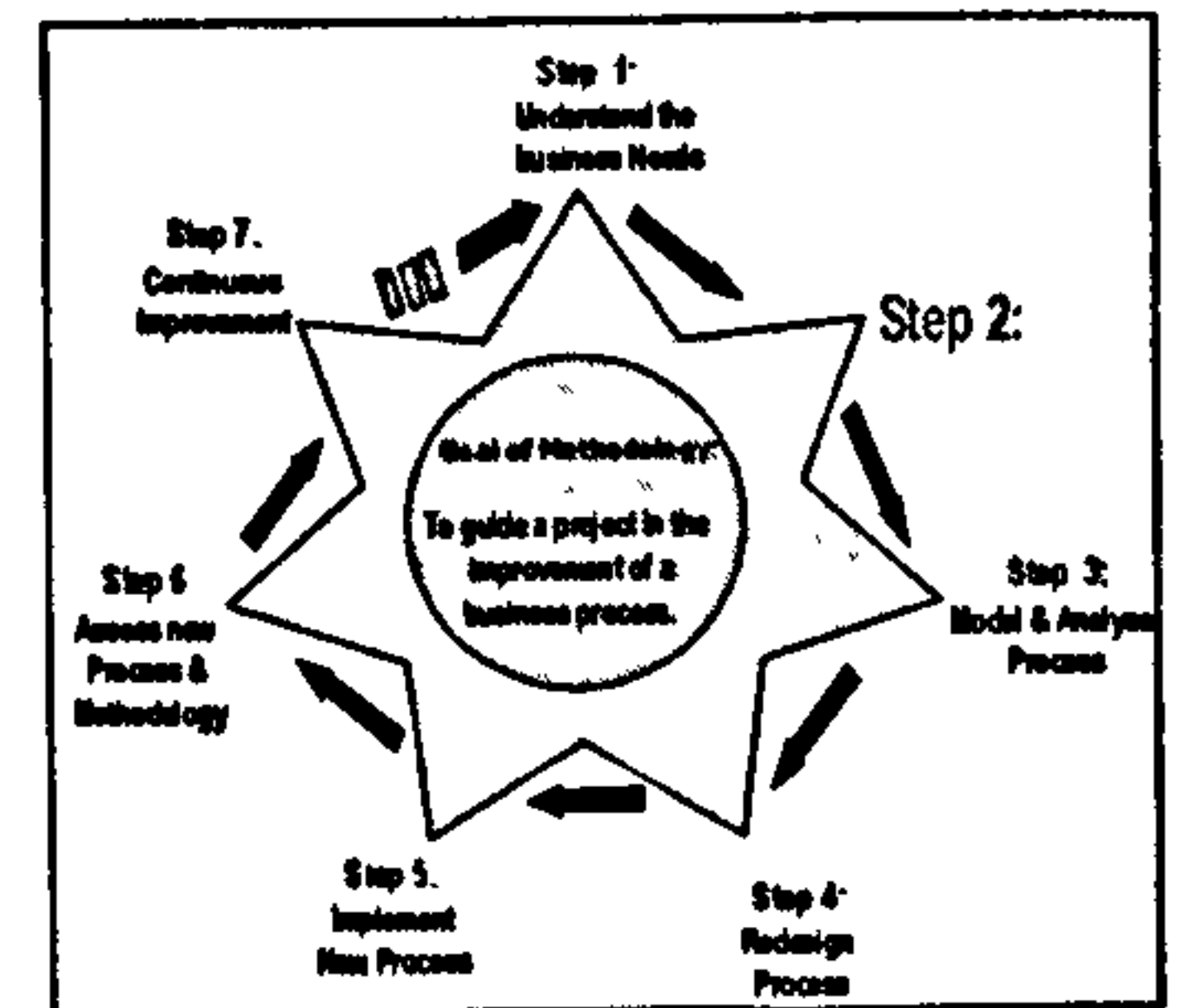
An assessment questionnaire is provided to help you record the key points, your experience and problems and lessons learnt of this step.

PROCESS MAP FOR STEP 2 UNDERSTAND THE PROCESS



STEP 2

Understand the Process



What process do you need to change or improve?

Introduction

You must understand your process before starting to improve it. The decision of what process to improve may turn out to be inappropriate at this time and may need to begin this step again to select another process. Use these questions to help you decide:

- What process do you want to improve?
- Why do you want to change this process?
- Will changing this process be sufficient of the business aims of the company?

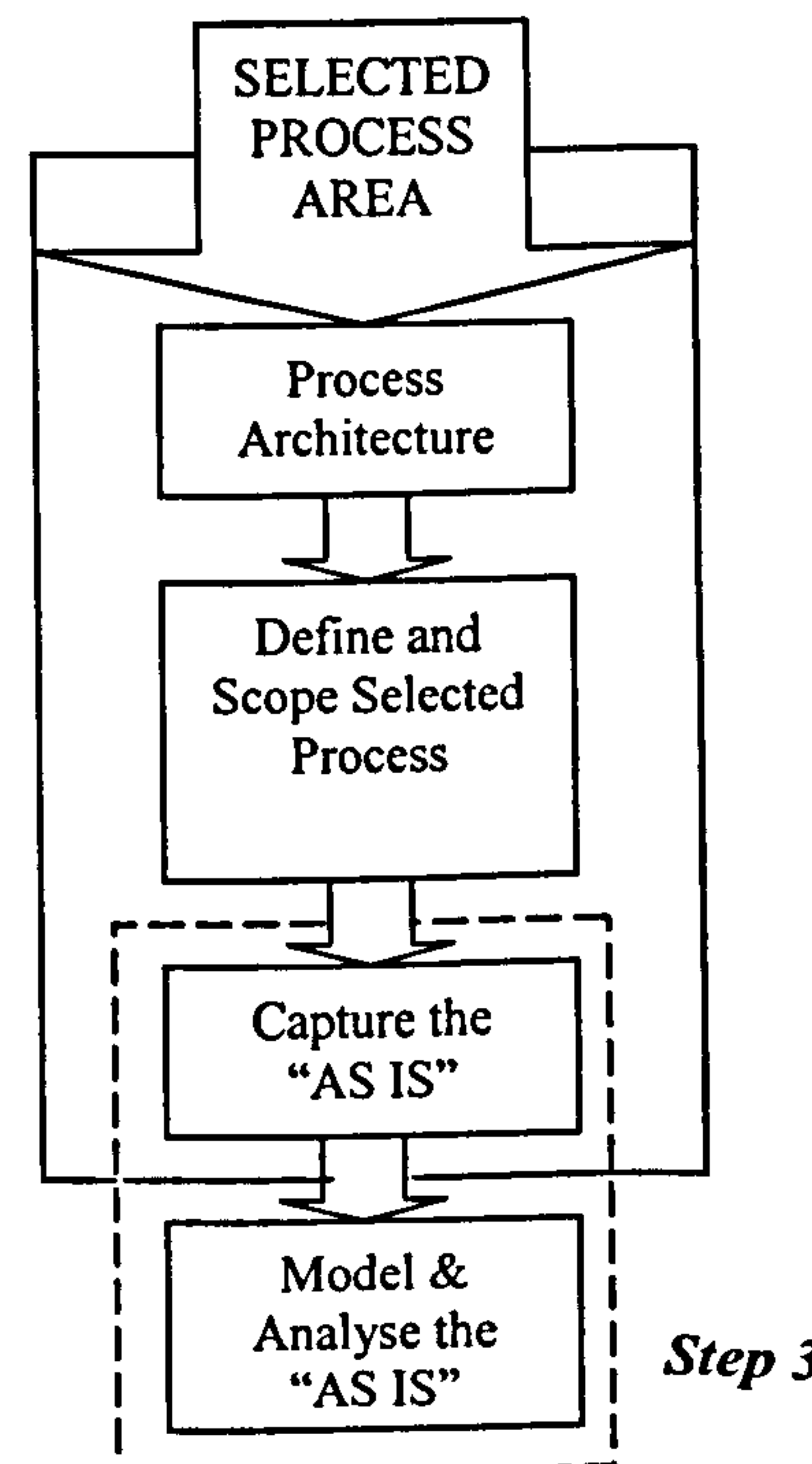
You should retain your findings.

- Review the BPI proposal
- Review readiness assessment results from Step 1

Benefits of completing this Step

It is important to identify a business process that will

- bring significant rewards and increased profitability;
- enable your organisation to become more competitive



Outcome/Gateway

By the end of this process familiarisation step you will have identified the process you want to tackle first by:

- examining the business process architecture
- defining the scope and establishing the boundary of the target process
- identifying the appropriate measures for your process

- identifying the people within the process
- translating existing documentation into an initial model

Relevant Tools and Techniques

Start this Step with a “kick off” workshop to refresh teams’ memory about what the process improvement activity is and what kind of thing the team will have to do in subsequent steps. At the kick off workshop members will learn about the BPI techniques and the BPI process selected.

Identify the Business Process Architecture

What is a Business Process?

Organisations may be described as departments or functions contained within a hierarchy. Example includes marketing and sales, manufacturing, personnel, finance etc.

Another way of looking at organisation is to describe the purpose and activities of the organisation as business processes. A business process view is where:

- is triggered by an external event;
- transforms inputs into outputs;
- cross functional and department boundaries;
- delivers products and services that meet customer expectations;
- has performance indicators for which measurable objectives can be set;
- communications, teamwork are improved within the organisation.

Aim

To determine the business processes that reflect on the organisation's approach to performing work and to provide proper business alignment. Create the high level view of the process to be used to make the offering and its decomposition into various elements. Define the boundaries with other processes.

Process Architecture is a high-level description of the process that captures the key aspects of the organisation's approach in a form that is understandable to customers and participants

Actions

How well do you understand the process to begin to change it?

To help you to define your business processes, you will need to consider the following:

- Identify 5 to 10 **core operational processes** that are vital to your business survival and bottom-line performance.
- Identify **support processes**- these are activities that enable the core process to happen. Examples include finance, human resource, information systems and facilities management.

- Identify your *management processes* – this includes goal setting, day-to-day planning, performance feedback, rewards and resource allocation to manage business processes.

Core Operational processes are primary activities that transform physical items into products and services, to fulfil an external customers 'requirements.

People Involved

Process Design Experts
Process Owners

Outcome/Exit Criteria

- High-level business process model established
- Common understanding of the processes defined

Checklists

- ? Have you identified major events and outcomes?
- ? Have you identified your CORE business processes?
- ? Have you identified customers/stakeholders interaction with your processes?

Relevant Tools and Techniques

Use *Process/ Business event analysis technique* to help you to map the high level inputs and outputs of the core operational process.

Hints and Tips

Time Required: Defining business processes can take several weeks depending on the scale of the project.

Match Business Process to Critical Success Factors – which processes to improve first?

Aim

To determine which processes are critical to the achievement of business objectives and to rank processes for business process change.

Actions

A subjective weighting system can be used to support the identification and selection of the most appropriate business process for improvement. The technique uses a point system that helps you assess the different options based on the importance to the overall business objectives.

People Involved

- Senior Managers
- Process Owners

Outcome/Gateway

- Critical Success Factors (CSF) defined
- Business Processes prioritised according to CSF

Relevant Tools and Techniques

BPI Objectives	Critical Success Factors (these will be decomposed further once the target process has been identified)
Improve customer satisfaction	Increase quality, reduce costs, reduce lead times
Increase market share	Improve delivery reliability and flexibility of deliveries

Process Prioritisation Matrix

Hints and Tips

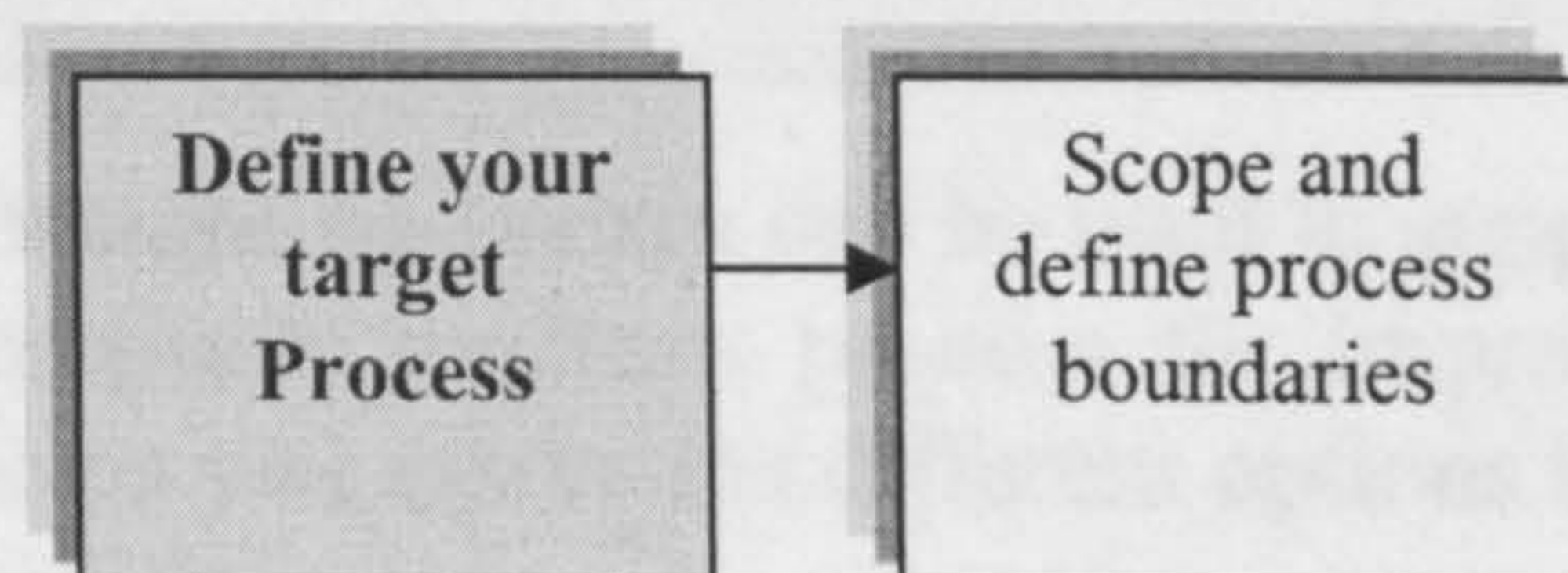
- The technique can be used interviews and workshops.
- Time Required: Allow 1 hour

Define and Scope the Target Process

Introduction

The purpose of this section is to understand what the existing process actually does so that the right improvements can be made and perceptions managed. This will provide the starting point for modelling your current process. This section looks at main areas:

1. Defining your selected process
2. Scope and define process boundaries



Define your target process

Aim

To establish and examine the boundaries of the selected business process, including constraints and inter-process relationships and to ensure focus is on critical areas.

Actions

People have processes, which are not explicitly stated. This workbook will enable you to focus on understanding these implicit processes. Use the process definition as a basis for seeking improvements and to communicate these improvements. To describe the process that will be modelled and analysed (in Step 3), the specific interfaces, inputs and outputs relevant to your business should be modelled.

Using the 'blackbox' example you can define your processes at the top level by identifying:

Identify Products and Services
 Identify Customer type and Stakeholders
 Identify Stakeholder Expectation
 Establish hand-overs

What do you
really provide
 around here?

Identify Products and Services of the Process

Action

Talk to Personnel in your organisation to identify 'real' product and service for specific process under review. E.g off site dining service

Identify External products/services

What is produced 'internally' (inside the process) and delivered 'externally' (outside the process). E.g meals, drinks, delivery

Identify Process Customer type and Stakeholders

Processes have value to stakeholders and customers and so it is important to deliver business objectives by tracking it back to customers' expectations.

1. List all the stakeholder types for the service and product, e.g. customers, suppliers, staff etc
2. Identify key customer types (current and potential) for your product/service process.
 - Internal Customers
 - External Customers

A **Customer Type Matrix** can be used to help you to identify which products and services are provided to each customer.

3. What do stakeholders expect from the product/service?

To help you to establish their needs and requirements, use Voice of the Customer Table (VOCT). This is the initial matrix to help organise the whats and show how it will be translated into the how requirements necessary to address the whats. This table will help you to capture the customer requirements for each group.

4. Analyse and Prioritise Stakeholders' expectations - Which of these expectations should you be focusing on?
 - How good is your organisation in delivering those expectations now and in future?
 - Need someone to manage the expectations even when it is not to be delivered on.
 - Plot the result

See Section 3 for Stakeholder Expectation Analysis Tool

People Involved

Facilitator
Process Expert
Process Users

Outcome/Gateway

Customers and stakeholders of the process identified
Expectations from customers identified
Product and Service of the process identified

Relevant Tools and Techniques

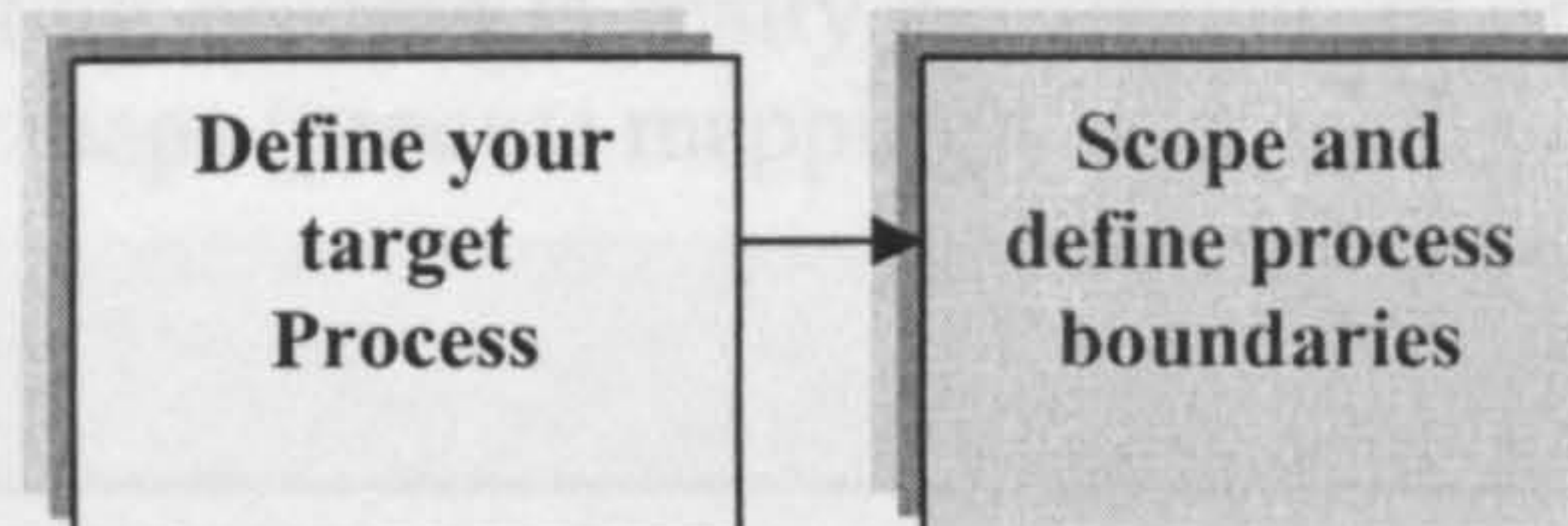
You may also want to try and use a systems approach to unravel your problem situation.

Hints and Tips

- Do not give a process a functional name
- Different approaches can be used to obtain customers' requirements.
 - Customer Surveys – time consuming
 - Interviews
 - Talk to individual that deals with those customers on a daily basis. Get internal
 - Get customers/stakeholders to verify it

Scope process boundaries to deliver expectations – Process Roadmap

Having identified and defined your process, you will now need to scope, define what is in and what is out and define all terms. This is the start of process mapping stages to help you further define and understand key processes and examine how they work together.



Aim

To obtain a manageable overall and top-level picture of the key processes, showing the complete chain of related activities within the business with the intention of satisfying customers' needs and expectations.

Actions

To create a top-level process and activity diagram:

- Draw a 'black box' diagram of the entire process
- Define the specific **outcomes/outputs** or deliverables of the process, focusing on the customer. Product/service/information which come out to satisfy customers. Operators
- Determine **the inputs** required to satisfy the customer – what you need to do the job; information and things that go into the process; customer's needs and expectations. Goals and objectives.
- Identify **process entry criteria** - the business event or trigger needed before the process can be started. E.g staff request for training.
- Define the interfaces that connect the process to the rest of the operations.
- List the major **activities** in the process, in terms of the work that must be done to achieve the desired outputs, no more than seven activities
- Chart top-down major activities showing how they relate to each other.

Using the example shown for reference, complete the template in the Tools and Techniques section for the process that you identified earlier.

Template: Process Top Level Decomposition Map (Process Definition Map)

Identify department and people in the target process using *Process Deployment Matrix*.

Establish location of the department and stakeholders of the process.
Identify the hand-offs

People Involved

Process Experts
Process Sponsor
Process Users
Stakeholders

Outcome/Gateway

- Where process starts and ends determined
- What is included in the process identified
- Purpose of the process and activities stated
- High-level process map-flowcharts of the activities created
- Departments and Stakeholders involved identified
- Relationship between activities and department established

Relevant Tools and Techniques

- Process Definition Map
- Process Deployment Matrix.
- Consensus Workshop

Checklists

- ? Have you referred to project and business objectives, CSFs, and project plan to ensure boundaries are in scope.
- ? Have you checked scope is not too large for time allotted
- ? Have you determined the connections and relationships?

Hints and Tips

Look at manageable boundaries yet broad enough to understand interconnections to other processes or sub-processes.

If process scope is complex and difficult to define, use **IS/IS NOT technique** to determine if a customer is or is not part of the target process.

Capture the “AS IS” Process Information

Aim

To gather data and related information to establish an understanding (the ‘real’ picture) of how the existing process is really performed, in order to document the process in a set of models or maps (process mapping).

Actions

- What is needed before the data gathering can be started?
Compile lists of people to see.
- Decide whether you want to conduct individual or group interviews or both.
- Consider level of data detail required. If you choose a radical approach, the data collection can be kept to a minimum. If a small change approach is appropriate, a more detailed data collection will be required.

Facts about the process may be obtained in several ways:

- Read existing process documentation
- Observe the process in operation, if it already exists
- Using the initial high level process flow created above, talk to the “process experts” who possess the desired knowledge
- Ask “process experts” to bring it closer to reality

What information to record when capturing existing process?

- Draw a box with the sides of the box representing inputs and outcomes and the top representing guides and bottom representing resources (**IGOR**) with additional process elements to get a complete picture of a process.
- Create a baseline information file for all process data collected.

People Involved

- Process Owner
- Process Experts
- Lead Managers

Process Expert
is the person
actually doing
the work

- Change Agent/Facilitator
- Internal and External customers

Outcome/Gateway

- Enough process description obtained
- Experts starts to see their relationships in the map
- Overall process flow captured

Relevant Tools and Techniques

- Interviews (Individual, Group)
- XPat Workshop (Expert Process Capture and Analysis Technique)
- Observation
- Process Flowchart

Checklists

- ? How complete is the information?
- ? How recent is the information?
- ? Do you really understand what is being said?
- ? Is the level of detail appropriate for your purpose?
- ? Are there areas being omitted?
- ? Has this information being discussed with someone else?
- ? How important is this information?
- ? Are all side elements being discussed?
- ? Is the information fact or opinion?
- ? What supporting facts are being provided for the points discussed?

Hints and Tips

The following tips are there to help you gather relevant data and facilitate your interview process.

- You need enough detail to learn about the business environment in which the process operates to be able to achieve your overall business objectives.
- Process interviews and workshops are intensive and tiring; only attempt two in a day.
- Find the right process expertise

- Get the interview room set before the expert comes in
- Understand that people think and express themselves differently. Use white board, flipchart for people to express themselves.
- Keep all terminology definitions clear
- Call for assistance when needed
- Take permission from the expert to take notes
- Be aware that note-taking can inhibit the expert from talking freely
- Use two team members in each interview
- Avoid “yes” or “no” type questions
- Provide the expert time to think
- Watch for body language – find comfortable level
- Try to avoid outside distractions
- Keep all interview notes and rough process maps
- Record all questions asked by the expert
- Show interest in what the expert is saying
- Best to use XPat with one person, multiple users end up arguing with each other.
- Lasting no more than 2 hours with a short break
- If used for workshop, allocate 1 day with breaks
- Tape recording is the backbone of XPat
- Get experts to be active in giving both data, writing it on post it note and sticking it onto the brown paper
- Capture the overall process flow
- Note any problems, issues, concerns and opportunities
- Know how to roll the brown paper to avoid labels

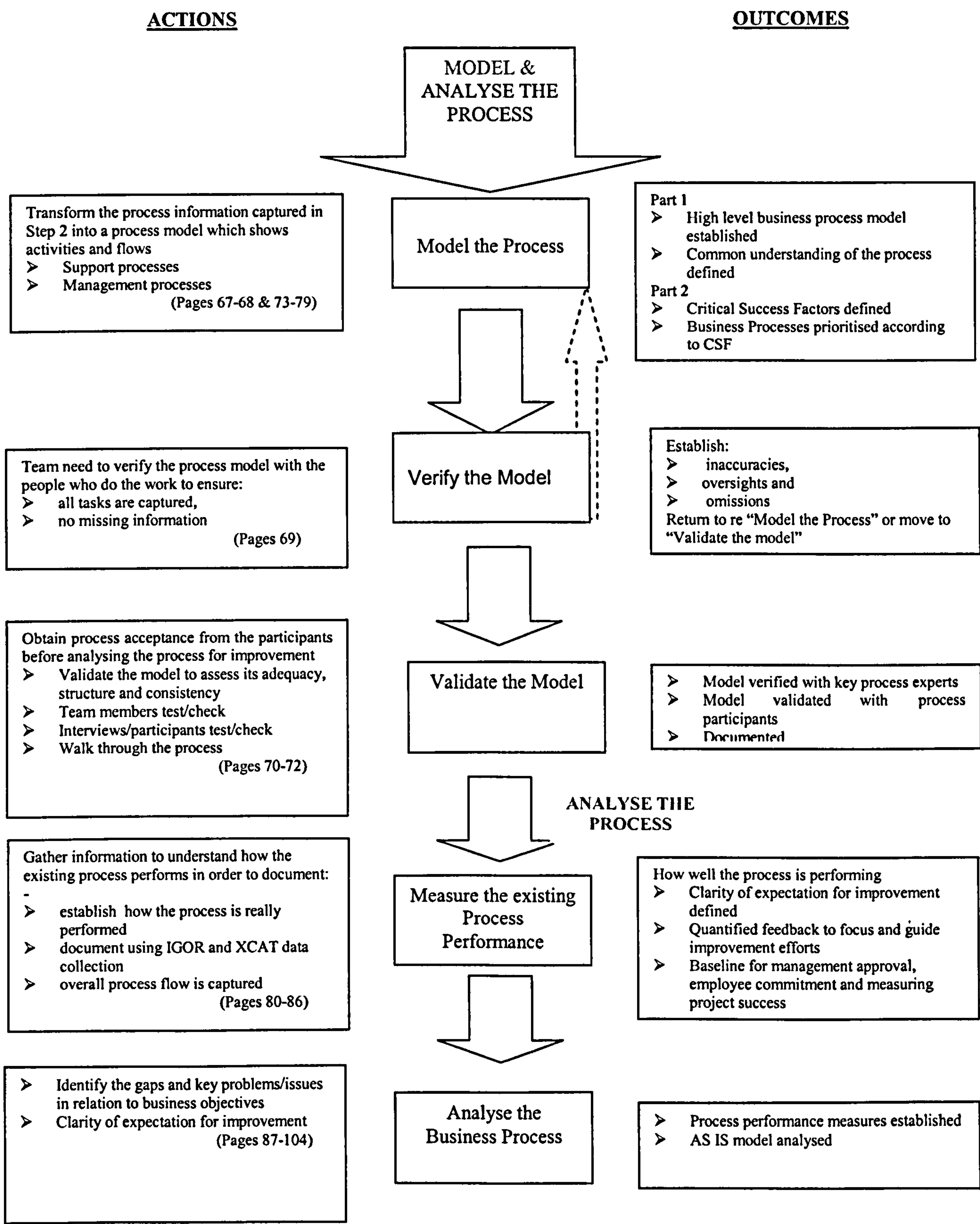
Step 2

Assessment

On completion of this step, you would have formed a basic understanding of the operations of the processes.

An assessment questionnaire is provided to help you record the key points your experience and problems and lessons learnt of this step.

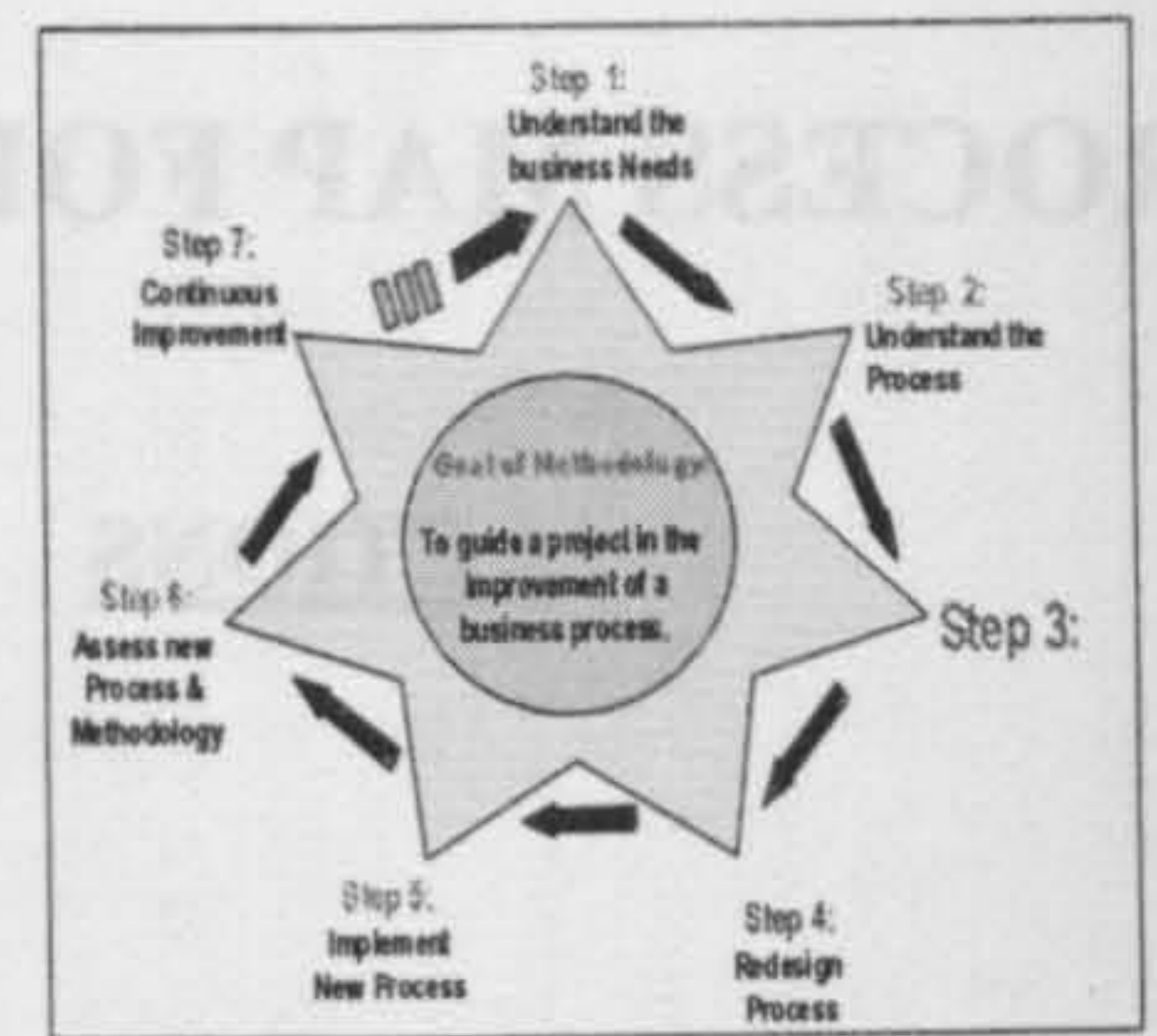
PROCESS MAP FOR STEP 3 MODEL AND ANALYSE THE PROCESS



STEP 3

Model and Analyse the target Process

Building business process models for your organisation.



Aim

To understand and reason about the process, to aid communication and analyse the process and provides a baseline for tracking ways in which the process may be improved or reengineered.

Actions

Modelling can, and should, be viewed at two levels. A top-level view can be used to understand and describe the activities of your business. Below that, processes can be modelled in more detail.

1. How radical or incremental do you wish your change to be?

An incremental process improvement needs a more detailed description of the 'as is' view of the business in order to analyse the effects of change.

A major breakthrough process improvement can ignore looking at the current process because they will probably be replaced or reorganised during redesign (step 4) and implementation (step 5).

2. Define the purpose of modelling the process?

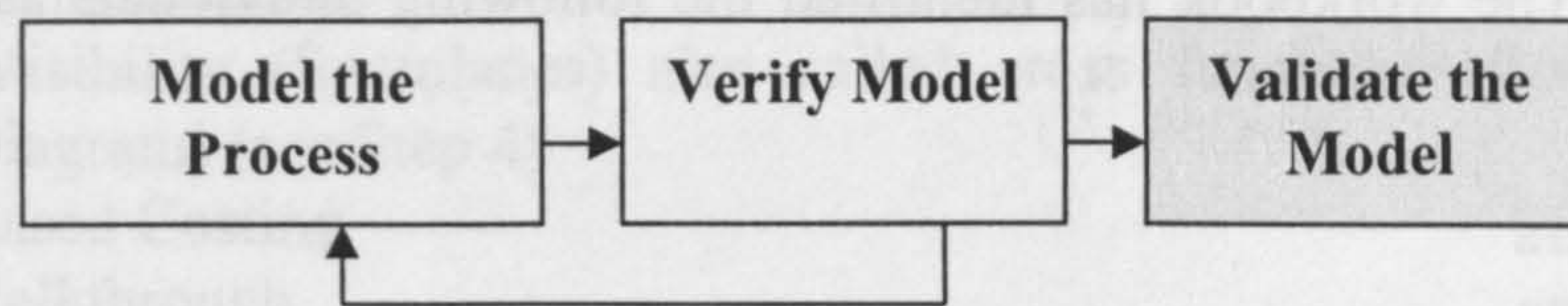
Before creating a process model, it is useful to define **the objective of modelling and the business process**, that is, linking modelling to process objectives set in Step 1.

3. Define the intended audience for the model?

5. Model the Process – transform the process information about your business captured

in Step 2 into a process model which shows activities and flows. There are a number of modelling techniques that can be used to represent your business processes. Each

captures a different aspect of a target process. Choose one or two from the 'Relevant tools and techniques' listed below and described in detail in Section 3.



5. Verify the Process Model

The modelling team need to review the process model as soon as possible with the people that do the work to ensure all tasks were captured, no missing information. Modelling experts need to check there are no notation discrepancies and the model complies with internal modelling standards.

Encourage them to look to inaccuracies, oversights and omissions.

If a new data is needed, you may need to go back and collect more data from the process experts in Step 2. Any missed information can be included on the next iteration of the Interview-Modelling –verification and validation cycle.

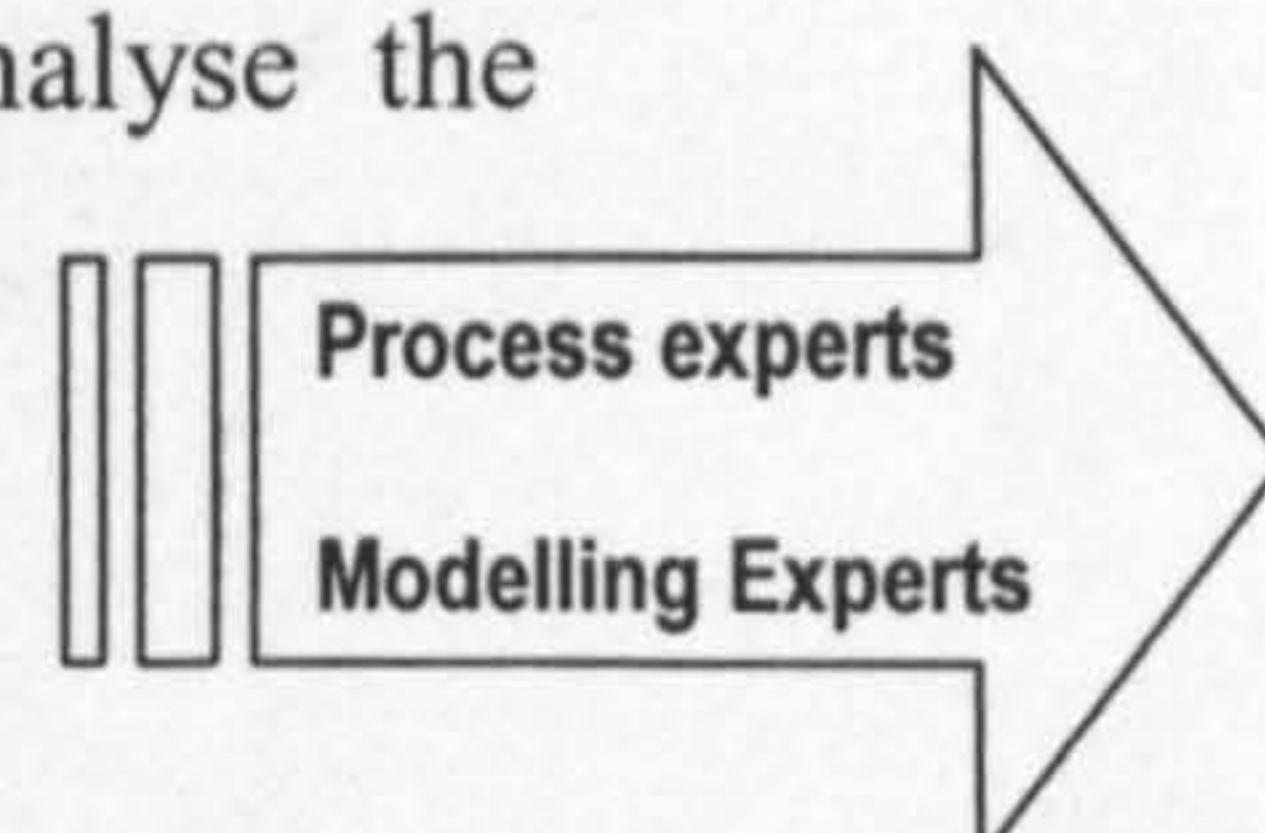
Use the review to revise and update the model.

6. Validation of the As Is Process Model

How can you tell if your model fits the process data?

Model validation is probably the most important step in the model building steps and also one of the most overlooked. The objective is to gain buy-in from process participants.

- Validation tests the satisfaction of model requirements
- Validate model to assess its adequacy, structure and consistency
- Run validation workshops.
- Invite the interviewees
- Team members participate
- Walk through the process
- Focus on the flow, disconnects
- Adds, changes and deletes
- Use facilitators
- Get people to attend workshop on time
- Schedule in advance and lasting no more than 1 day
- Obtain process acceptance from the participants before starting to analyse the process for improvement.



People Involved

It is important to keep in mind the intended audience and people that will carry out the modelling itself. The workbook has identified the following individuals as part of the modelling team.

- Process Owners
- Process Experts
- Internal Facilitator
- Process Review team
- Modelling Specialists

Participation is required from all affected individuals. A much more efficient way of working is to get as many people to do the actual modelling their processes as possible. This is beneficial to the business in that:

- It reduces costly time and effort required of outside process engineers.
- Increases participant awareness of process
- Transfers of process engineering skills to process participants, leading to an increased ability of team to reengineer their own processes.
- Increases buy-in by staff
- Increases commitment to their own process from participants

Outcome/Gateway

- Process Modelling objectives determined
- AS IS model showing how the business operates created
- Model verified with key process experts
- Model validated with process participants
- XPat and IDEF0 documented

Checklists

- How much detail is required?
- What is the minimum cost that can be spent on process mapping to obtain the required details?
- Have you decided on the technique and mapping notation to use?
- Have you documented user suggestions and concerns?

Relevant Tools and Techniques

1. Process Flowcharting
2. IDEF⁰ activity diagram
3. Line of Visibility (Swimlanes) also called cross functional flow charts (Role Activity Diagram) (see Step 4)
4. Activity Based Costing
5. Process Walkthrough

Hints and Tips

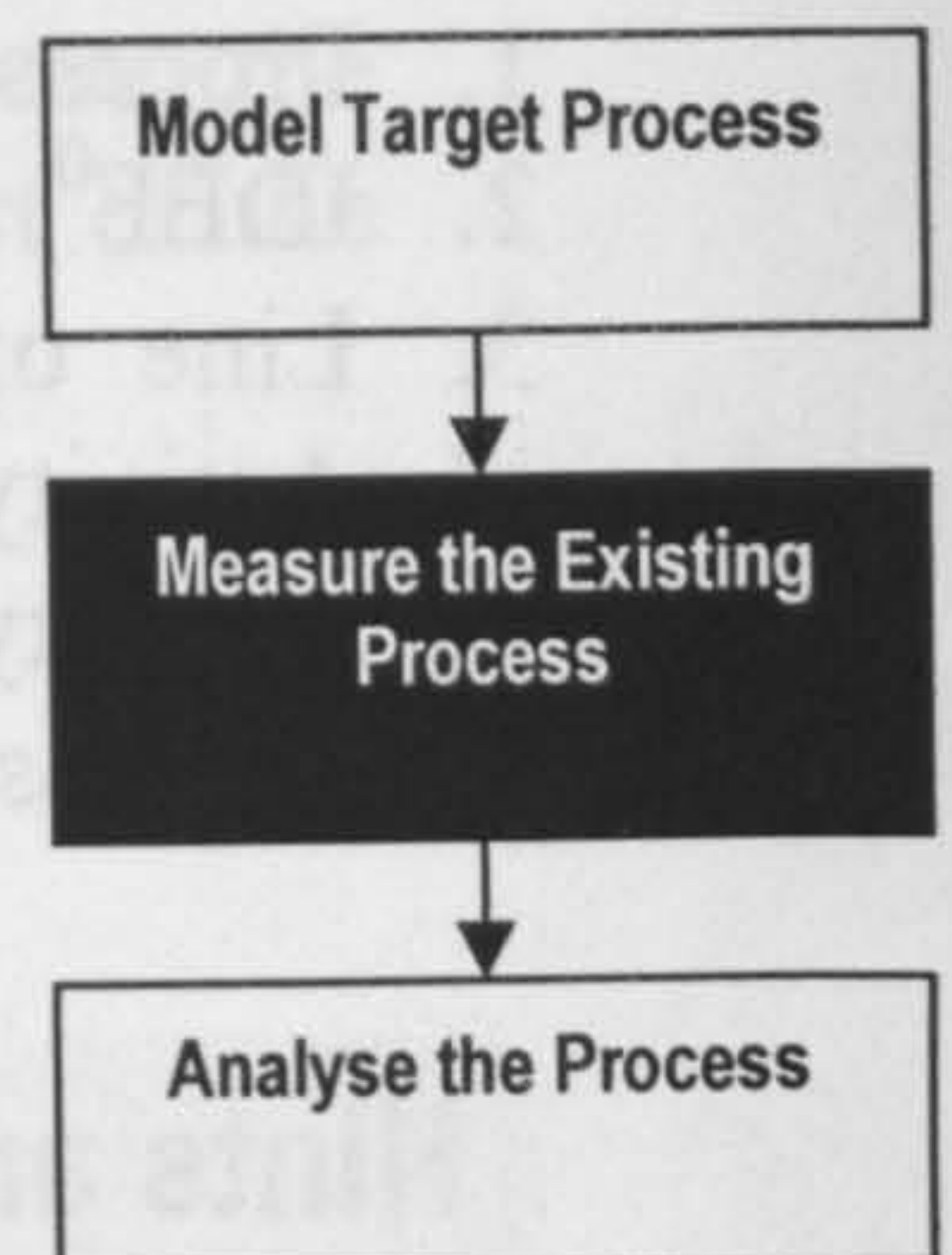
1. The objective of the model will influence the choice of modelling technique.
2. Choose a modelling technique that reflects the natural language of your organisation for ease of understanding.
3. It is people, not computers, who innovate
4. If the details are not of interests to the intended audience then it is time to stop.
5. "Micro-mapping" requires much more details than "macro-mapping" and the cost is higher.
6. A well-drawn process model does not imply completeness or accuracy. DON'T try and build a COMPLETE model.
7. A well-drawn process map is not necessarily a good process design.
8. Keep it as simple as possible
9. Consider the people side, the roles they will carry out as well as the skills and behaviours.
10. 'Hand-offs' can reveal risks within the process and areas for further investigation.
11. Delivery: Validation and Analysis of Process Model should be conducted through a workshop. Depending on the scale of your models, this should last no more than a day with breaks in between.
12. Timing of Modelling – up to 2 weeks depending on the scale of process.
13. Performing more process mapping to obtain more details would result in more expense – be cost cautious.
14. Train the team together on modelling to develop expertise

Measure the Existing Process Performance

Aim

To determine the appropriate measures for the chosen aspects and steps and to provide a baseline for incentives after process change. Measurement is a real basis for communication.

Actions



A set of performance measures for the target process may have been developed. These measures need to give information of your business process and be applied to measure how well it is doing.

1. Use project objectives and key performance indicators to identify appropriate detailed measures.

The following is an example of some typical performance measures:

Project Objectives	Measurement Description	KPI
Delivery time	Improve delivery from 50% to 95%	On time delivery? Against schedule?
Project Delivery	Improve delivery to schedule	Is project delivered correctly and on time to the schedule?
Customer Satisfaction	Reduce number of complaints by 50%	Look for number of complaints (%)
Labour cost	Reduce labour cost by 50%	Look for cost of direct labour hours per activity
Quality	Improve training by 20%	Look for type of training given of each activity
Cost	Reduce training cost by 40%	Look for number of staff sent on training frequently

You should have a set of measures that were developed from the Project Measures and business objectives (in Step 1).

For a major change, measure at a high level. For a small, incremental change, measure at detailed level.

You may want to use **Process Performance Table** to help you identify appropriate process measures.

2. Gather measurement information to support the KPIs

- 3. Using the process map, mark the model with measures that you intend to make. Figures marked on the model can be used for costing the process/activity.
- 4. Summarise the measurement information using this example as a guide.

Example: Process Measurement Allocation Matrix

Activity	Measures	Source of data	Responsibility to collect data	Results	Comments
Cancellation Process	Number of Cancellations	Training Booking record	Training & Dev Co-ordinator	10%	
	Success in finding a substitute	Email	T & D Co-ordinator	40%	
	Number of changes given to provider	Training booking record	T & D Co-ordinator	20%	
	Additional charges	Invoice	Finance	5%	Check Invoice paid

This example shows 4 performance measures developed to monitor/show improvement in the ‘Cancellation Process’. The matrix shows the actual measures and provides information to ensure it is clear who measures, how the measures are calculated and who takes action. Results are included periodically to show improvement or needs for improvement.

Outcome/Gateway

- Clarity of expectation for improvement defined
- Quantified feedback to focus and guide improvement efforts
- Baseline for management approval, employee commitment and measuring project success.

Checklists



Are indicators identified?

? Are process performance measures related to the process objectives?

Relevant Tools and Techniques

- Annotated Process Maps
- Process Performance Table

- Process Measurement Allocation Matrix
- Activity Based Costing

Hints and Tips

- Establish measurements and targets for the overall process
- Measuring too much becomes unwieldy, stick to a critical few for the total process
- Process measures must be directly related to business objectives and performance measures.
- Look for simple, easily understood, timely and visible measures

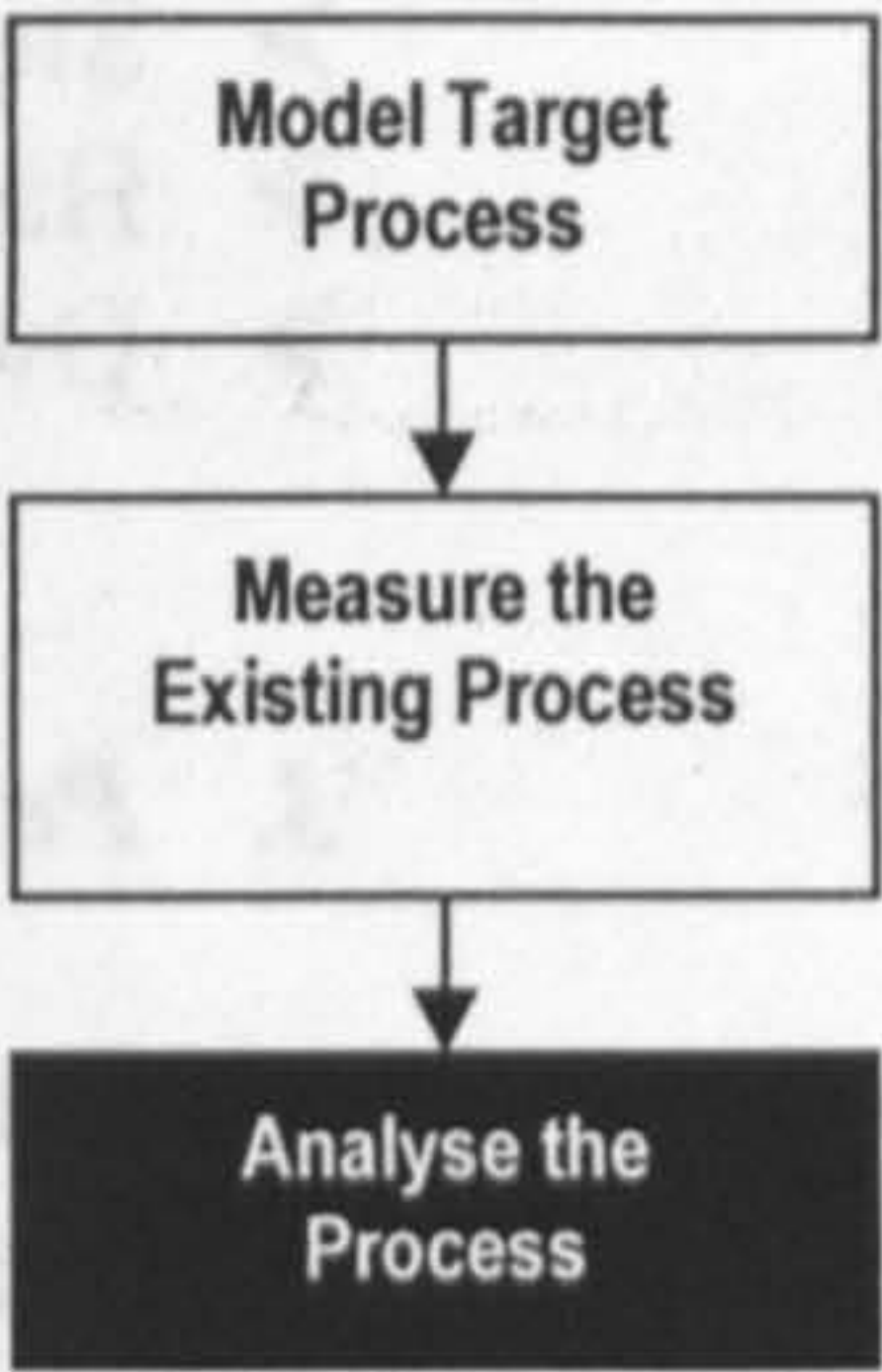
Analyse the Business Process

Once you have collected relevant process data, modelled your process, and know how well the process is performing, it is important to analyse the process bearing in mind the business objectives set. This will provide a list of prioritised issues to consider when redesigning your process (Step 4 of this workbook).

Aim

The purpose of process analysis is to identify weaknesses in the current model and to find the "real" areas to improve.

Actions



1. For each activity in your process model:

- Identify the gaps and key problems/issues in relation to the business objectives using the information collected during the process capture and modelling activities.

Use the matrix example below to structure the analysis by:

- Conducting meetings with team leaders involved in each activity to deal with key issues and problems
- Collating information relating to people gathered earlier.

Target Process: Cancellation Process					
Activity	Resource (Information Technology)	People	Risk	Problems	Current Performance
Cancel Training Event	Telephone communication	Training Co-ordinators	High if no substitute found, cost incurred	Cancellation not received	2% of direct labour 1 day late (average)
	Fax	Training Providers			
		Staff			

This matrix brings together the details provided from talking to people working on the process and identifying key IT issues and risks, the problems and performance in terms of percentage of direct labour and number of late days.

2. For each activity in your process model, note the following symptoms:

- High resource utilization or costs
- Delays, queues

- Resource shortages to do the work
- Over or under control
- Excessive time and resource consumption
- Important or critical activities
- Steps conducted repeatedly and performed redundantly e.g constant checking of forms.
- Sequential tasks, which can be overlapped or made parallel when information is shared.
- Steps that need to involve the right people
- Hand-overs to the wrong interfacing step
- Overlapping responsibility and authority

3. *Perform cause and effect analysis*

The objective is to determine the causes or effects of the problems in the processes by asking for each problem: "does this problem or issue cause any of the other issues?"

The *cause and effect matrix* will help you to concentrate on finding causes rather than the effects. (see Tools in the Appendix)

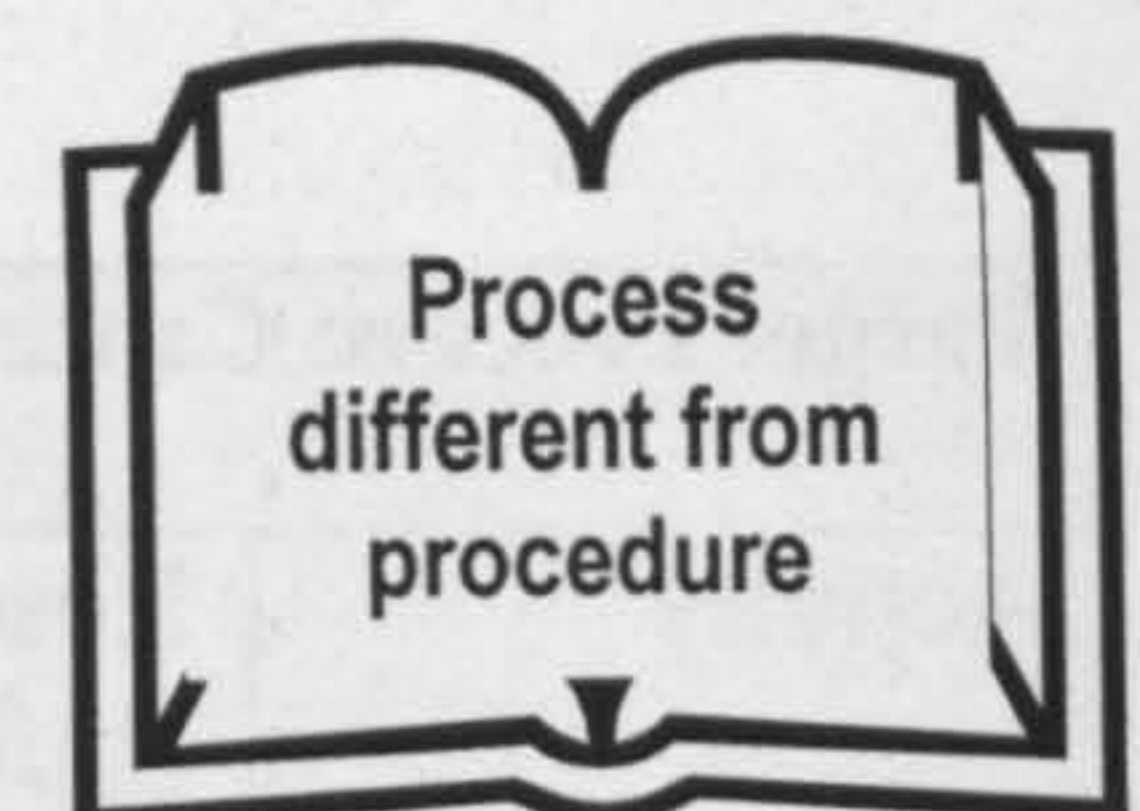
4. *Perform Value Added Analysis*

Use the *Value Added Analysis technique* to help you to identify activities which serve no purpose, have low or negative value

Is this a process that your customer will pay for? Is it worth doing the activity?

5. *Examine measures to identify:*

- Resource down time
- Excessive process elapsed and working time
- Excessive wait times
- Queues building at a step
- Low or negative value -add



6. *Identify evaluation criteria for quick wins*

- Find processes you can improve quickly to find a change in the process that requires little thought or testing
- A quick win is a way to build credibility for the project, ensure positive reaction from management.
- It may that you want to realise the immediate effort or promote buy-in using ideas gathered.

Use the table below to assist.

Idea	Redesign Process	Quick Win
Number of business units impacted	Many	Few
Time to implement	Long	Short
	Possibly	Certainly
Budget Available	Many	Few
Resources affected	High	Low
Risk	Lower	High
Expected mgmt support	Significant	Little
Expected staff resistance	Team	Process Operator
Source of idea		

- Major deliverable: New or Improved Process Steps
- Quick Win only last until new solution is implemented (temporary)
- Communicate the change to all areas affected
- Conduct any special training necessary
- Measure before and after the change
- Monitor the change
- Always maintain a baseline As-Is Model
- Quick Wins should not take more than weeks or days to implement
- Sell the Success!!

People Involved

- Facilitators
- Process Experts
- Customers

Outcomes/Gateway

- Process performance measures established
- AS IS model analysed

Relevant Tools and Techniques

- Cause and Effect Analysis
- Value Added Analysis
- Force- Field Analysis

Hints and Tips

- Anticipate resistance to change/reliance on old methods
- Observe it all
- Don't get mired in the detail
- Quick Wins should be quick and early
- Understand this is a process problem not people - be careful

STEP 3

Assessment

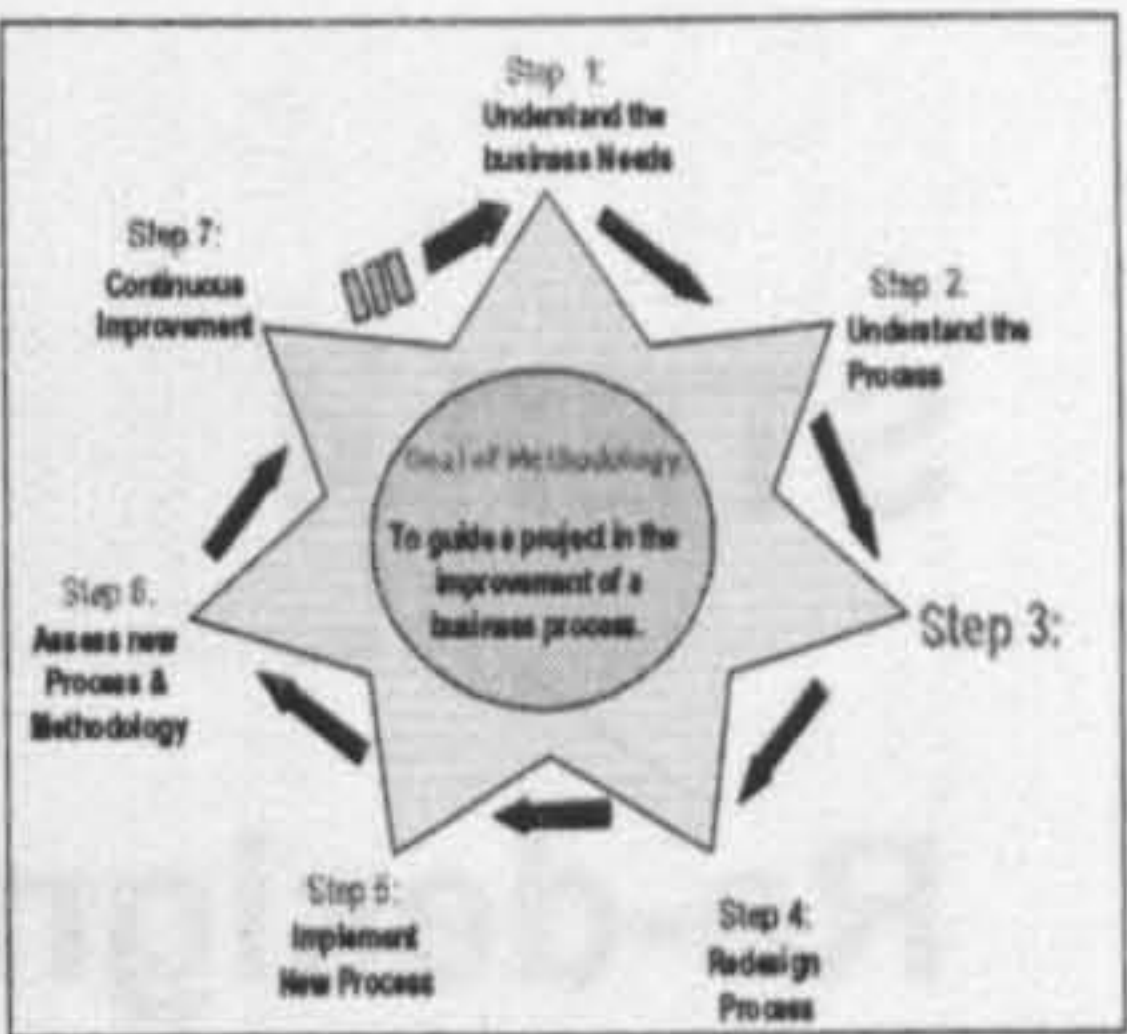
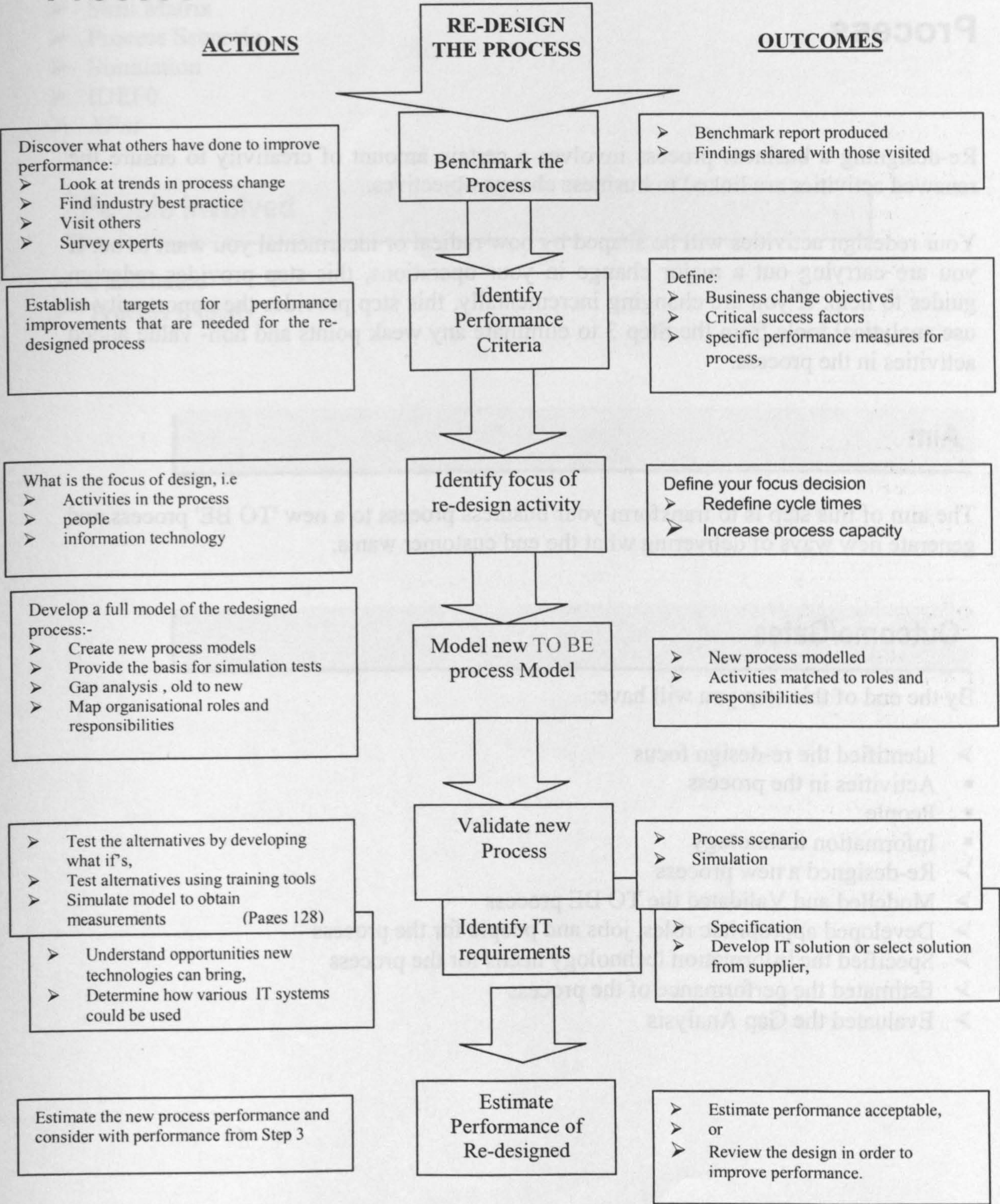
Summary

On completion of this step, you will have modelled and the analysed the target processes and identified areas for quick wins.

An assessment questionnaire is provided to help you record the key points your experience and problems and lessons learnt of this step.

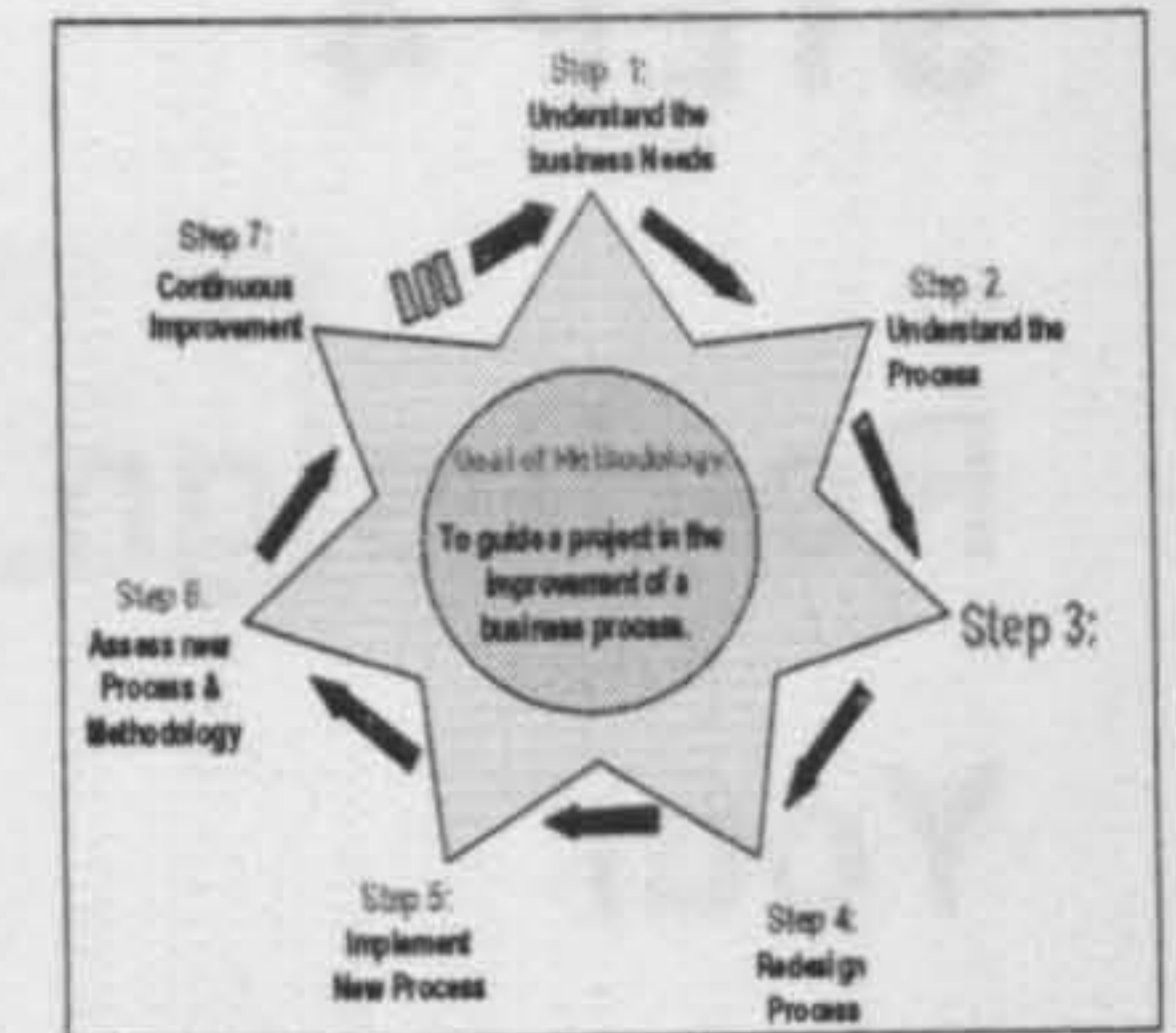
STEP 4

Re-design
Your
Process



STEP 4

Re-design Your Process



Re-designing a business process involves a certain amount of creativity to ensure the renewed activities are linked to business change objectives.

Your redesign activities will be shaped by how radical or incremental you want to be. If you are carrying out a major change in your operations, this step provides redesign guides to help. If you are changing incrementally, this step provides the opportunity to use analytical tools from the Step 3 to eliminate any weak points and non-value added activities in the process.

Aim

The aim of this step is to transform your business process to a new 'TO BE' process and generate new ways of delivering what the end customer wants.

Outcome/Gates

By the end of this step you will have:

- Identified the re-design focus
 - Activities in the process
 - People
 - Information technology
- Re-designed a new process
- Modelled and Validated the TO BE process
- Developed appropriate roles, jobs and people for the process
- Specified the information technology needs for the process
- Estimated the performance of the process
- Evaluated the Gap Analysis

Relevant Tools and Techniques

- Internal and External Best Practice
- Creative Thinking Exercises
- Facilitated Brainstorming Workshops
- Affinity Diagram
- Skill Matrix
- Process Scenario
- Simulation
- IDEF0
- XPat

People Involved

- Facilitators
- Process Experts

Benchmark Processes

Aim

To discover what others have done to improve performance in the process of interest and to create new ideas based upon innovative insights learnt from others.

Actions

1. Look at trends in business process change
2. Visit other companies
3. Conduct internal best practice
4. Find same industry best practice
5. Conduct same process but with different industry best practice
6. Attend industry events
7. Survey Experts
8. Survey leading customer users in search of excellence

Outcomes/Gates

- Benchmarking report produced
- Findings shared with those visited
- Staff get excited and motivated

Relevant Tools and Techniques

- Best Practice

Identify Performance Criteria for Re-design Process

Aim

Establish targets for the performance improvements that are needed for the re-designed process.

Actions

Before setting measures, you need to do the following:

1. Clarify purpose of the TO BE business process - what is the purpose of the new process?
2. Clarify business change objectives, e.g. improve customer satisfaction, improve market share, increase dividends to shareholders
3. Clarify the critical success factors? E.g increase quality, improve delivery time, reduce operational cost.
4. Define specific performance measures for process e.g. products delivered correctly and on time.
5. Consideration should be given to the following when setting targets:
 - The current performance level of the AS IS process
 - The current performance of your competitors
 - The performance requirements of the market in which you operate
 - The capability and resources available to redesign and implement
6. Record the measures and any supporting information by using the template below.

Hints and Tips

- Refer to project and business objectives

Process to be re-designed:
Process Purpose:
Business Change Objectives:
Critical Success Factors:
Performance Measures:
Target:
Information:

Identify focus of re-design activity

Aim

What is the focus of redesign? You may want to redesign around your activities in the process, people or information technology. Your redesign team will need to decide which of the three issues to review, but whatever you choose, the other issues will also need to be dealt with to complete your re-design work.

Using the AS IS model, your judgement and measures, ask yourself:

Is it appropriate to focus your re-design effort around IT, roles (people) or activities?
Make a decision with the team.

Record your focus decision below:

<p>ACTIVITIES, PEOPLE, INFORMATION TECHNOLOGY</p>	<p>Decision Point</p>
<p>Estimate the measures of system performance using ACAT technique</p> <p>Go ahead with the project if the number of activities and hand-overs is less than 100</p> <p>Compare AS IS and TO BE Model for Gap Analysis</p> <p>Document Deliverables</p> <p>Join Organizational Process Framework (OPF)</p>	

Redesign around activities in the process

Whether you want to replace the whole process, radically change the process, replacing some part of it, or incrementally improving the performance of the current process, it is likely that you will need to repeat some of the things to look for in the analysis section in Step 3.

Actions

If you are taking an incremental approach and using the AS IS model as baseline, it is necessary to ask the following questions for each activity in the AS IS process.

Q.1. Is each operation necessary?

1. Does this activity contribute to strategic objectives?
2. Would the customer be concerned if you didn't do it?
3. Is the activity duplicated anywhere else in the process?
4. Does the activity produce anything which is not used (waste)?
5. Does the activity check someone else's work?
6. How many checks are needed? (how many sign offs?)
7. Can the customer perform any of the activities?

Q.2. Can activities be combined (joined/merged) by redesigning the work to reduce the number of activities and hand-overs?

Q.3. Can the activities be performed in parallel?

Outcome/Gates

Having identified improvement opportunities, eliminated actual or potential errors and rework procedures and simplified activities, this may lead to:

- Reducing cycle times;
- Increasing process capacity

Relevant Tools and Techniques

- Facilitated brainstorming workshop
- Affinity Diagram
- Creative Thinking workshop

Model new TO BE Process Model

Aim

- To update the models produced in the AS IS model
- To create new process models
- To provide the basis for simulation tests

Actions

After the focus on the activities, it is important to develop a full model of the re-designed process. This ensures that all affected individuals are aware of the new process.

1. State the purpose of the TO BE process
2. Develop high level 'TO BE' diagram using the template.
 - Decompose new process into 3-7 desired sub processes
 - Estimate the measures, time, cost, resource utilisation, and risk at the lower level using XCAT technique.
 - Get agreement on the proposed models in workshops until it is clear what the entire new process will do
 - Determine potential roles and responsibilities
3. Compare AS IS and TO BE Models (this is Gap Analysis)
4. Document Differences
5. Map Organisational Roles and Responsibilities (**swimlanes**)

Role	Ministers	DSS Policy	BDB	BMB/Projects
Process				
Define Policy Objectives	A			
Identify & Evaluate Options		R		
Communicate Objectives		R		
Impact plans			R	
Establish Delivery methods				R

Responsibility Matrix

W - Works on
 A - Accepts/ Approves
 R - Is Responsible
 E - Has Expertise

6. Invite all stakeholders in the process to view the process
7. If necessary redesign process again to resolve issues and problems

Outcomes/Gates

- New process modelled
- Activities matched to roles and responsibilities

Relevant Tools and Techniques

- IDEF0 Mapping Technique
- XPat mapping technique
- Responsibility Matrix
- Swimlanes (Role Activity Diagram)
- Integrated modelling software

Hints and Tips

- Use the same XPat names from the AS IS where possible, it will highlight the similarities and differences.
- Get people involved in doing the modelling

Validate New Process Model

Aim

- To improve understanding and communication and overcome resistance to change
- To get buy-in to the new process design through models of performance.
- To assist in selling the idea to organisation
- To prove change is appropriate

Actions

Once you have redesigned your process, you need to validate with the process owners for reality checking.

1. Test the alternatives by developing process scenario (what if).
2. Test the alternatives using scenarios with the support of prototypes, e.g a change management tool, a training tool
3. Simulate models to obtain measurements to validate process performance

Identify Information Technology Requirements

Having considered your process needs, you may feel that redesigning around information technology will provide a suitable solution in achieving your business goals.

Equally, once you have re-designed your new process, you may want to understand the opportunities new technologies can bring to your new business process and to determine how the various IT systems could be used to automate the workflow in order to eliminate previous process constraints.

Approach:

1. Specification requirements for your IT by asking
 - What do you want the IT to manage or support;
 - What activities or people do you want your IT to manage or support?
2. Develop IT solution or select solution from supplier

Whichever you select, the use of software may generate need to **train** staff

Estimate Performance of Your Re-designed process

- Estimate the performance of the proposed process and activities within it in line with the performance measures set in Step 3. This will give some indication as to whether the process will meet the targets set for it.

Gather the experts on the process to make
an informed estimate

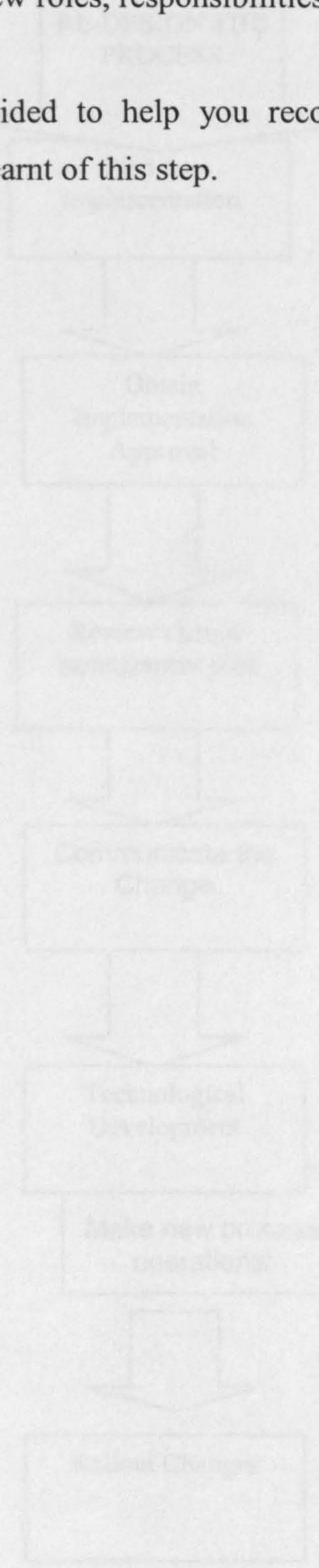
- Review if the estimated performances are acceptable. If unacceptable, review the redesign in order to improve performance.

Step 4

Assessment

On completion of this step, you will have designed, validated and set performance target for the new process and also allocate new roles, responsibilities and IT requirements.

An assessment questionnaire is provided to help you record the key points your experience and problems and lessons learnt of this step.

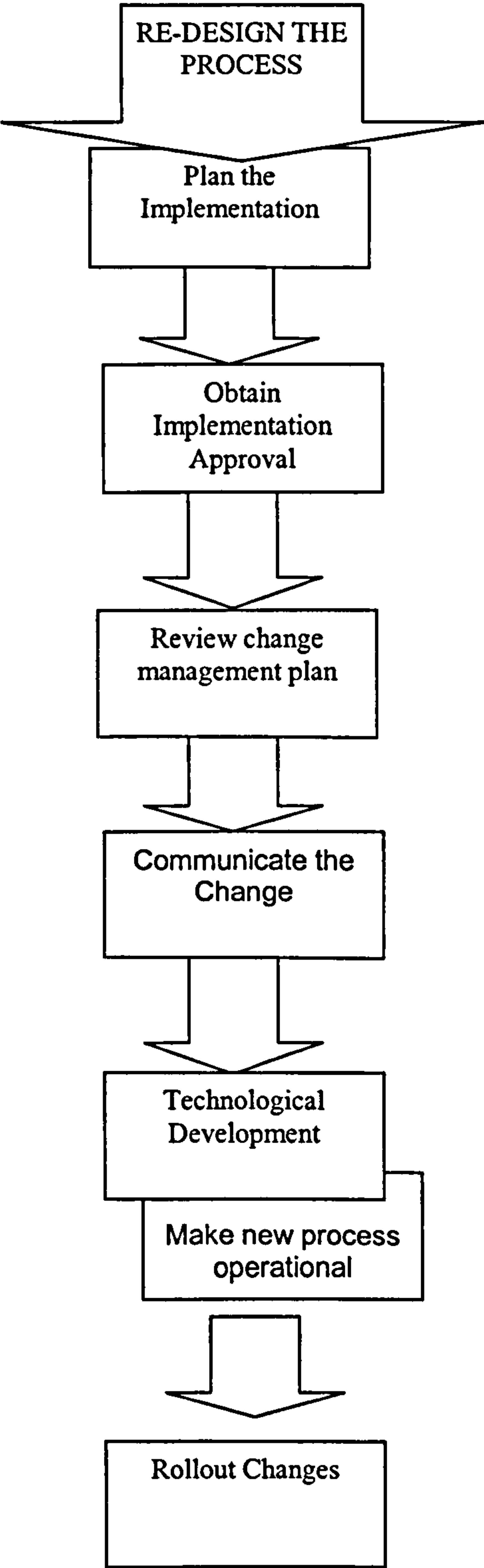


STEP 5

Implement New Process

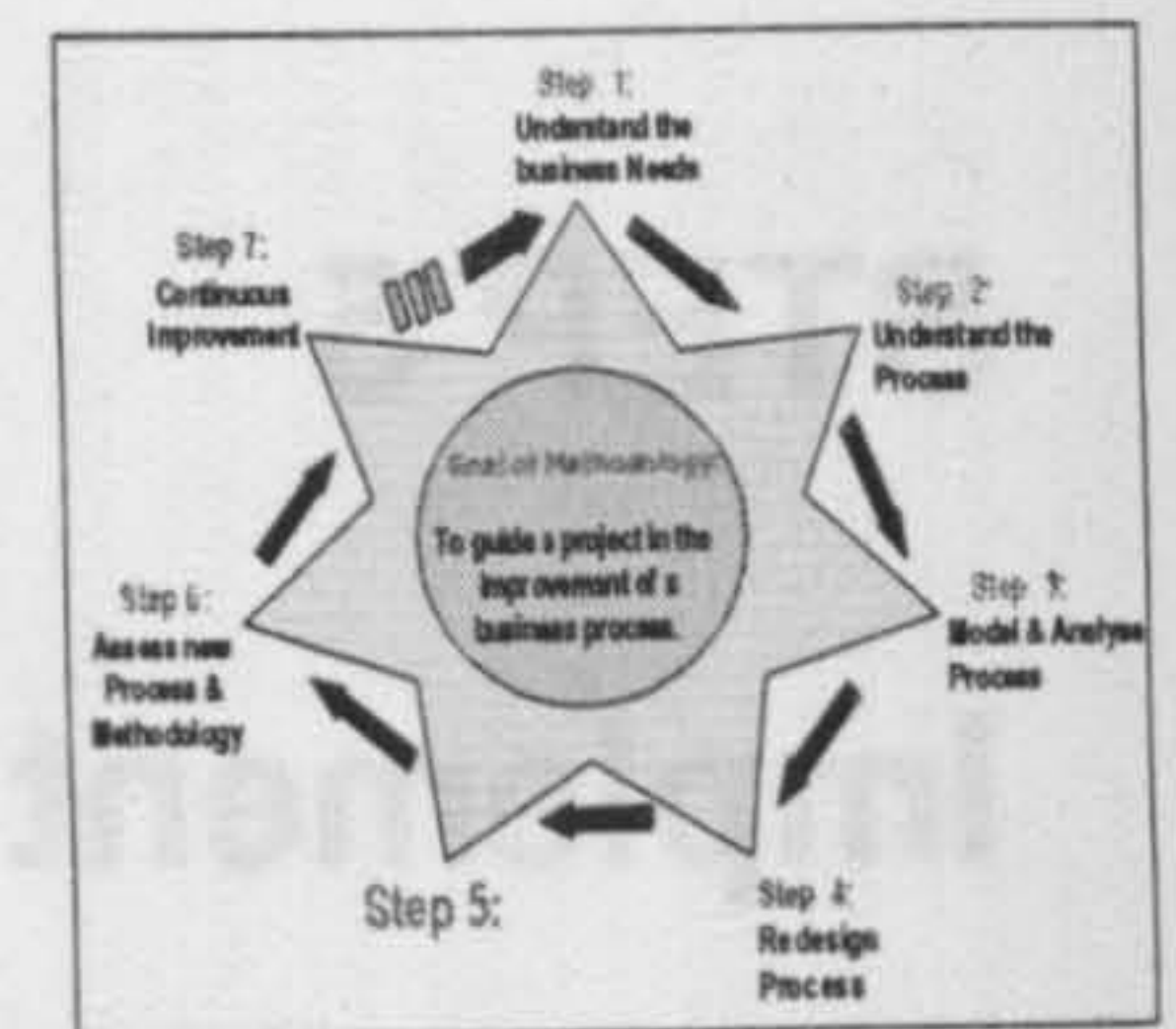
The flow map for implementing the Implement the revised or new process design is as follows.

ACTIONS



STEP 5

Implement New Process



Implementation is all about action. The Implementation step is where the new or revised processes are developed, put into practice, and deplored across the organisation. The step enables your to implement the changes to your business processes identified in this workbook or by other means. It provides you with the structure needed. Figure sets a pictorial representation of the tasks associated with the Implementation step of the MIPIM model.

Aim

To plan and manage the deployment of the new process.

Actions

1. Plan the Implementation	To develop a realistic plan for implementing the blueprint	<ul style="list-style-type: none"> Identify the implementation activities to be carried out in terms of: action, owner, resource, start and finish date Identify time scales for implementation Consider changeover approach from your current (AS IS) process to your new (TO BE) process.
➤ Prepare and conduct for the implementation planning session		<ul style="list-style-type: none"> Assign responsibilities to Process owner, Team Leader, Facilitator and process team, System Analysts. Identify concerns and issues Consider additional resources required.
➤ Identify team and additional resource required for implementation		
➤ Document and validate the implementation plan		
2. Obtain Implementation Approval	To get funding and resources to begin blueprint implementation	
➤ Develop the approval		

strategy		
➤ Ask for Approval		
3. Review change management plan		<ul style="list-style-type: none"> ➤ Educate Management ➤ Train Staff ➤ Design new procedures ➤ Organisation structure ➤ Job positions & staffing requirements ➤ Reward and recognition Measurement system
4. Communicate the Change		•
5. Technological Development	To ensure the IT solution used to support the new process is fully implemented to the organisation's requirements.	<ul style="list-style-type: none"> • Set up and configure hardware. • Install software • Identify contingencies for upgrades • Carry out operational tests • Train users • Change over the system • Check & log user problems. Address any problems
6. Make new process operational (pilot)	To prove the viability of the designed solution and determine areas for fine tuning.	<ul style="list-style-type: none"> ➤ Identify potential field trial projects ➤ Select pilot project team ➤ Test and monitor ➤ Validate pilot result ➤ Capture lessons learned from pilot
7. Rollout Changes		<ul style="list-style-type: none"> ➤ Switch over to new process ➤ Provide support for people in the process ➤ Provide support for IT ➤ Celebrate Success ➤ Monitor Progress

Outcomes/Gates

- The Implementation Plan
- Detailed Approval Strategy
- Progress reports
- Plan refinements
- Parties

People Involved

- Core Project Team
- Implementation Team
- Other Interested personnel

Relevant Tools and Techniques

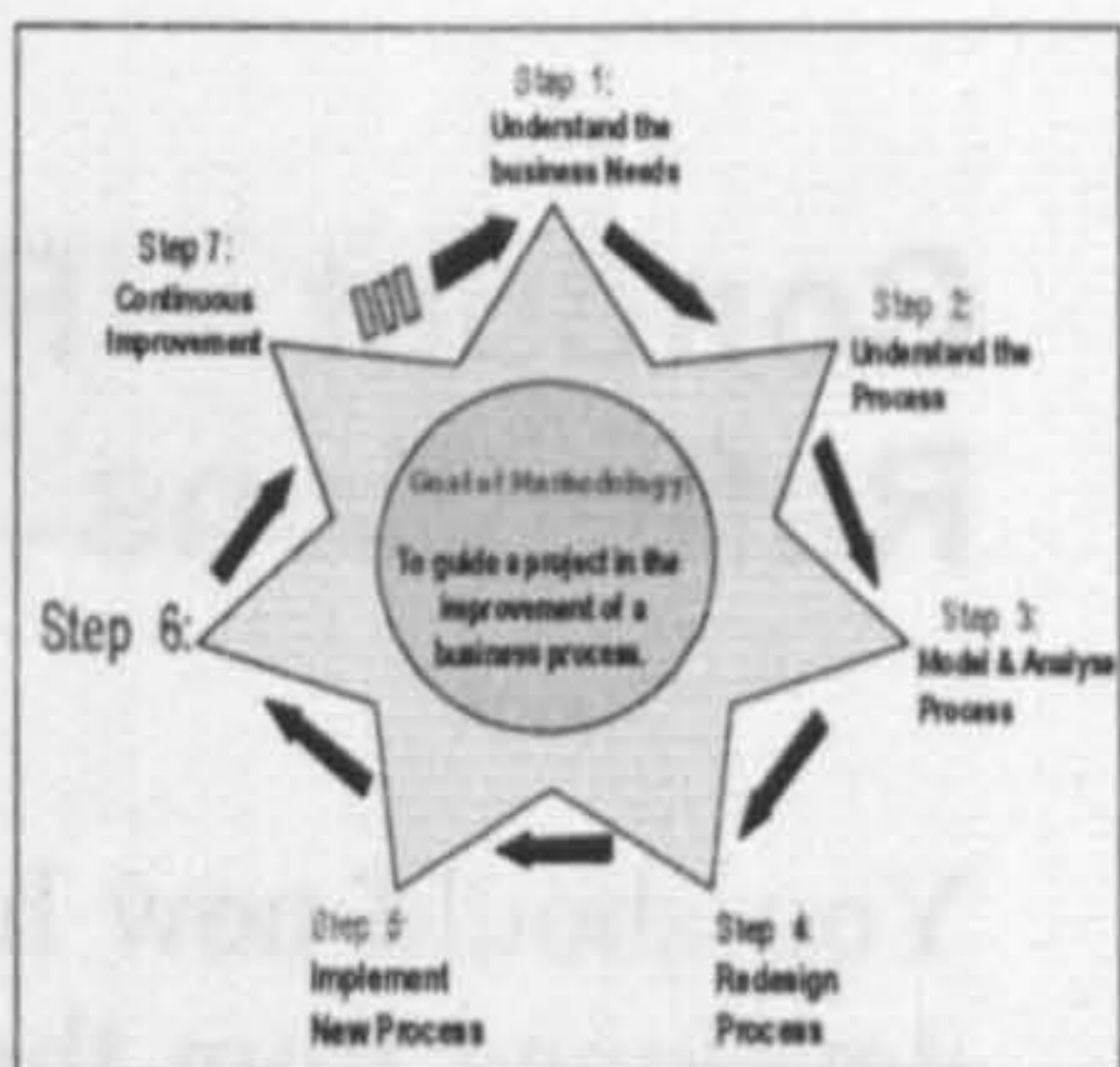
Plan the Implementation	Action Plan Template to identify the implementation team Skill Matrix
Obtain Implementation Approval	Formal Presentation to include background statement, vision and goals, blueprint and implementation plan.
Review change management plan and	Awareness Training Off site retreats
Communicate the Change	<ul style="list-style-type: none"> ➤ Large group meetings ➤ Small group meetings ➤ Printed Information ➤ A notice board ➤ Informal Communication
Rollout Changes	<ul style="list-style-type: none"> ➤ Empowered work teams ➤ Volunteers ➤ Coaching ➤ Removal of old processes/systems

Hints and Tips

- Make individual expectations clear
- Different communication tactics for different audiences internally and externally
- Communication needs to be regular and continued throughout the life of the project.
- Involve all people
- Train, Train and Train
- Don't push people into change
- Implement interim rewards and celebrations

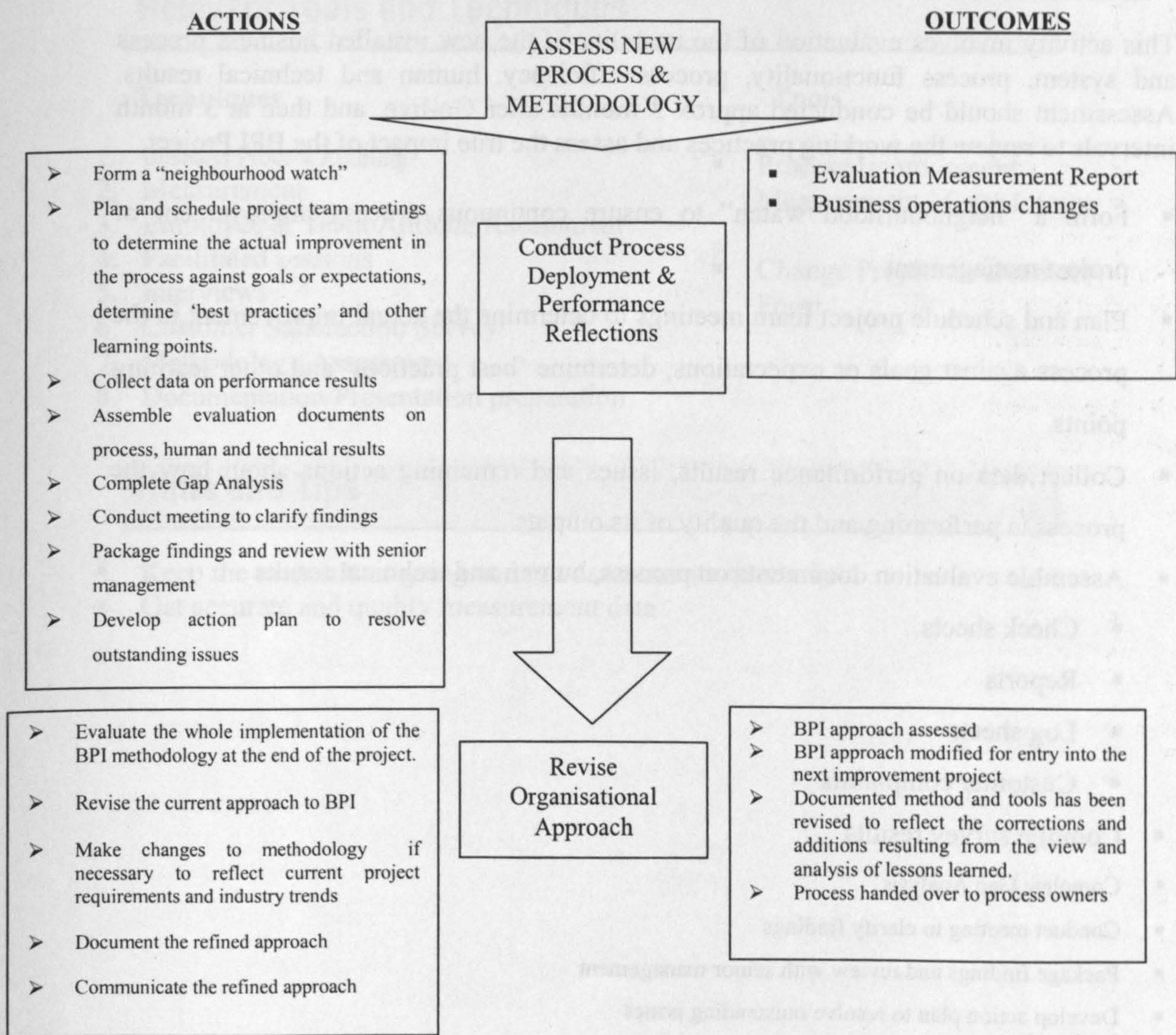
STEP 6

Assess New Process and Methodology



The assessment step is very crucial for the whole BPI project. By now the new process is deployed and operating smoothly. However, to prove that your investment in the project was worthwhile, it is necessary to carry out a formal evaluation of the process and the approach you have used. This step will help you to determine the real success of the new process, both in the short term gains and in the overall success of the method, tools and techniques used. Below is the flow map of the activities in this step.

Evaluate the performance of the new process and the methodology.



Conduct Process Deployment and Performance Reflections

You should now have your re-designed process in place and a set of process metrics developed from the strategic business objectives and critical success factors in Step 1. To monitor the success of the implemented process in achieving the targets set for it.

Aim

The purpose of the evaluation measurement is to establish the result attained through the BPI initiative and capture a snap shot of the change process results.

Actions

This activity involves evaluation of the usability of the new installed business process and system, process functionality, process efficiency, human and technical results. Assessment should be conducted approx 3 months after Go-live, and then at 3 month intervals to review the working practices and assess the true impact of the BPI Project.

- Form a “neighbourhood watch” to ensure continuous process improvement of project management
- Plan and schedule project team meetings to determine the actual improvement in the process against goals or expectations, determine ‘best practices’ and other learning points.
- Collect data on performance results, issues and remaining actions about how the process is performing and the quality of its outputs
- Assemble evaluation documents on process, human and technical results
 - Check sheets
 - Reports
 - Log sheets
 - Customer complaints
- Compile survey results
- Complete Gap Analysis
- Conduct meeting to clarify findings
- Package findings and review with senior management
- Develop action plan to resolve outstanding issues

Outcomes/Gates

- Evaluation Measurement Report
- Business operations changes

People Involved

The project team should work with the process owners and line managers to anticipate problems with the implementation.

- Full project team
- Business groups/teams

Relevant Tools and Techniques

Techniques	Tools
1. Business Process Auditing	▪ Process Improvement Measurement Methodology
2. Measurement	
3. Employee & Team Attitude Assessment	▪ Change Project Evaluation Form
4. Facilitated sessions	
5. Interviews	
6. Customer Satisfaction Survey	
7. Methodology Assessment	
8. Documentation/Presentation preparation	

Hints and Tips

- Keep the momentum going and run assessments quarterly
- Get accurate and quality measurement data

Revise Organisational Approach

Aim

The purpose of this task is to make the next cycle of BPI process more effective and efficient. Any enhancements you can make to the BPI process will allow you to make improvement changes more effectively reduce resistance to change and allow BPI to proceed at a faster pace. The following three objectives are required to achieve the goal:

- develop more effective and efficient BPI process
- reduce resistance to BPI
- insure effective sponsorship for BPI.

By providing feedback to the BPI team, the methods and techniques used during the BPI process can be refined and incorporated into the next round of change process.

Actions

- It is important to evaluate the whole implementation of the BPI methodology at the end of the project using the following criteria:
 - Feasibility in terms of completeness and consistency
 - Organisational usability in terms of the use friendliness, efficiency etc
 - organisational usefulness in terms of the impact to the business results
- Revise the current approach to BPI
- Make changes to methodology if necessary to reflect current project requirements and industry trends
- Document the refined approach
- Communicate the refined approach

Outcomes/Gates

- BPI approach assessed
- BPI approach modified for entry into the next improvement project
- Documented method and tools has been revised to reflect the corrections and additions resulting from the view and analysis of lessons learned.
- Process handed over to process owners

People Involved

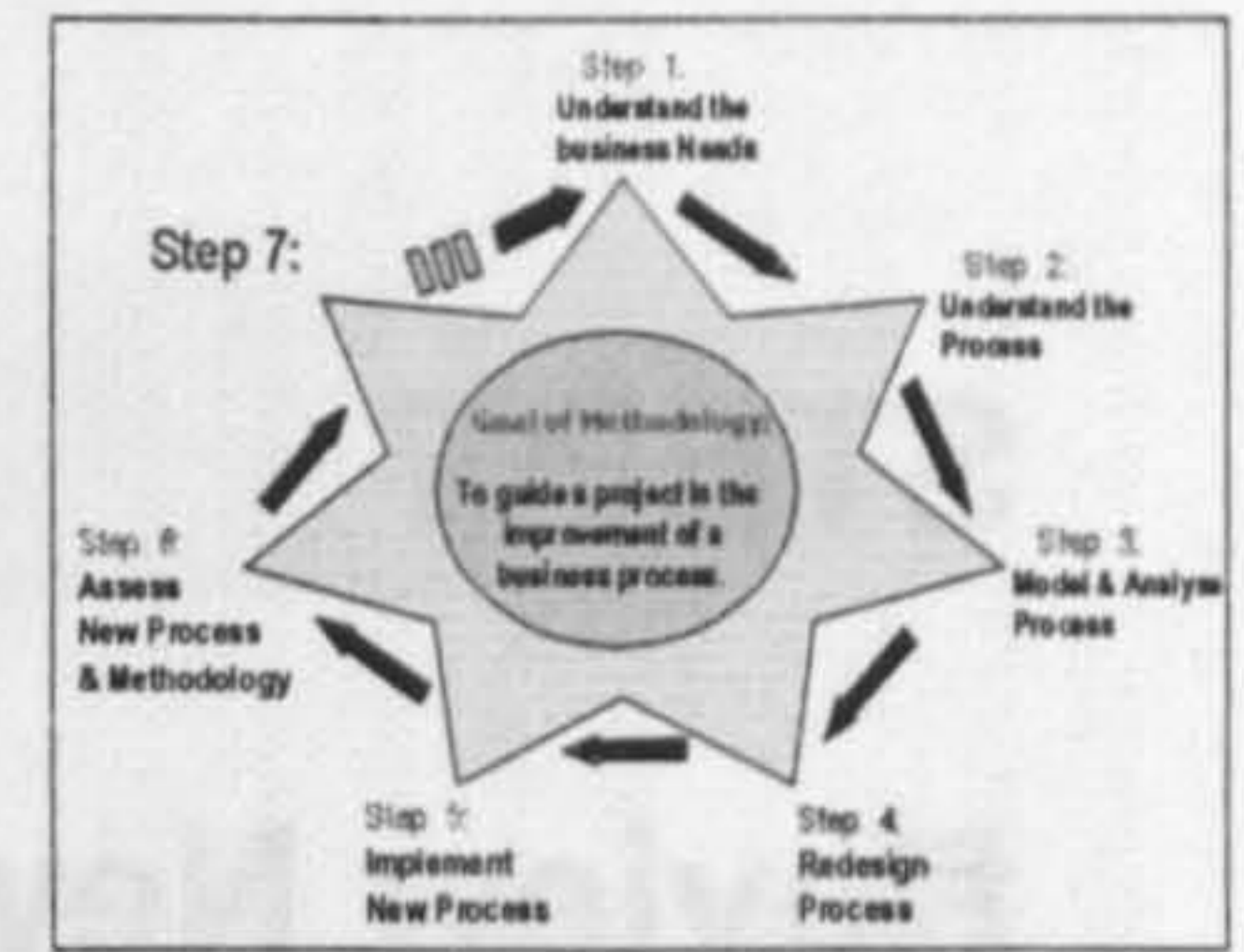
- The Project Team
- Implementation Team
- Business team

Relevant Tools and Techniques

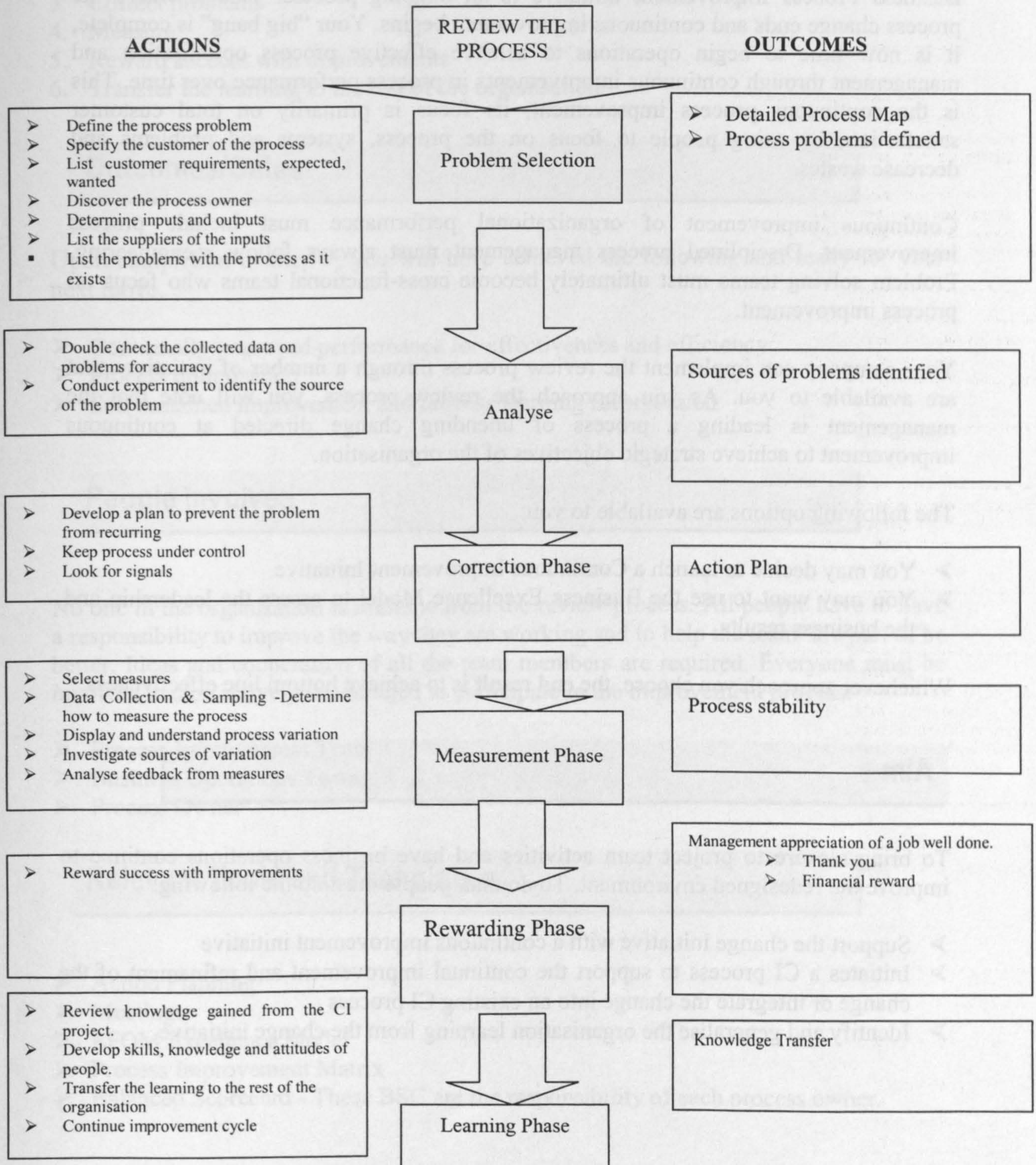
- Measurement
- Meetings

STEP 7

Review New Process

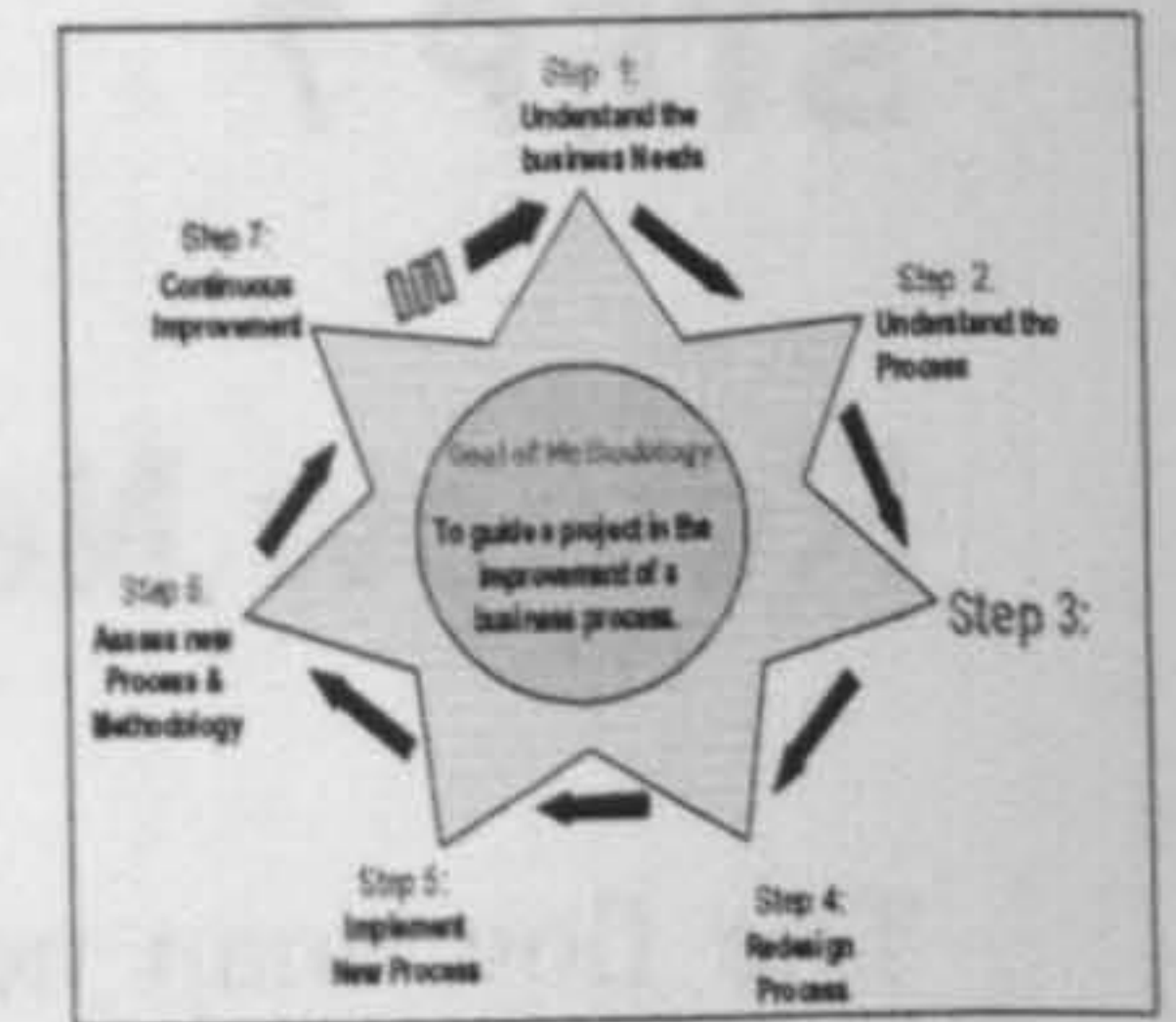


The flow map needed to understand process and reduce variation for the continuous improvement is represented below.



STEP 7

Review New Process



Business Process Improvement initiative is an ongoing process. This is where the process change ends and continuous improvement begins. Your “big bang” is complete, it is now time to begin operations to achieve effective process optimisation and management through continuous improvements in process performance over time. This is the continuous process improvement, its focus is primarily on total customer satisfaction, by using people to focus on the process, systems and problems and decrease wastes.

Continuous improvement of organizational performance must include process improvement. Disciplined process management must always follow reengineering. Problem solving teams must ultimately become cross-functional teams who focus on process improvement.

Your company can implement the review process through a number of initiatives that are available to you. As you approach the review process, you will note that the management is leading a process of unending change directed at continuous improvement to achieve strategic objectives of the organisation.

The following options are available to you:

- You may decide to launch a Continuous Improvement Initiative
- You may want to use the Business Excellence Model to assess the leadership and the business results

Whichever approach you choose, the end result is to achieve bottom line effectiveness.

Aim

To bring closure to project team activities and have business operations continue to improve the redesigned environment. To do that, people must do the following:

- Support the change initiative with a continuous improvement initiative
- Initiates a CI process to support the continual improvement and refinement of the change or integrate the change into an existing CI process
- Identify and generalise the organisation learning from the change initiative

Actions

The key activities for CPI include:

1. Identify the problems in the process
2. Analyse the problems
3. Correct problems
4. Measure
5. Reward success with improvements
6. Transfer the learning to the rest of the organisation

Outcomes/Gates

Upon completion of Step 7, you will have achieved the following and ready for your next move.

- Continually improved performance for effectiveness and efficiency
- Process optimisation
- Self sustained improvement and process learning incorporated

People Involved

No one in the organisation is immune from the review process. All people have to have a responsibility to improve the way they are working and to help the team are part of be better. Ideas and cooperation of all the team members are required. Everyone must be involved and be actively encouraged to participate in the improvement process.

- Process Improvement Team
- Business Operations Team
- Process Owner

Relevant Tools and Techniques

- Action Planning
- Meetings
- EFQM Excellence Model
- Process Improvement Matrix
- Balanced Scorecard - These BSC are the responsibility of each process owner.

Hints and Tips

- Continual process improvement requires leadership at every level within the organisation. All managers who lead improvement need to be informed of the methods used, issues to face, and the paramount need for their active support of internal change agents.
- Remember, continuous improvement is an ongoing process, do not stop.
- If the BPI project was implemented correctly and Step 7 is installed and supported, BPI should not be needed again, unless there is a major shift in the marketplace.
- Understand this is a cultural philosophy of never ending dissatisfaction with current performance.

SECTION 3

TOOLS AND TECHNIQUES TO
SUPPORT BUSINESS PROCESS
IMPROVEMENT
IMPLEMENTATION

IMPROVEMENT

IMPLEMENTATION

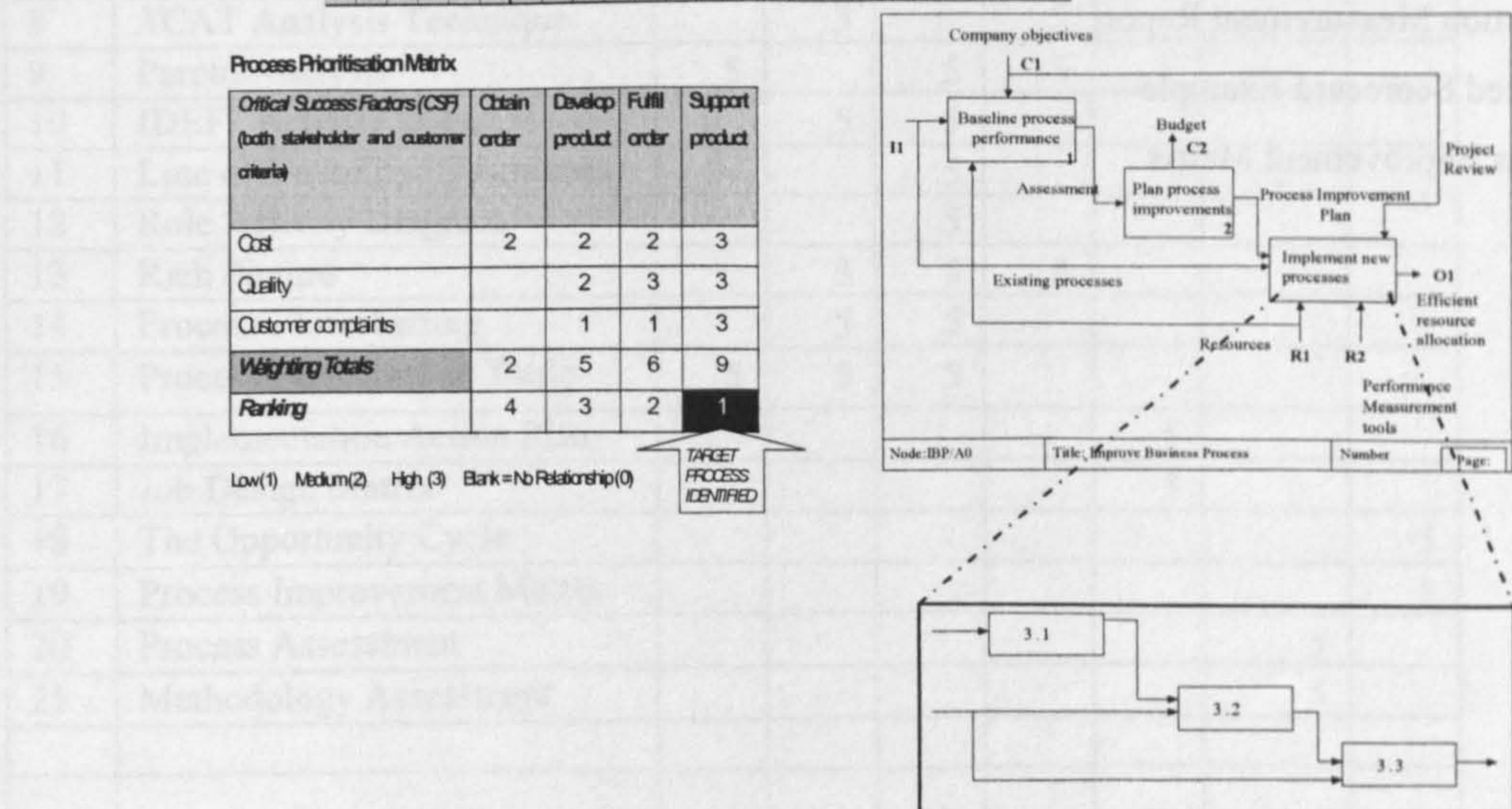
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Process Prioritisation Matrix

<i>Critical Success Factors (CSF)</i> (both stakeholder and customer criteria)	Obtain order	Develop product	Fulfill order	Support product
Cost	2	2	2	3
Quality		2	3	3
Customer complaints		1	1	3
Weighting Totals	2	5	6	9
Ranking	4	3	2	1

Low(1) Medium(2) High (3) Blank = No Relationship(0)

Low(1) Medium(2) High (3) Blank = No Relationship(0)



TOOLS AND TECHNIQUES

Organisational Model Worksheets

Pareto Analysis

SWOT Analysis

Force Field Analysis

Ease and Effect Diagram

PMI

Process Objectives and Measures

Readiness Assessment

Process Prioritisation Matrix

Process Deployment Matrix.

XPat Process Analysis Tool

Process Flowcharting

IDEF₀ Process Modelling

Process Performance Table

Activity Based Costing

Cause and Effect Analysis

Value Added Analysis

Brainstorming Workshop

Creative Silence Workshop

Run Workshops

Identify the Implementation Team

Implementation Plan

Evaluation Measurement Report

Balanced Scorecard Example

Process Improvement Matrix

Tools and Techniques

In addition to the steps, this workbook also provides a practical library of tools and techniques which you can apply. The tool name and the page number are referenced in the workbook. Descriptions on the use of the tools are provided in this Section. The toolbox will show you where to apply those tools and techniques in the order of 1-5.

The Toolbox: The Application Benefit Matrix

TOOLBOX								
APPLICATIONS (STEPS)								
	SYSTEMS (TOOLS)	Understand Business Needs	Understand the Process	Model & Analyse Process	Redesign Process	Implement New Process	Assess new process & Methodology	Review Process
1	Organisational Model	5						
2	SWOT Analysis	5						
3	Stakeholder Analysis	5						
4	Customer Needs Matrix (VOCT)		5					
5	Process Prioritisation	5						
6	Activity Based Costing			5				
7	Value Added Analysis			5				
8	XCAT Analysis Technique		5		5			
9	Pareto Analysis	5		5	5			
10	IDEF ⁰ Activity Diagram		5	5				
11	Line of Visibility (Swimlanes)			5				
12	Role Activity Diagram			5				
13	Rich Picture		5	5	5			
14	Process Flowcharting		5	5				
15	Process Performance Table	5	5	5				
16	Implementation Action Plan					5		
17	Job Design Matrix					5		
18	The Opportunity Cycle							5
19	Process Improvement Matrix							5
20	Process Assessment						5	
21	Methodology Assessment						5	

Tool Name: Organisational Model Worksheets

What is it: These worksheets describe the part of your organisation on which the BPI focuses. The first worksheet focuses on the problem, context and solutions portfolio. The second worksheet contains five slots and covers aspects such as how the business process is structured, what staff is involved, what resources are used etc.

When to use: When assessing the current problems, context of the organisation and opportunities.

How to use: To use the first sheet in OM-1, start the workshop by asking the project team to identify current problems in one flipchart and opportunities in another flipchart. If possible list potential solutions for the problems without jumping into the new process. For Worksheet OM-2, there are five slots in the worksheet. The first two slots, "structure" and "process" are usually best shown in a graphical way. The team should brainstorm on people, resources, culture and power and how they perceive their impact on the improvement programme.

Worksheet OM-1: Problem, organisational Context and Solutions Portfolio

Organisation Model	Problems and Opportunities Worksheet OM-1
<i>Problems and opportunities</i>	Make a shortlist of perceived problems and opportunities, based on interviews, brainstorm and visioning meetings, discussions with manager etc
<i>Organisational Context</i>	Indicate key features of the organisational context such as: <ol style="list-style-type: none"> 1. Mission, vision, goals of the organisation 2. Important external factors your organisation has to deal it 3. Strategy of your organisation 4. Its value chain and the major value drivers
<i>Solutions</i>	List possible solutions for the perceived problems and opportunities, as suggested by the interviewers and discussions held, and the above organisational context

Worksheet OM-2: Focus Area in the Organisation

Organisational Model	Variant Aspects Worksheet OM-2
Structure	Show graphically the current organisation structure. You may wish to combine roles of people in the organisation
Process	Show graphically the main business processes in the organisation and split into core, support and management processes. A process is the relevant part of the value chain that is focused upon. A process is decomposed activities and tasks.
<i>People</i>	Indicate which staff members are involved, actors, stakeholders, decision-makers, providers, users. See "Structure chart" for roles of people specified for each part
<i>Resources</i>	Describe the resources that are utilised for the business process. These may cover different types, such as: <ol style="list-style-type: none"> 1. Information systems and other computing resources 2. Equipment and materials 3. Database 4. Codes of Practice
<i>Culture and Power</i>	Pay attention to the 'unwritten rules of the game', including styles of working and communicating. Related social and interpersonal skills

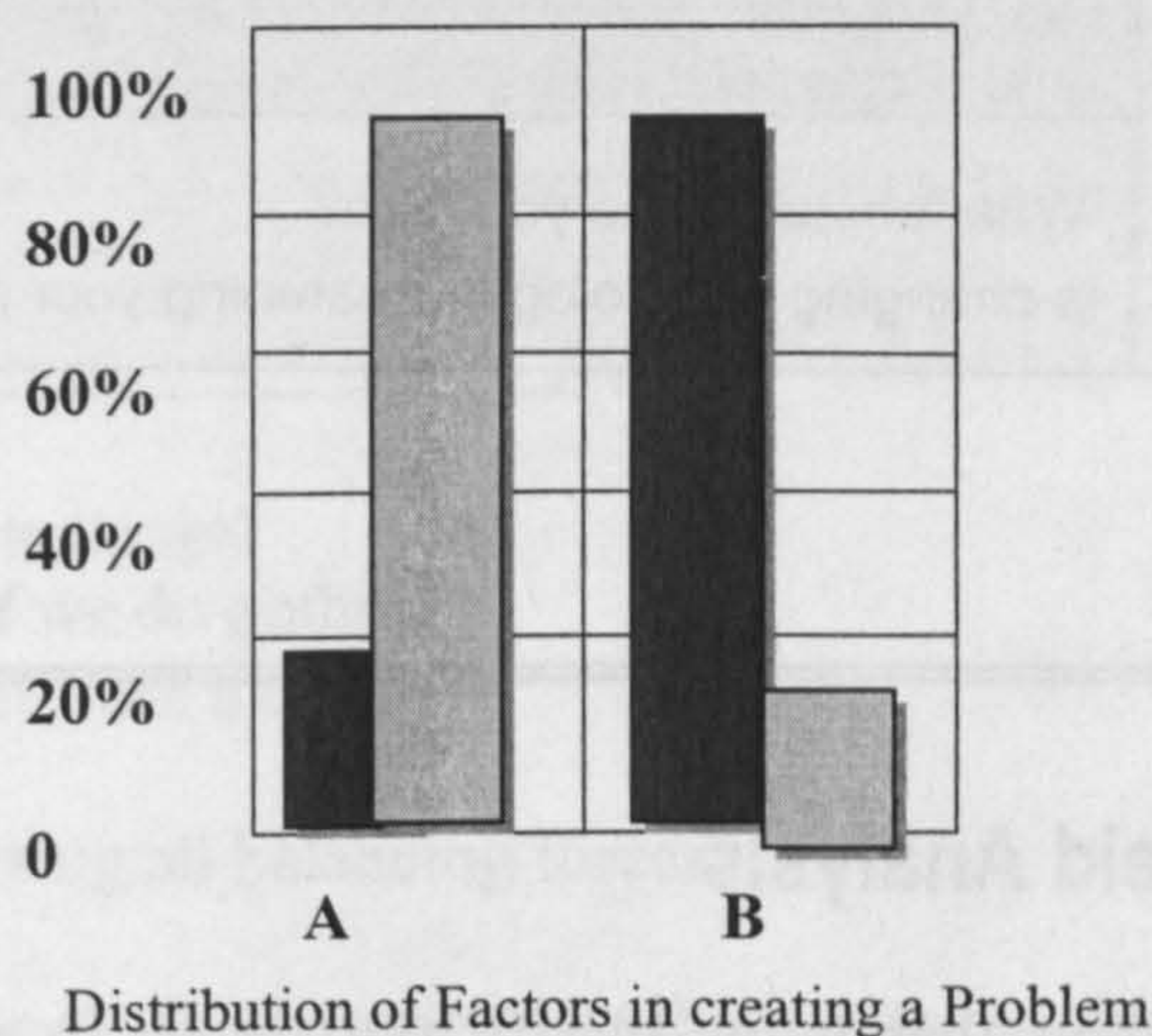
Hints and Tips: Manage the list, document and distribute the outcome of the session to the team.

Tool Name: Pareto Analysis

What is it: Can be applied to problem analysis. Use Pareto rule to sort your priorities. The Pareto rule concentrates on the significant 20 per cent and gives less important 80 per cent lower priority.

When to use: When making decisions

How to use: When making decisions, divide relevant factors into categories. Prioritise them correctly, and allocate time and effort.



This example suggests 80% of a problem result from 20% of the activity (A), so 80% of the activities involved account for 20% of the problem (B).

Key ■ Activities ■ Problem

Hints and Tips

Tool Name: SWOT Analysis

What is it: Identify Strengths, Weaknesses, and to examine the Opportunities and threats faced by the company.

When to use: When analysing the current situation of the business process, for the analysis of competition and internal and external factors.

How to use: SWOT is used by asking, , for example, the following questions during brainstorming sessions with the project team.

Hints and Tips: This analysis is compatible with brainstorming sessions as it enables identification for areas for future improvements.

Template: Understanding Your Organisation's SWOT Analysis	
STRENGTHS	What is the organisation competent at? What is it really good at? What do you do well?
WEAKNESSES	Is the organisation short of key resources? What is done badly? Is it vulnerable to competition?
OPPORTUNITIES	Can the organisation sell more, or find new markets and products/services?
THREATS	What obstacles do you face? Is changing technology threatening your position?

Tool Name: Force Field Analysis

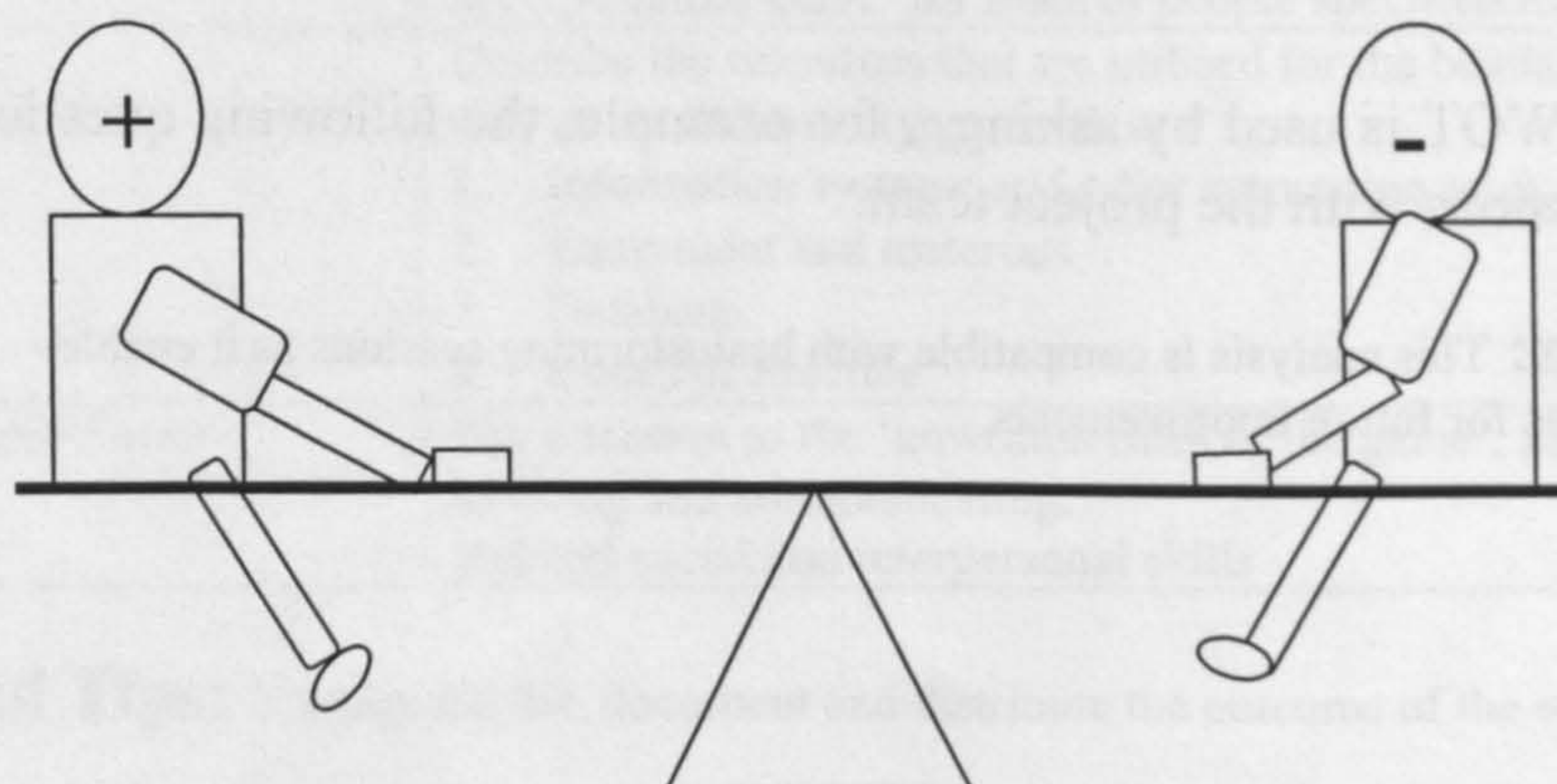
What is it: It is a method that helps clarify the forces in a given situation and prioritises change.

When to use: The method forces the team to examine strengths, as well as the problem, which can lead to the needed improvement.

When to use:

- Use it when you want to understand the relative strength of the forces working both for and against you in decision making.
- Use it to identify risks to a planned action and to develop a plan to overcome them.

How to use: Every situation results from a balance of driving (positive) forces and restraining (negative) forces as shown below.



You may want to use the simple diagram below to help you to organise and display the arguments for and against a situation or action. Driving forces are those that push toward the achievement of the goal whereas restraining forces are those that keep the situation from improving.

In the illustrated diagram, the goal is to provide training for engineers. The current status is one of no training. The restraining force of Management is the one selected to develop driving forces. The driving forces used to weaken management's non-support are facts, communication and a plan.

The following steps describe the approach to take in using the force field analysis:

1. Define the current status and the goal. Consider these questions

Where are we now?

Where do we want to be?

X _____ > O

Do we really want to change?

Does it matter if we do nothing?

Who will benefit from a change?

2. Identify and prioritising all balancing forces

Brainstorm all the forces, then categorise them into positive (driving) or negative (resisting).

Questions to help identify the forces include:

- What must we do to make it work? What could happen to make it fail?
- Who would help? Who would oppose?
- What would happen if the decision was not made or reversed?
- What is the best and worst possible thing that could happen?
- What are the costs and benefits?
- What are the financial implications?
- How easy or difficult will it be to implement?
- What other forces would support or oppose identified forces?

3. Evaluate the strength of each force

This can be done by scoring, using different-coloured pens, in terms of 'ease' and 'effect' (ease of implementation, effect or impact on the situation if changed), 1-3 Scoring System

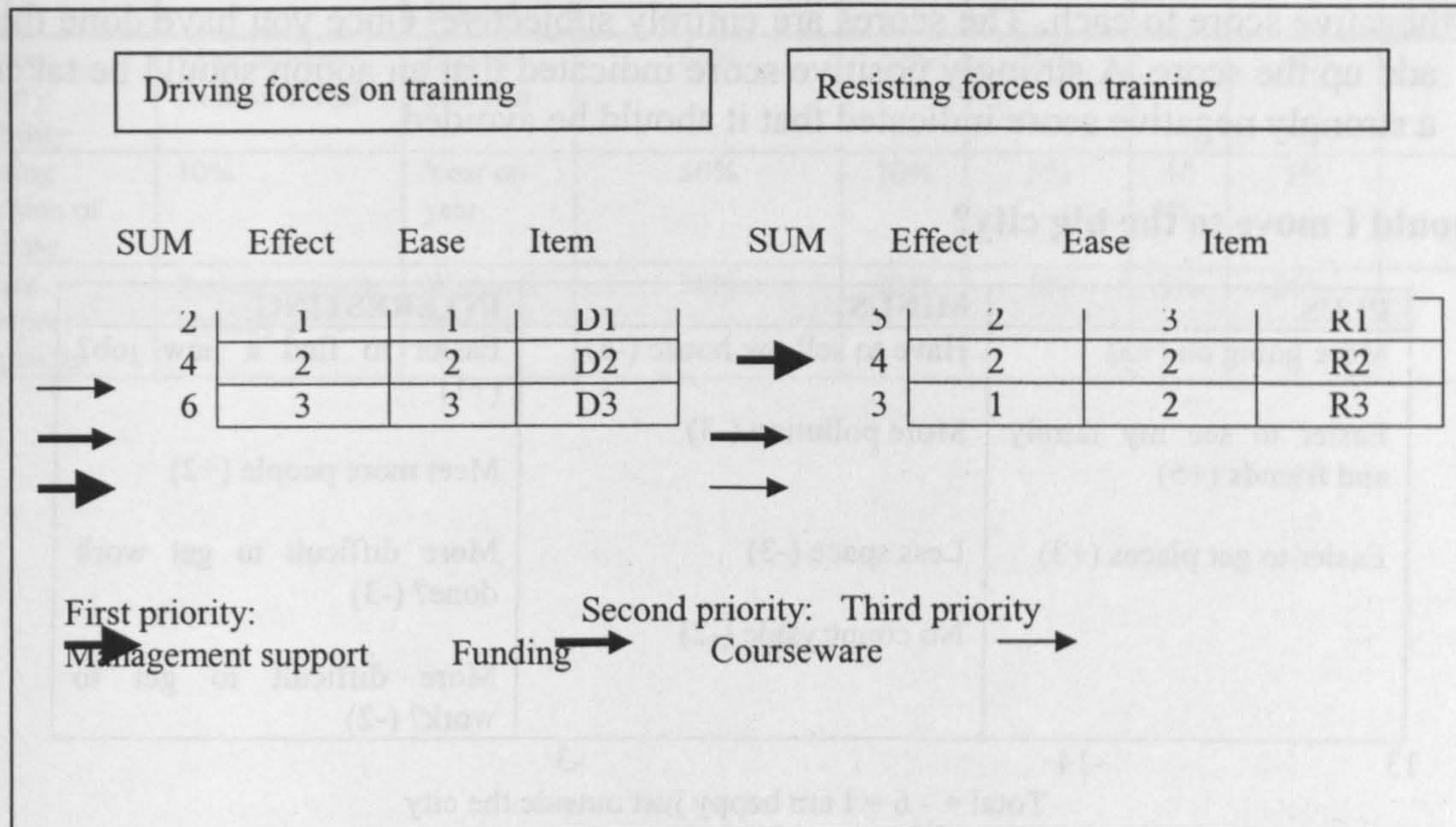
Driving and Resisting Forces

Driving Forces (for +)		Resisting Forces (Against -)	
<p>No Training</p> <hr/> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Driving Forces +</p> <p>Providing Facts →</p> <p>Communicate →</p> <p>Develop Plan →</p> </div> <div style="text-align: center;"> <p>Resisting Forces -</p> <p>← Management</p> <p>← Funds</p> <p>← Courseware</p> <p>← Providing Facts</p> </div> </div>			
<p>Force-Field Diagram</p>			
Notes			

Force-Field Analysis

Ease and Effect Scoring			
Ease		Effect	
1	Cannot be changed	1	No impact
2	Could be changed with some investment in resources	2	Some impact
3	Easily changed, under your control	3	High impact

Once scoring is complete, we can then analyse the priority of each force.



By scoring and totalling the highest scores, you can identify the best levers for introducing change into the situation.

Hints and Tips:

- Note that while the force-field analysis helps to develop an understanding of the situation, is really biased toward developing an implementation strategy leading to a goal or vision.
- Force-field tells us more about what prevents us having what we want than why the situation has occurred.

Tool Name: Plus/Minus/Interesting

What is it: PMI is a valuable tool developed by Edward de bono . It is a basic decision making tool.

When to use: The method forces the team to examine strengths, as well as the problem, which can lead to the needed improvement.

When to use: When facing a difficult decision

How to use:. Draw up a 3 part table headed 'Plus', 'Minus', and 'Interesting'

- List all the plus or good points of taking the action under 'Plus'
- List all the negative effects or bad points under 'Minus'
- List all the extended implications of taking the action, whether good or bad at this point
- Scoring your PMI table – consider each of the points and assign a positive or negative score to each. The scores are entirely subjective. Once you have done this, add up the score. A strongly positive score indicated that an action should be taken, a strongly negative score indicated that it should be avoided.

Should I move to the big city?

PLUS	MINUS	INTERESTING
More going on (+5)	Have to sell my house (-6)	Easier to find a new job? (+1)
Easier to see my family and friends (+5)	More pollution (-3)	Meet more people (+2)
Easier to get places (+3)	Less space (-3)	More difficult to get work done? (-3)
	No countryside (-2)	More difficult to get to work? (-2)

13

-14

-3

Total = -6 = I am happy just outside the city

Template: High Level Process Objectives and Measures

Process	Stakeholders	Expectations	Measures					
			Time	Cost	Quality	Frequency	Accuracy	Other
Design of IT Function	Retailer	Prompt deliveries of systems	Response Time	Price		Prompt		Model
		Performance support						
		Availability of system						
			Process Objectives					
			<ul style="list-style-type: none">➤ Reduce defect level➤ Reduce lead times➤ Reduce production costs and prices to customer➤ Improve design process➤ Improve modelling➤ Reduce customer complaints➤ Improve delivery reliability					

Template: High Level Mapping Performance Measures and Processes

Product Group

Objectives	Target		Responsibilities and Contributors					Check/ Develop Measure
	Improvement	By When?	Manufacturing	Sales	Finance	HR	Quality	
Improve delivery reliability	95% delivery on time in full	End of this year	60%	20%	10%		10%	
Ongoing reduction of cost base	10%	Year on year	50%	10%	5%	10%	5%	
Reduce customer complaints	Reduce current level by 50%	Within 6 months	30%	20%	5%	5%	20%	

READINESS ASSESSMENT

No	Questions	Yes	No
1	Have you identified process owners in your organisation?		
2	Is your organisation built around processes?		
3	Is your organisation flat or hierarchical?	☐ Flat	☐ Hierarchical
4	Is change necessary in your organisation?		
5	Do people in your organisation understand that change is necessary?		
6	Do the senior managers have a basic understanding of the principles of BPI, through training or experience?		
7	Are the senior managers of the organisation committed to the BPI initiative; prepared to invest resources and willing to take responsibility for the success of the initiative?		
8	Do the senior executives actively demonstrate their commitment to the BPI effort?		
9	Has your organisation assessed what business improvement skills and tools it has available internally?		
10	Are staff skills, knowledge and experience adequate for carrying out a major improvement project?		
11	Is there a clear vision with critical success factors and target dates for achievement?		
12	What plan does your organisation have to develop needed business improvement skills?		
13	Does the organisation have a communication strategy and implementation plan?		
14	Have you clearly identified your		

	customers and understand their needs?		
15	Does the organisation understand the need for a comprehensive project management approach to BPI and have a defined methodology in place for managing change/implementation projects?		
16	Have your organisation identified ways to manage expectations?		
17	Have you identified barriers to change and what is the plan for dealing with them?		
18	Have you identified other forces to change processes and achieve improvement in performance?		
19	Have you identified your core business processes for each major product and service? Have the processes been mapped at a high level?		
20	Has your organisation benchmarked the performance of its core processes against internal and external partners?		
21	Has your organisation linked its improvement goals to its business objectives/vision?		
22	Has the process that needs improving been selected and prioritised?		
23	Has your organisation identified any performance gaps where improvements are needed, indicating candidates for BPI?		
24	Has your organisation developed an initial business case for improvement? Does the business case outline the potential cost savings and other benefits?		
25	Do you have an overall strategy to guide your improvement efforts?		
26	Have you established an ongoing executive support and project sponsor to the BPI effort?		

27	Has a process owner/champion been assigned for the process to be improved?		
28	Has a BPI Project team been and a Facilitator established?		
29	Have the team members and Facilitators been trained in process analysis and improvement techniques?		
30	Are team members primarily dedicated to working on the project (e.e more than 50% of their time)?		
31	Is management willing to mobilize everyone?		
32	Has line of authority and reporting been clearly defined?		
33	Have required time and resources been clearly allocated to the project?		
34	Has the BPI project aim and objectives been clearly defined and measurable?		
35	Are there sufficient champions in the organisation to implement the BPI process?		
36	Is the organisation's culture ready for the changes or are there issues that need to be addressed?		
37	Have your organisation decided on how it wants Information Technology to influence and control its BPI programme?	☐ IT Led	☐ IT Supported

Process Prioritisation Matrix

<i>Critical Success Factors (CSF)</i> (both stakeholder and customer criteria)	Obtain order	Develop product	Fulfil order	Support product
Cost	2	2	2	3
Quality		2	3	3
Customer complaints		1	1	3
Weighting Totals	2	5	6	9
Ranking	4	3	2	1

Low (1) Medium (2) High (3) Blank = No Relationship (0)

TARGET
PROCESS
IDENTIFIED

To help you decide how important are your processes:

1. List all processes and objectives.
2. List your CSFs for your business. Use the template below to help you record CSFs.
3. Assign points to each CSF
4. Distribute the points between business processes according to their importance
5. Add total weighting scores for each process, and use them to help you in your decision-making processes.
6. Rank in order of priority
7. If ranking (3 –high) is given that means that process contributes significantly to achieving the CSFs.

Customer Type Matrix

TYPE	%	Prod/Serv 1	Prod/Serv 2	Prod/Serv 3
External Customers				
Customer A		X		X
Customer B			X	
Internal Customers				
Customer C		X	X	

Template: Voice of the Customer Table (VOCT)

Product/Service: Flash Light							
Code	VOC	Who uses it?	What is it used for?	When is it used?	Where is it used?	Why is it used?	How is it used?
1	Easy to find during night time	Adults Kids	See during power failure	Night	House Basement	See in dark Check fuses	Hold in hand Set on surface
	Power failure						

This table will help you to capture the customer requirements for each group.

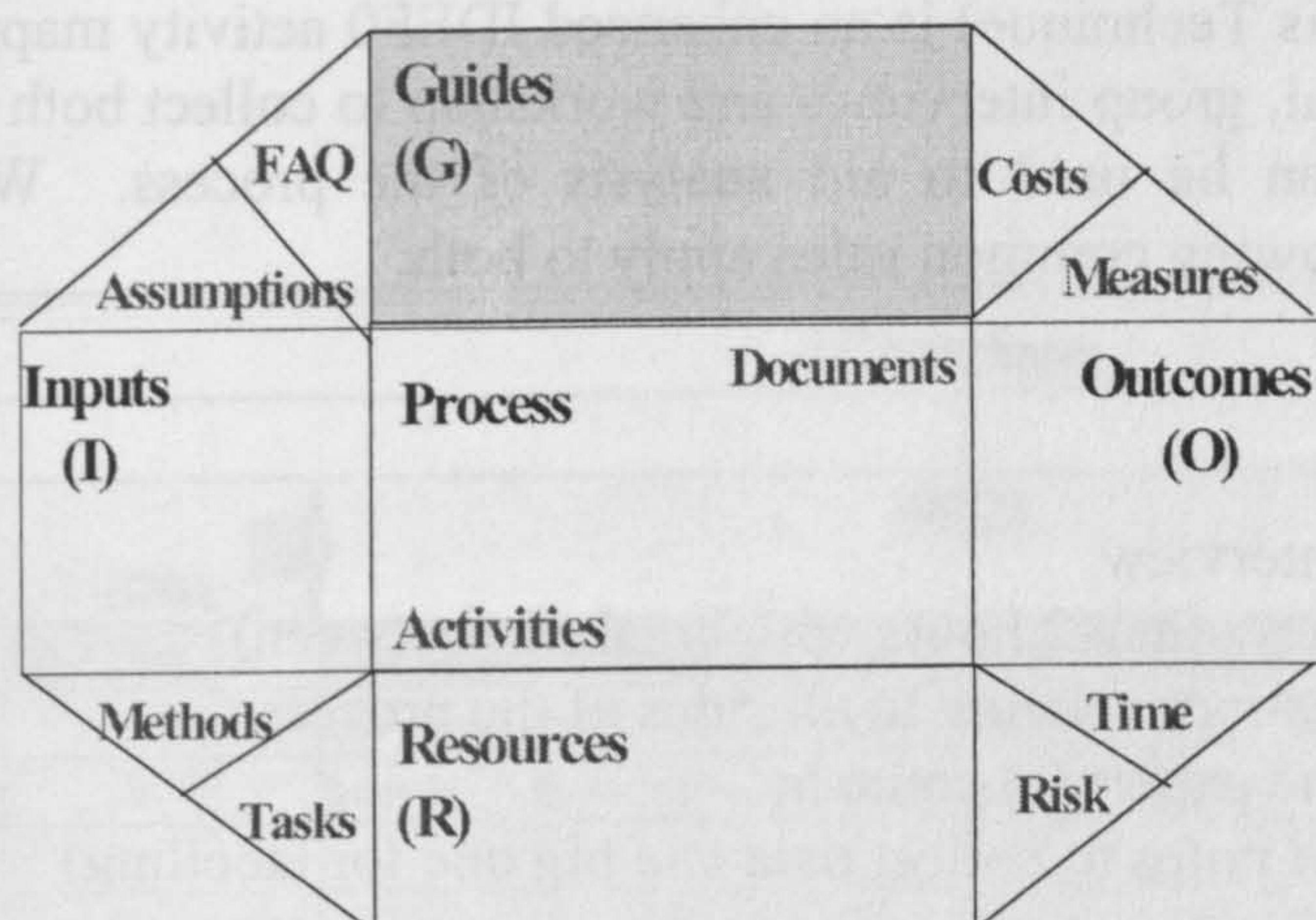
Template: Process Deployment Matrix.

Major Activities <i>Where is the start and end point in the process?</i>	INTERNAL AND EXTERNAL STAKEHOLDERS INVOLVEMENT IN THE TRAINING PROCESS					
	Training & Development	Training Contract Management	Team Leaders	Staff	P &SD Training	Other Training Providers
Conduct Training Need Analysis	A		R			
Requisition for Training			R	R		
Send for External Training Event	R				C	C
Send for Closed Events Training	R	C				
Cancel Training	A		I	R	I	I
Conduct Training					R	R
Conduct Training Evaluation	R		R	C		

R – Responsible/Ownership
A – Accountable/Authorised
C- Consult
I - Inform

Assign group or individual name in the appropriate cell followed by their role

XPAT PROCESS CAPTURE AND ANALYSIS TOOL



Collect the following data and information about the process:

Elements	Descriptions	Example
Outcomes	The result of the activity which adds value to the customer	Internal and external physical and non-physical outcomes, destinations and frequency.
Inputs	Information and things which go into the process	Internal and external physical and non-physical inputs, sources and frequency.
Activities	Activity is a step in the problem solving method.	Can you describe one step of your process?
Tasks	What do you have to do to perform the activity	What are the tasks for this activity?
Methods	How do you do this activity?	This is about problem solving method –PSM)
Guides	What governs how the activity is carried out?	Identify internal policies and values, external standards, risks.
Resources	Things that support the activity	People, skills, knowledge, facilities, IT systems.
Measures	How do you know you have achieved this activity	Identify key measures to show the results of improvements being made to the activity.
Time	How long this activity takes to complete.	
Cost	Can you cost this process or the activity?	
Document	Forms used for the process	
Risks	Are hard constraints	
Assumptions	Are beliefs – the reasoning process	What are your assumptions that this process or activity would be achieved?
FAQs	What are the frequently asked questions about this activity or process?	You only need this to support the documentation and not for modelling.

How to conduct *XPat* session for process expert interview?

XPat (Expert Process Analysis Technique) is an enhanced IDEF0 activity mapping tool that can be used for individual, group interviews and workshop to collect both top level and lower-level data and can be used to aid analysis of the process. Whichever technique you select, the following common rules apply to both:

PREPARATION

- Select process expert to interview
- Make appointment (no more than 2 hours with breaks in between)
- Have a set of specific questions relating to all sides of the process
- Get the room set before the expert (s) come in
- Post it notes (small post it notes to collect data and big one for labelling)
- Brown Paper (10cm wide)

OPENING THE INTERVIEW SESSION

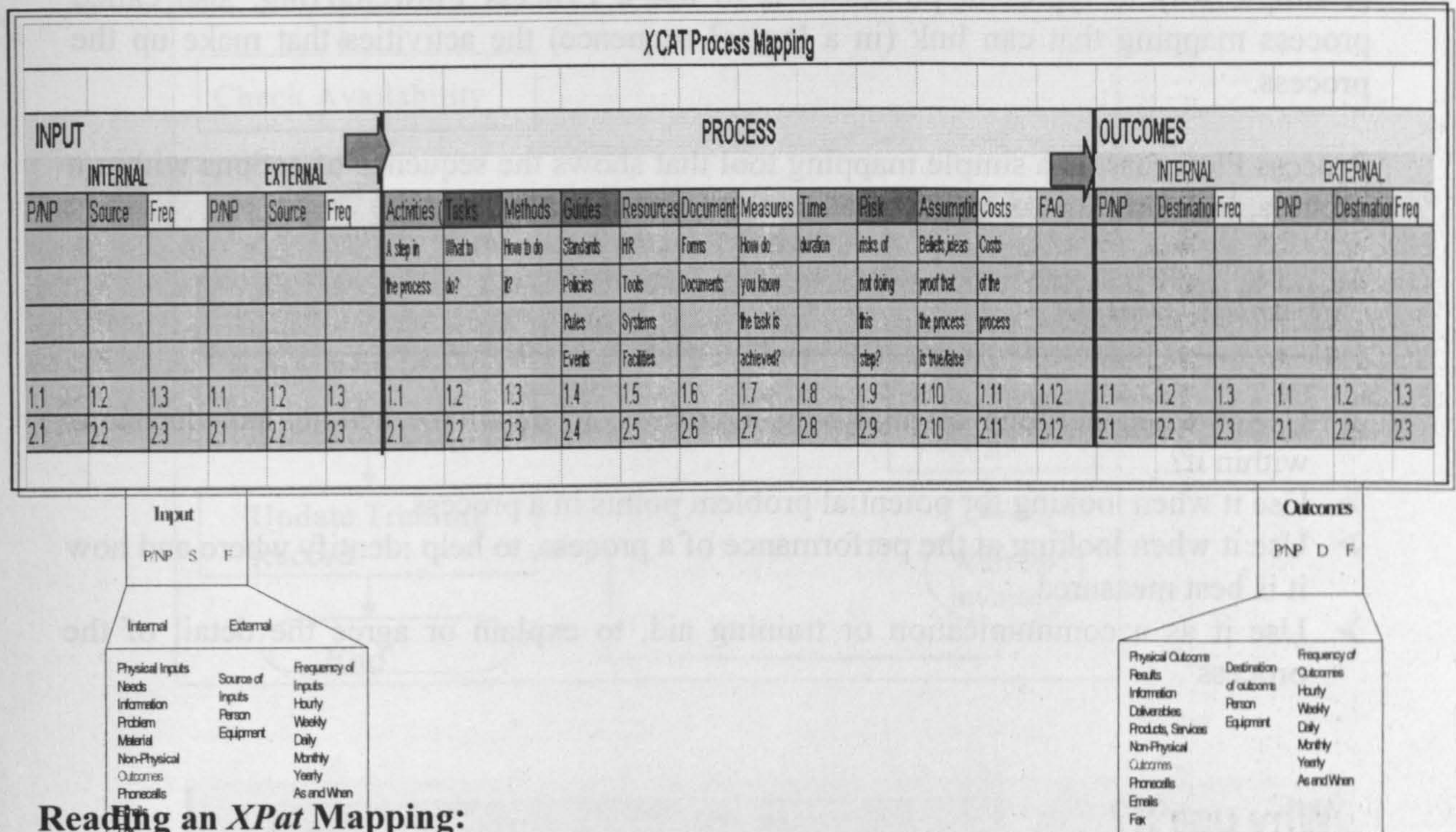
- Introduce them into what you are doing
- Describe the purpose of the interview – the idea of *XPat* is to get the experts involved in mapping the process.
- Confirm that note taking or tape recording is acceptable.
- Explain how the interview or *XPat* will be run.
- Start with broad questions that will get the expert talking.

CONDUCTING THE SESSION

The following interview question checklists are provided as a guide only, you may wish to customise for own needs.

Template: Process Capture Interview Form

XPat is laid out in the following structure.



Reading an XPat Mapping:

Inputs are processed into **Outcomes** using **process factors** when Events occur.

1. Identify the process which is to be mapped.
2. Agree on a standard set of terms to be used throughout the mapping.
3. Add the first box below the process name.
4. Add a second box below the first box.
5. Identify and describe the key activities of the process.
6. Apply the discipline of top-down.
7. Maintain a consistent level of detail.
8. Keep the description short and simple. A simple action represented as a box.

Tool Name: Process Flowcharting

What is it for?

A simple way to represent processes is to use a **Process Flowcharting**, also called process mapping that can link (in a logical sequence) the activities that make up the process.

Process Flowchart is a simple mapping tool that shows the sequence of actions within a process, in a form that is easy to read and communicate.

When to use it?

- Use it when defining or analysing a process, to detail the actions and decisions within it?
- Use it when looking for potential problem points in a process
- Use it when looking at the performance of a process, to help identify where and how it is best measured
- Use it as a communication or training aid, to explain or agree the detail of the process

Why use it?

- Simple and Inexpensive
- Easy to learn and relatively quick
- Shows decision points
- Shows process links

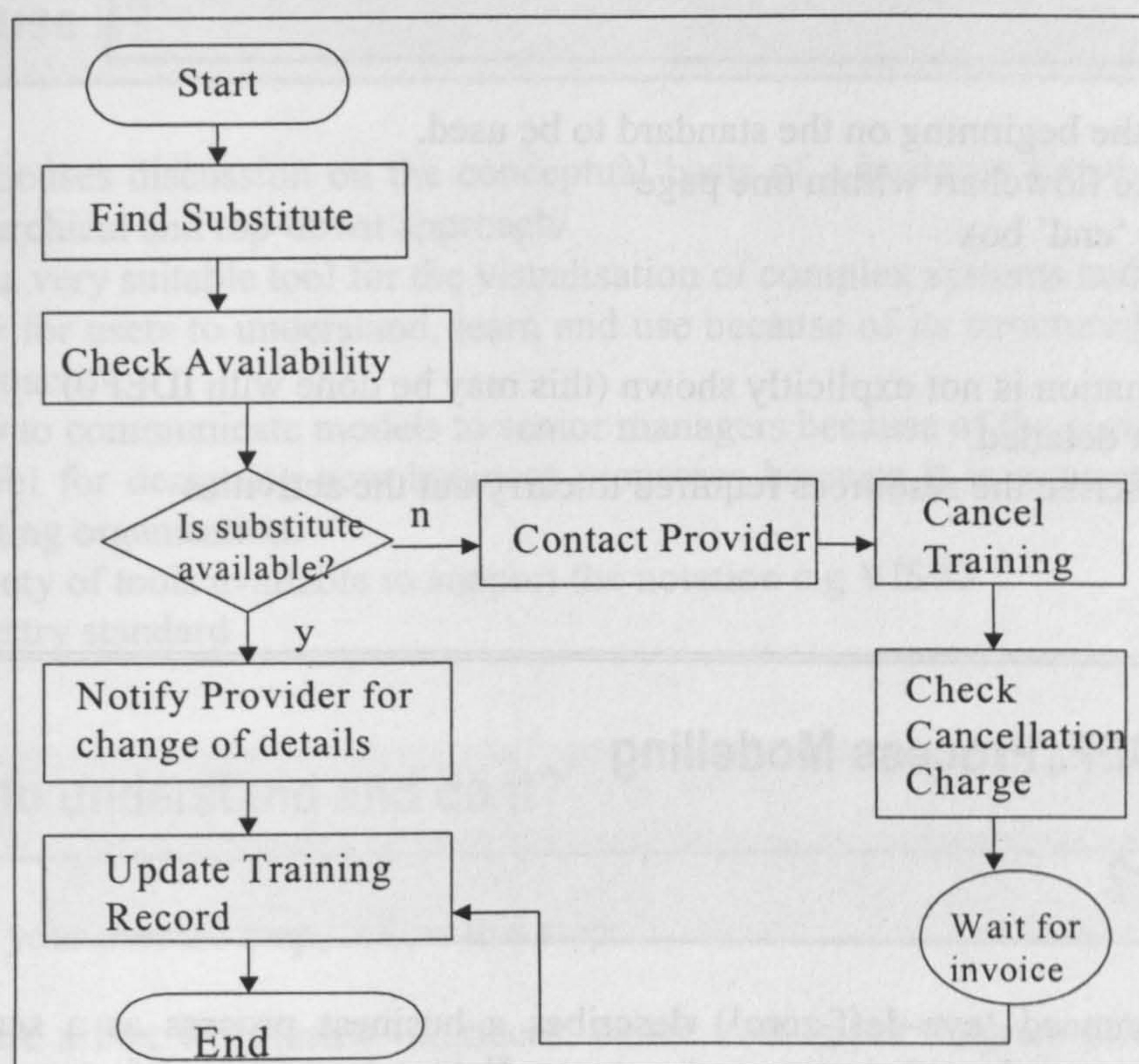
How to understand and do it?

Flowcharts Elements

- Simple action represented as a box
- Arrows shows what follows what
- Start and End points represented as a terminator
- Decisions (used for complex processes)
- Wait box (describes a delay, ie. no action)

(this is where the overall cost of a process may be improved by acting to reduce the delay).

Example:



Symbol	Name	Meaning
	Terminator	Start or end of process
	Action	A single activity
	Wait	A delay
	Decision	A yes/no decision

How to do it

1. Identify the process which is to be mapped
2. Agree on a standard symbol set to use as shown in Table above
3. Add the first box below the start box, identifying the first action – what happens first?
4. Add subsequent boxes below it, identifying ‘what happens next?’ and draw an arrow from the previous box to this one.
5. Identify and include the key decisions made in the process
6. Apply the discipline of top-down
7. Maintain a consistent level of detail
8. Keep the description short and simple. A verb-noun is often useful.

Hints and Tips

- Be clear from the beginning on the standard to be used.
- Aim to keep the flowchart within one page
- Have only one 'end' box

Disadvantages:

- Flow of information is not explicitly shown (this may be done with IDEF0)
- Models are not detailed.
- Difficult to describe the resources required to carry out the activities

Tool Name: IDEF₀ Process Modelling

What is it for?

- IDEF0 (pronounced 'eye-deff-zero') describes a business process as a series of linked activities, each with inputs and outputs. External or internal factors control each activity, and each activity requires one or more mechanisms or resources. That is the mapping technique can be used to describe what a process does, what controls it, what things; it works on, what means it uses to perform its functions, and what it produces.

IDEF0 is used to make a detailed and clear description of a process or system. It is a top-down hierarchical approach to process mapping in which a single activity can be decomposed step-by-step into lower level of detail intended.

When to use it?

- Use it when formally describing a process, to ensure a detailed, clear and accurate result.
- Use it when the process is complex, and other methods would result in more complex diagrams.
- Use it when there is time available to work on understanding and producing a complete and correct description of the process.
- Use it to facilitate process understanding, analysis, improvement or redesign of your processes. It can be used for AS IS and TO BE model.

Why use it?

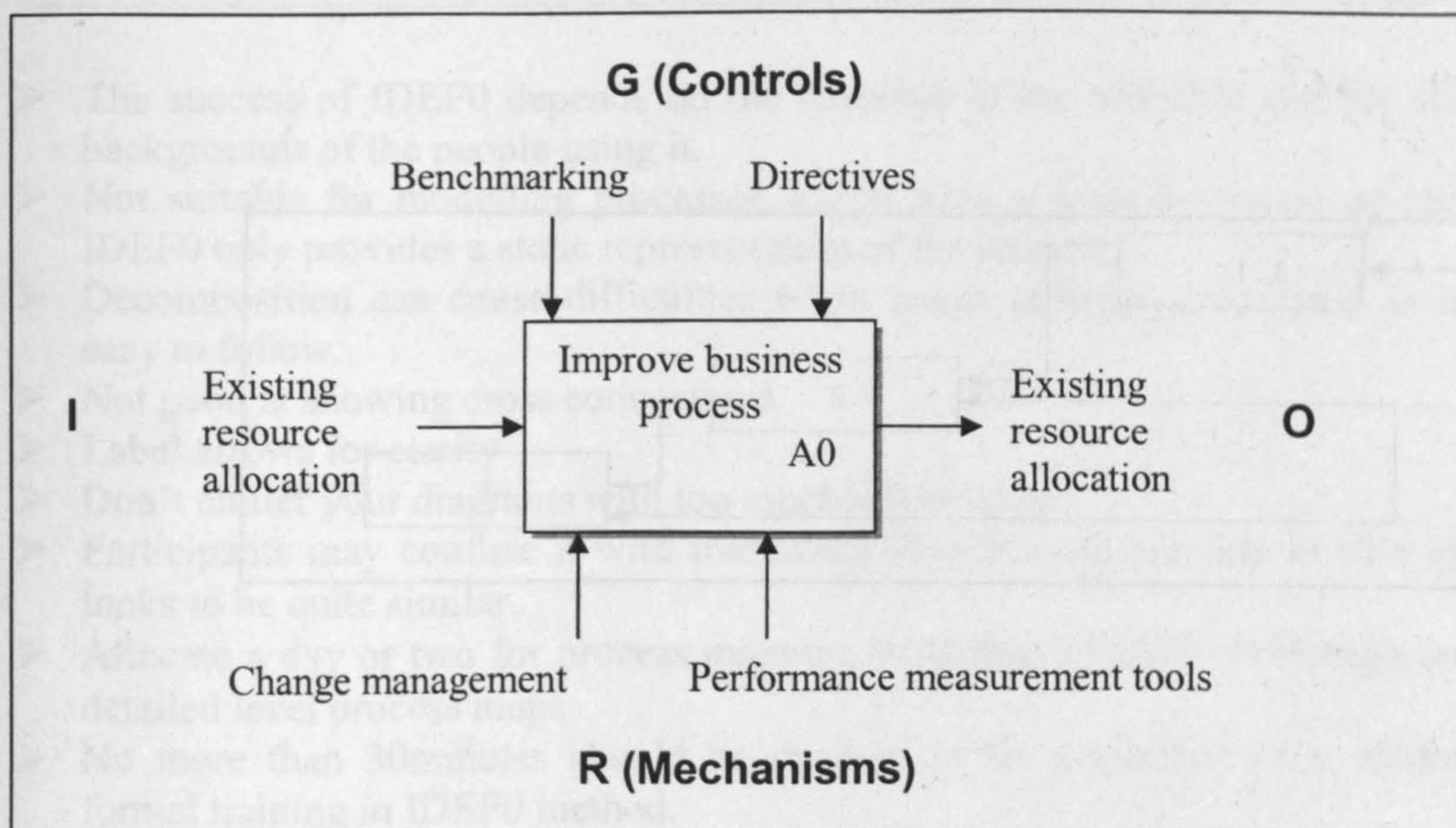
1. It focuses discussion on the conceptual basis of a business process because of its hierarchical and top-down approach/
2. It is a very suitable tool for the visualisation of complex systems and processes.
3. Easy for users to understand, learn and use because of its structured and disciplined approach.
4. Easy to communicate models to senior managers because of the high level flows.
5. Useful for designing new business processes because it is not constrained by the existing organisation.
6. Variety of tools available to support the notation e.g VISIO
7. Industry standard

How to understand and do it?

To start your process map, follow this step:

- Create a box with arrow interfaces, called A-0 upper diagram (Context Diagram) representing the entire scope of the process or system being described as shown below.

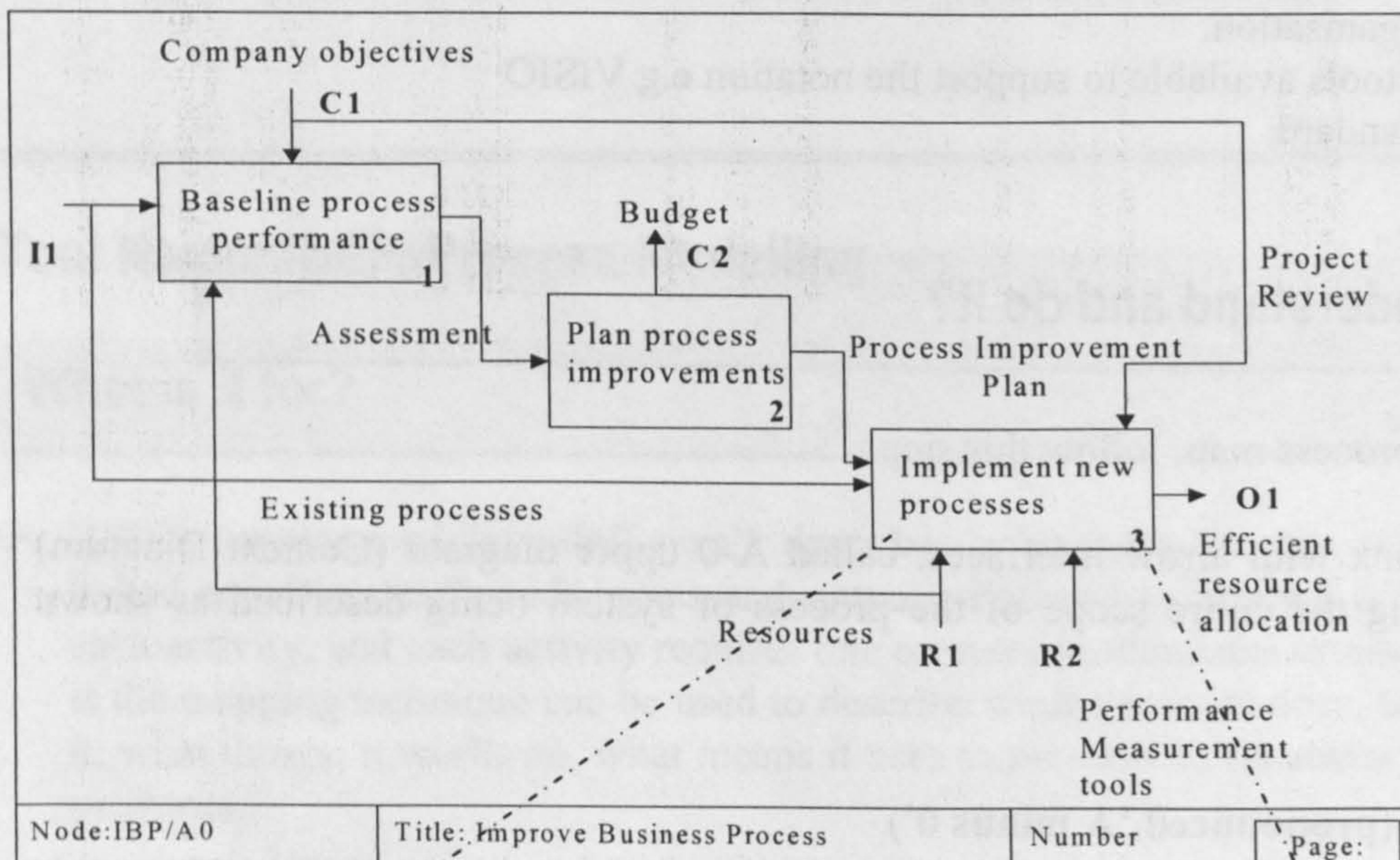
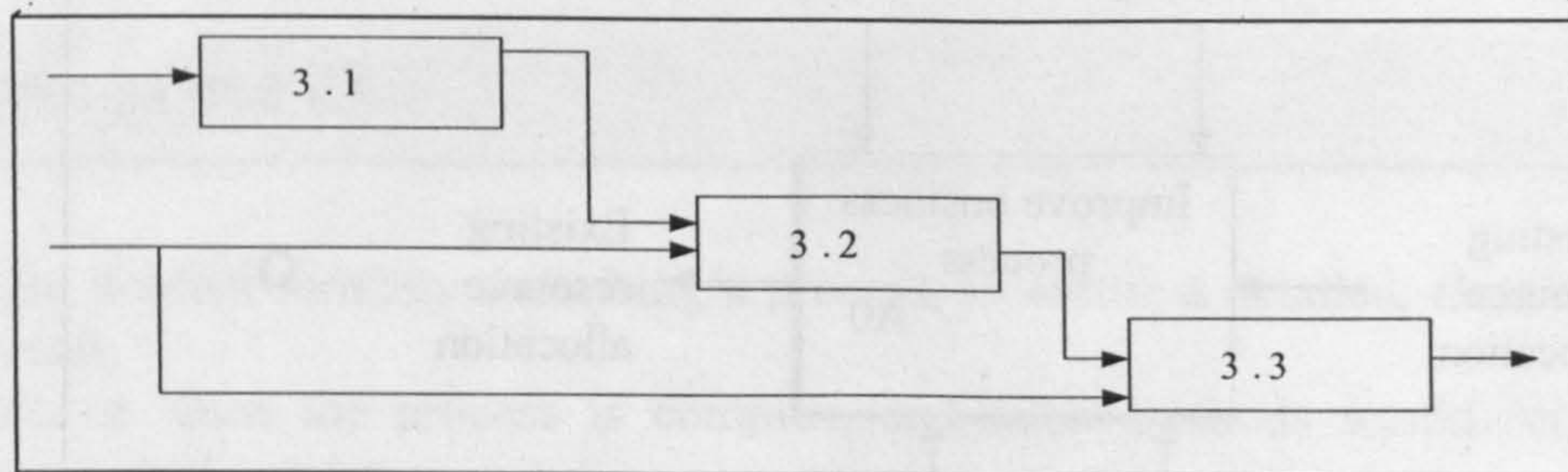
A-0 Diagram (pronounced 'A minus 0')



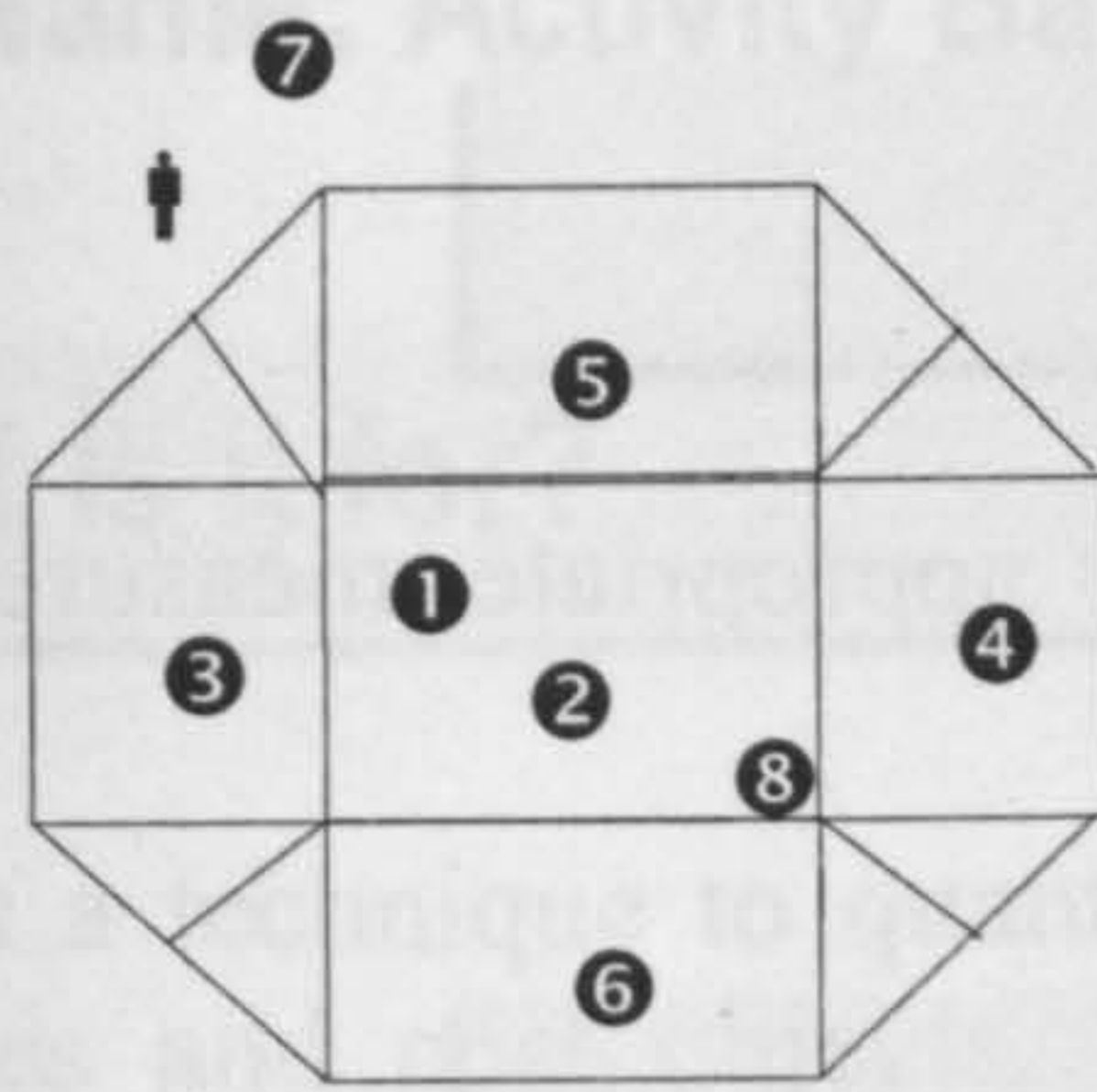
IGOR MAP

- The box in the A-0 diagram is then decomposed or exploded or zoomed into a small number of activities between three and six boxes. This is called the 'A0' diagram, see example 1 below.
- Each of the activities may be similarly decomposed to expose even more process detail as example 2 below shows the decomposition of activity 3 in A0 above.

Example 1: A0 Diagram



Key to symbols:



- ① Process Name
- ② Activities
- ③ Inputs
- ④ Outcomes
- ⑤ Guides
- ⑥ Resources
- ⑦ Process Owner
- ⑧ Tasks

Enhanced Notations

- 📄 Documents
- £ Costs
- ⚙️ Measure
- ⌚ Time
- ⚠️ Risk
- 📝 Assumptions
- ? FAQs
- 📖 Methods

Icons are provided to guide you in populating the process information captured using the *XPat* technique

in step 2 into IDEF0 diagram or a modelling tool. Use these icons to guide you for detailed level process mapping.

- Once you have developed your models, validate them with your colleagues within the organisation. This can be done as a workshop. Walk-through the model with them and invite them to comment on the process models, allow time movement of activities, try and get agreement that the models represent what happens within the organisation.

Hints and Tips

- The success of IDEF0 depends on the specifics of the situation and the skills and backgrounds of the people using it.
- Not suitable for modelling processes which have a high frequency of change as IDEF0 only provides a static representation of the process.
- Decomposition can cause difficulties when major changes are needed as it is not easy to follow.
- Not good at showing cross connections
- Label arrows for clarity
- Don't clutter your diagrams with too much information
- Participants may confuse it with traditional flowcharting because at first glance it looks to be quite similar.
- Allocate a day or two for process mapping workshop to create both high level and detailed level process maps
- No more than 30minutes should be devoted at the beginning of a workshop to formal training in IDEF0 method.
- Helps if an IDEF0 knowledgeable facilitator leads the process mapping workshop

Tool Name: Process Performance Table

What is it for?

Process Performance is a simple approach to formulate appropriate measures for activities in a process.

Why use it?

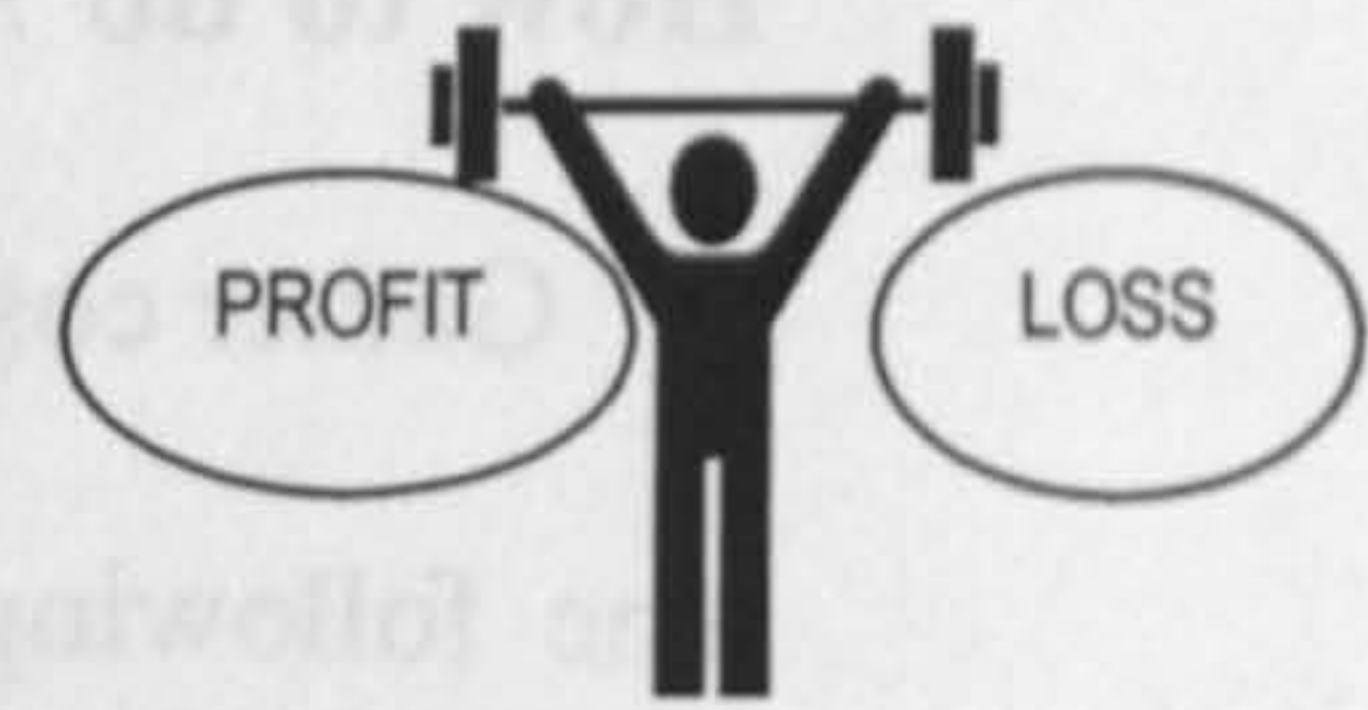
- To determine at what levels and which parts of the process to measure
- To determine the appropriate metrics
- To measure the chosen steps
- To show progress and motivate change

How to use it

- Identify activity to measure
- Decide what you need to measure (measures)
- Decide how to measure (look for indicators)
- Collect performance data

	Effectiveness Measures	Indicators	Efficiency Measures	Indicators	Adaptability Measures	Indicators
	<i>How well it meets the needs and expectations of its customers (Customer focus)</i>		<i>Level of resource utilisation for a given output The amount of work per staff per day</i>		<i>Flexibility to handle changes or exceptions across customers and over time</i>	
Process/Activity	<ul style="list-style-type: none"> • Customer Satisfaction • Quality • Price • Responsiveness • Consistency • Market Share • Profitability • Defects • Cost of Non Conformance 		<ul style="list-style-type: none"> • Cost • Processing/ Cycle Time • Wait time • Waste • Scrap 		<ul style="list-style-type: none"> • Job Satisfaction • Time to profit • Time to market • Workforce Capability • Flexible Staff 	

Tool Name: Activity Based Costing (ABC)



What is it for?

ABC is a technique to quantitatively measure the cost and performance of activities, resources and cost objects. It captures cost and time data and translates this into decision information. ABC measures process and activity performance, determines the cost of outputs, and identifies opportunities to improve process efficiency and effectiveness.

Why use ABC?

- Activities are units of work and doing that work costs money.
- Helps to determine which activities are the cost drivers (the activities that really drive the cost of your business's resources onto products and services).
- BPI and ABC are 'Partners in Profit', they establish the way the business operates and the costs that are incurred.
- Provides management with a better insight into costs and can make informed decisions on sourcing, pricing etc and perform improved resource management.

When to use it?

- Use it to determine the costs of the various value added and non value added activities.

How to understand and do ABC?

- Using the process map, identify activities and processes that are performed by various departments in your organisation (from the *Process Deployment /Swimlanes* techniques).
- Identify the cost drivers
- Using the process maps, determine true costs of the person-hours devoted to those end-to-end activities (activity costs)
- Establish how to calculate the cost of cross functional processes

How to do ABC

1. Gather costs data

The following is a list of typical data to collect on cost. There are two basic areas available for review in selecting possible change opportunities. The first is the activity model. The second is the process flow(s) selected by the project team or management for primary review and improvement.

<i>The Activity Model</i>		<i>The Process Flow</i>		Source of cost data
Total cost of activity/process	The sum of all mechanisms employed within the activity to produce output.	Cost of the output	The sum of all the cost driver determined costs applied to the output as it passes through the activities. (This is comparative information and not absolute cost.)	Accounting records
		Total cost of process	The sum of all the activities employed to complete the process.	
Cost Driver	The measure of activity output that quantifies what is produced.			Budgetary record
Elapsed time	The total amount of time it takes to produce one unit of output to include all normal delays.	Total Elapsed Time of the process	The sum of the elapsed times of the activities in the process flow.	
Cycle time	The actual time it takes to produce one unit of output not including any normal delays.	Total cycle time of the process	The sum of the actual times of the activities in the process flow.	
Labour Costs				

2. Trace costs to activities
3. Analyse Costs

Tool Name: Cause and Effect Analysis

What is it for?

The cause and effect diagram, also known as Ishikawa diagram, Xmas Tree or the Fishbone Technique, is a systematic technique for helping a group identify the possible root causes of problems over a period of time.

Why use C&E?

1. It is graphically clear
2. Helps members see patterns and relationships among potential causes.
3. Allows members to express their understanding of the problem
4. Stimulates further brainstorming of the problem
5. It maps our perception of what collectively makes the problem happen.

When to use it?

- Apply it when you want to identify the potential contributory causes of a situation.
- Use it when the effect of a problem is known, but possible causes are not all clear
- Use it to find potential risks or causes of desired effects.

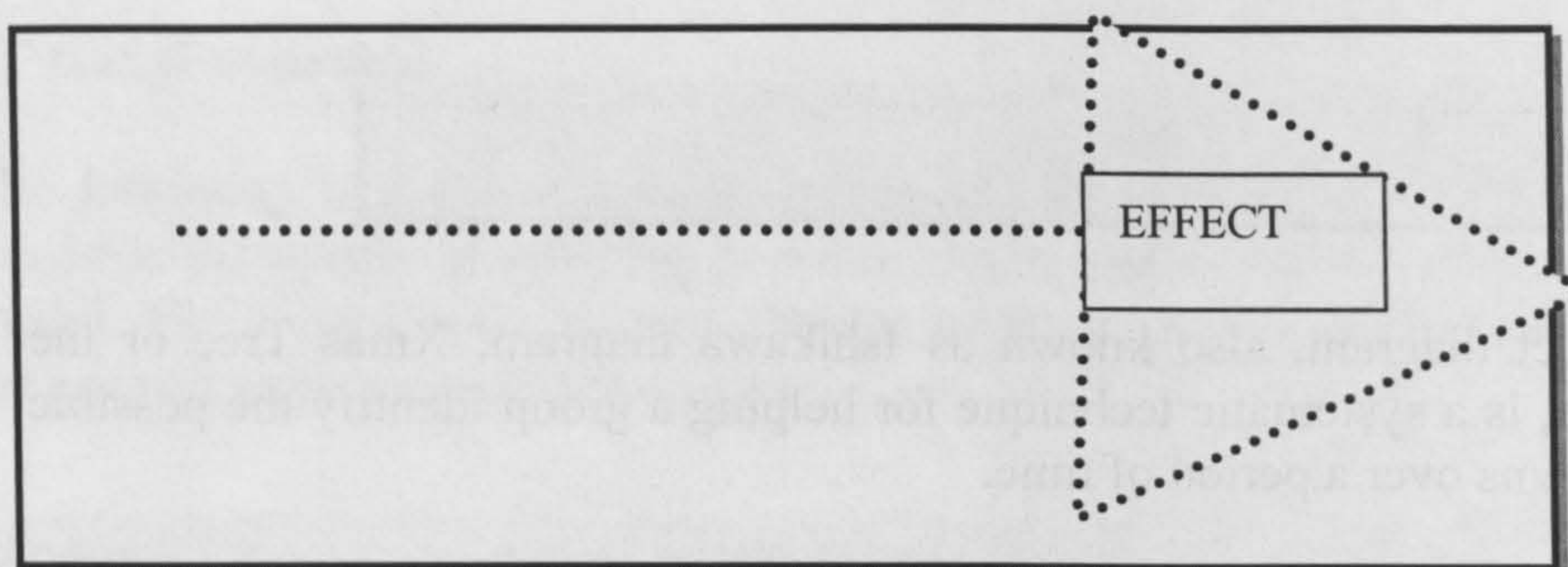
How to use it?

Using the idea that the best way of understanding a problem is to break it down into its components, the diagram arranges these components in such a way that you can understand how they relate and work together, and then channel your activity to overcome the problem. It places the problem or 'effect' in a box where a fish's head might be toward the right-hand side of the page, and links potential causes contributing to the effect, to the left along a fish-spine. The stages of the cause and effect are described in the following paragraphs.

Stage 1: Form a small team of people to work on the problem.

Stage 2: The Head and Backbone

Be absolutely clear about the 'effect' or problem you wish to overcome. Name the problem or the 'effect', put it into a box on the right hand side of the flipchart. Draw a horizontal arrow from the left-hand side to the 'effect' box.

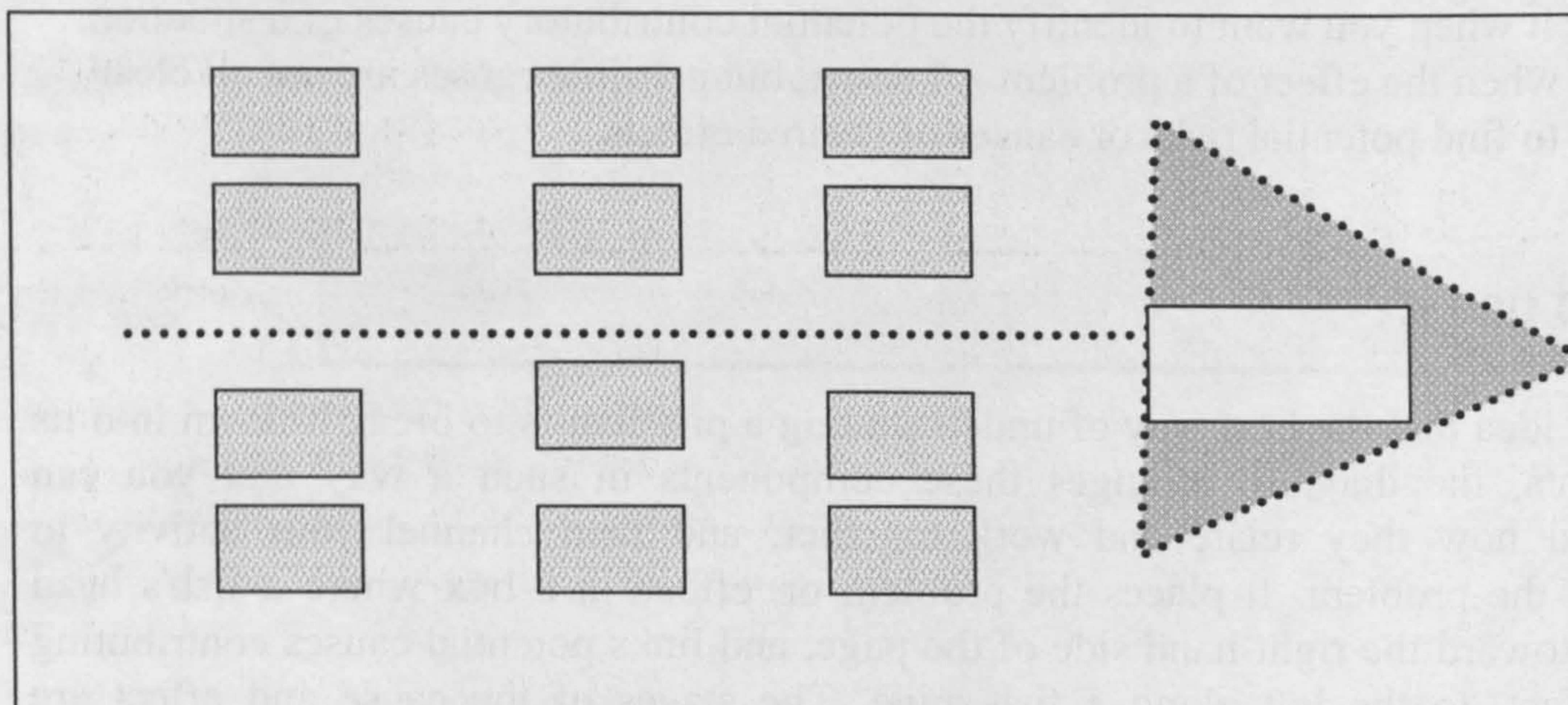


The Ishikawa Diagram -Stage 1: The Head and Backbone

Stage 3: Specify all the parts of the fish

Brainstorm all the minor causes, all the components which together constitute the body of the fish onto Post-its (typically between 4 to 6) (one Post-it per item).

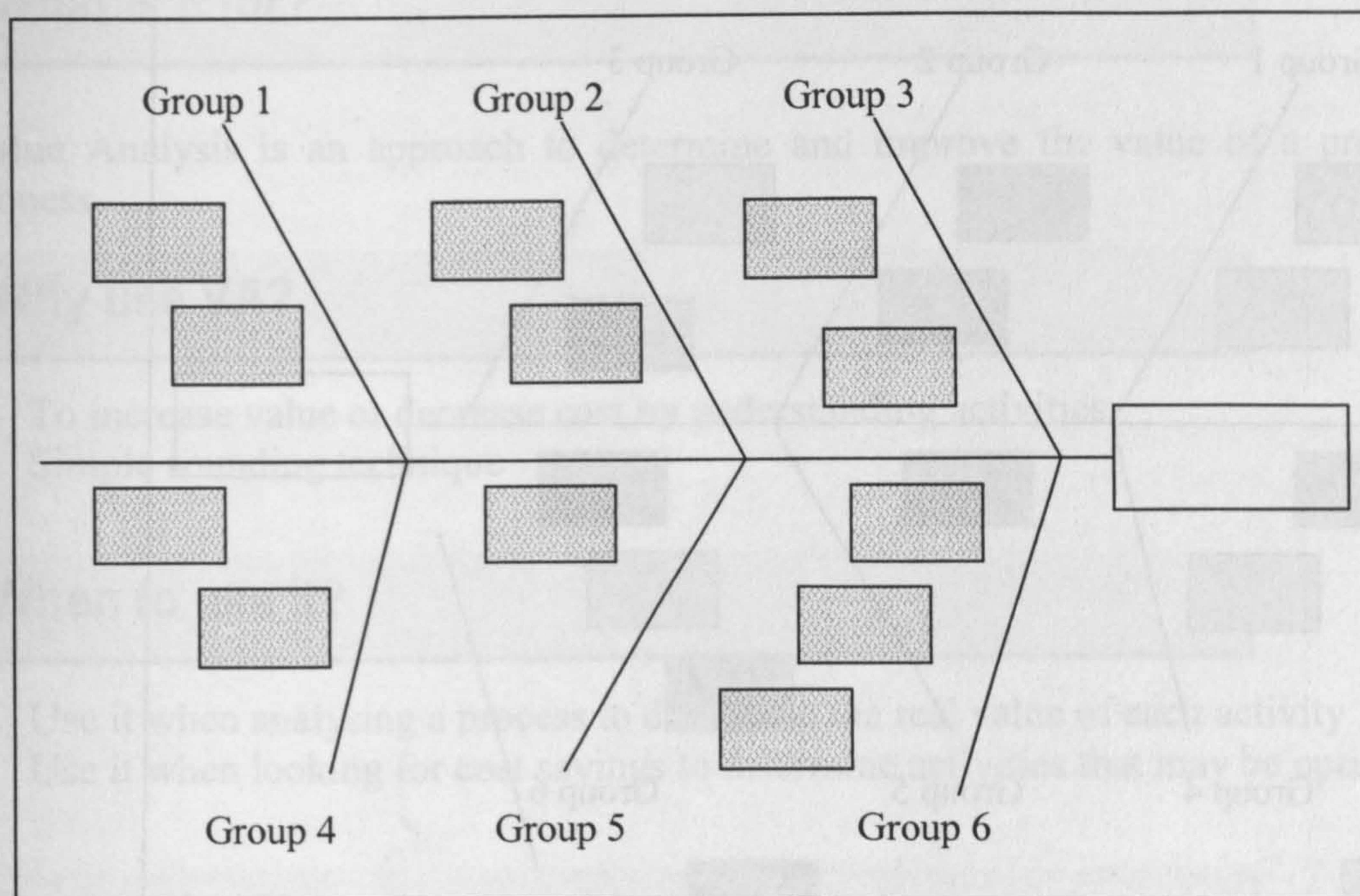
If these are uncertain, you may wish to use standard headings, such as the 4M Approach (Methods, Manpower, Machines and Materials), or PEMPEM: (Plant, Equipment, Materials, People, Environment, Methods).



Stage 4: Build and Cooking the Fish

Use Brainstorming to review the causes, arranging the Post-its into natural family groups and labelling these major spines of the backbone. Ways of finding more causes include:

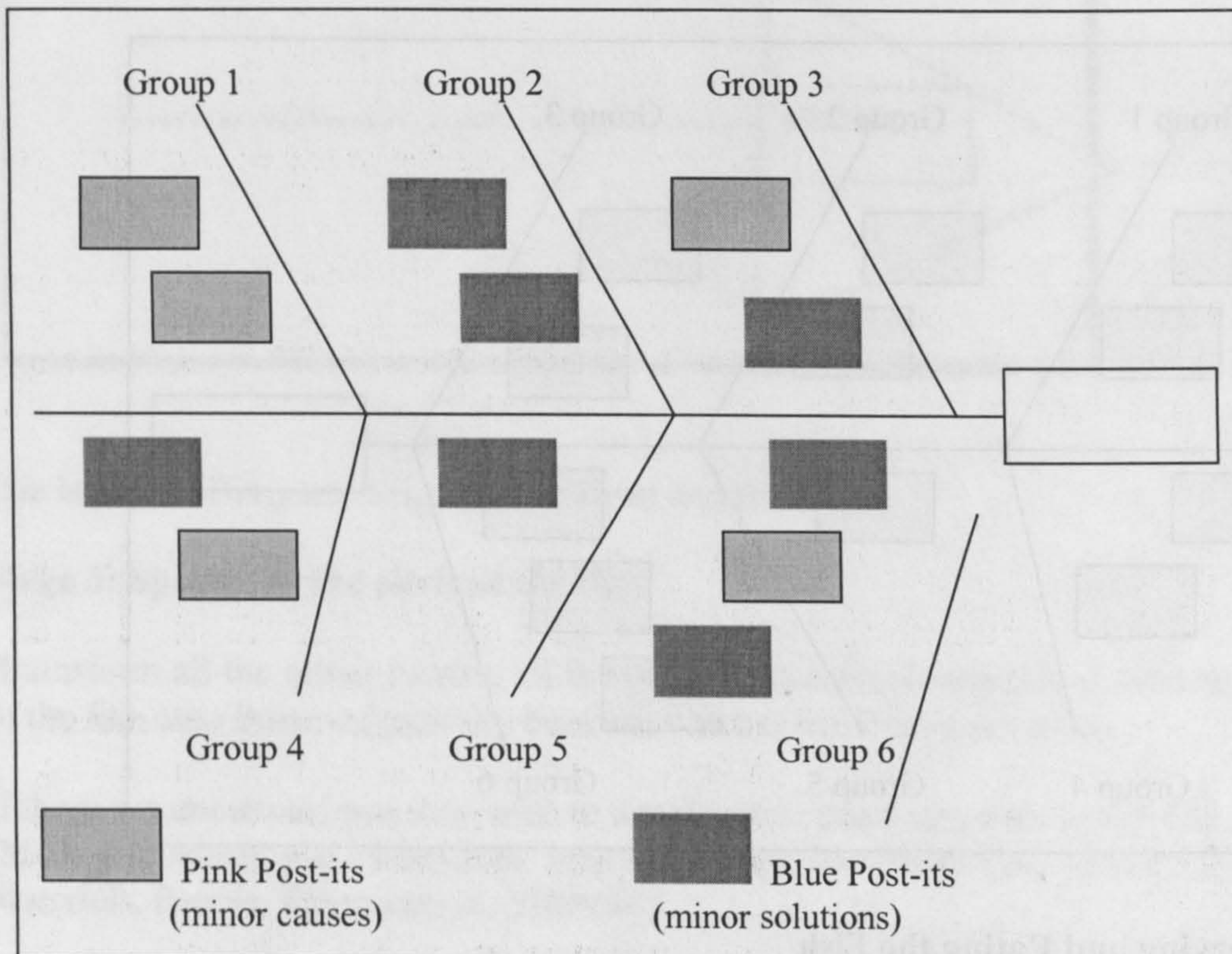
- Keep asking 'Why'?
- Look at the diagram
- Take a break
- Involve expertise in the problem areas
- Leave the chart on the wall for a few days to encourage contributions.



Stage 5: Serving and Eating the Fish

When the diagram has been fully developed, the group needs to categorise and prioritise areas in terms of importance or complexity for consideration in generating solutions.

A simple approach is to put all the causes onto pink Post-its on the left-hand side of the labelled spines, then brainstorm minor solutions onto blue Post-its, putting them to the right of the spine: balancing the minor causes with minor solutions.



Hints and Tips

- First ask '*What* could be a cause?'
- Then ask, '*How* could it cause problems?'
- Ask the question 'Why/Why/Why? Until you find that you either run out of answers or the same answers keep coming up.

Tool Name: Value Added Analysis (VA)**What is it for?**

Value Analysis is an approach to determine and improve the value of a product or process.

Why use VA?

- To increase value or decrease cost by understanding activities.
- Simple sounding technique

When to use it?

- Use it when analysing a process to determine the real value of each activity
- Use it when looking for cost savings to determine activities that may be optimised

How to do VA

Using the documented As Is process map, conduct a value analysis syndicate exercise with the team and nominate someone to feedback. Allocate half an hour for this exercise.

1. Identify the process to be analysed
2. Identify the customers of the activity by asking,
 - What do they do with the activity?
 - What would they do without the activity?
3. Identify the functions of the process or activity by asking,
 - Why is the process step necessary?
4. Determine why the process is done this way and how else it could be done.
5. Examine why the designated person and particular business units do the process.
Who else could do the process
6. Determine the importance, or value of each activity in the process to the customers.
This will help to prioritise improvements.
 - The easiest way to identify the value adding activities is to categorise wastes in the activities using the following analytical technique:

Valued added (VA) are activities that contribute to meeting customer requirements.

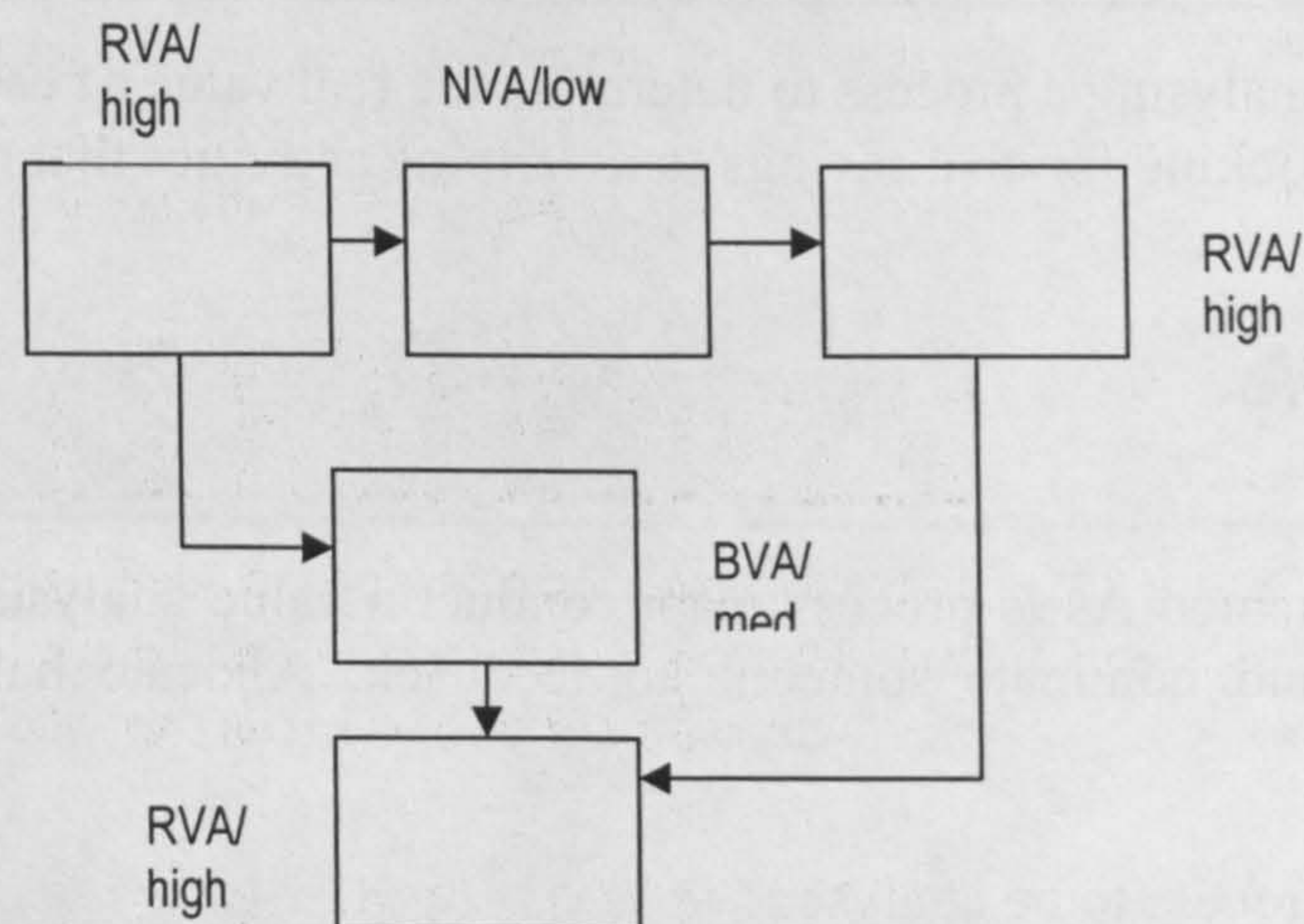
Business Value Added (BVA) are activities such as maintaining skills or updating a database.

Non Value Added (NVA) are redundant or waste in the process and need to be eliminated or minimised.

Q	Not moving/ idle/ Delay/ Bottleneck
I	Inspection/ Checking
M	Move from one place to another but coming back
D	Duplicate
P	Preparation
H	Hand-Off -finish off with task
S	Stop -Dead end

Once each step is categorised,

- Consider the impact on each of the performance measures for the process and **assign RVA/NVA/BVA to each step** in the process. Allocate *high* to RVA, *low* to NVA and *medium* to BVA While you are doing this, ask, 'Is this activity really necessary?' 'Why do we do things the way we do?'



7. Measure the cost of each process/activity as accurately as possible. This may include direct material costs, time costs, labour costs and other resource costs. Costs and activities may be matched

Activities	Costs		Total Costs
	Material	Labour	

8. Compare the activities with the business objectives, determining which activity contributes to which business objectives.

Activities	Business Objectives (BO)		
Activity 1		BO	
Activity 2			BO

9. Identify activities that may be improved

- Look for redundant activities that do not contribute to customer value which may be eliminated.
- Identify high cost activities, especially those that satisfy low value add.
- Identify high value adds and identify activities that contribute towards them.

10. Use Brainstorming to create a list of possible improvements to the activities identified in 9 above.

11. Evaluate the ideas to determine their cost and select those that can be practically implemented.

12. Implement selected ideas and measure the costs and values to identify the real benefits gained.

Hints and Tips

- Requires deep analysis of the process to be improved
- VAA technique can be used effectively together with Activity Based Costing (ABC), another form of Value Analysis.

Tool Name: Brainstorming Workshop**What is it for?**

Brainstorming is a technique used by a group of people that encourages their collective thinking power for the purpose of generating creative ideas in a short time. The technique is one of suspending judgement while assembling ideas.

Why use Brainstorming?

1. It brings out the most ideas in the shortest time
2. It increases involvement and participation
3. It allows the group to have fun
4. It nurtures positive thinking
5. It omits criticism and evaluation of ideas
6. It results in improved solutions

When to use it?

- Use it when new ideas are required, to generate a large list of possibilities.
- Use it when a solution to a problem cannot be deduced
- Useful in helping a team bind together

How to use it?

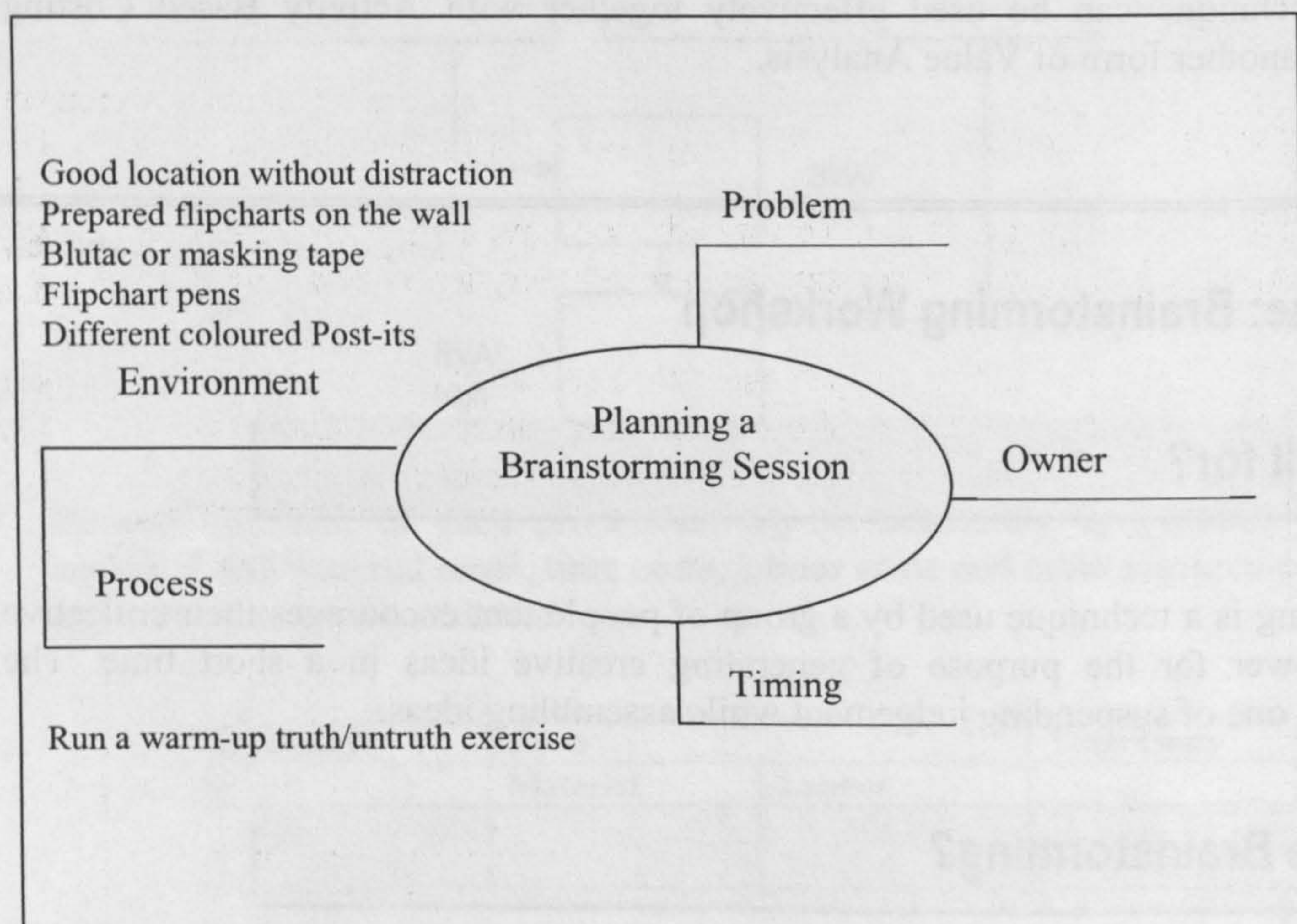
- Plan the brainstorming workshop session

When you are preparing for a brainstorming session, you need to ask a few questions first:

Problem: Is it open or closed?

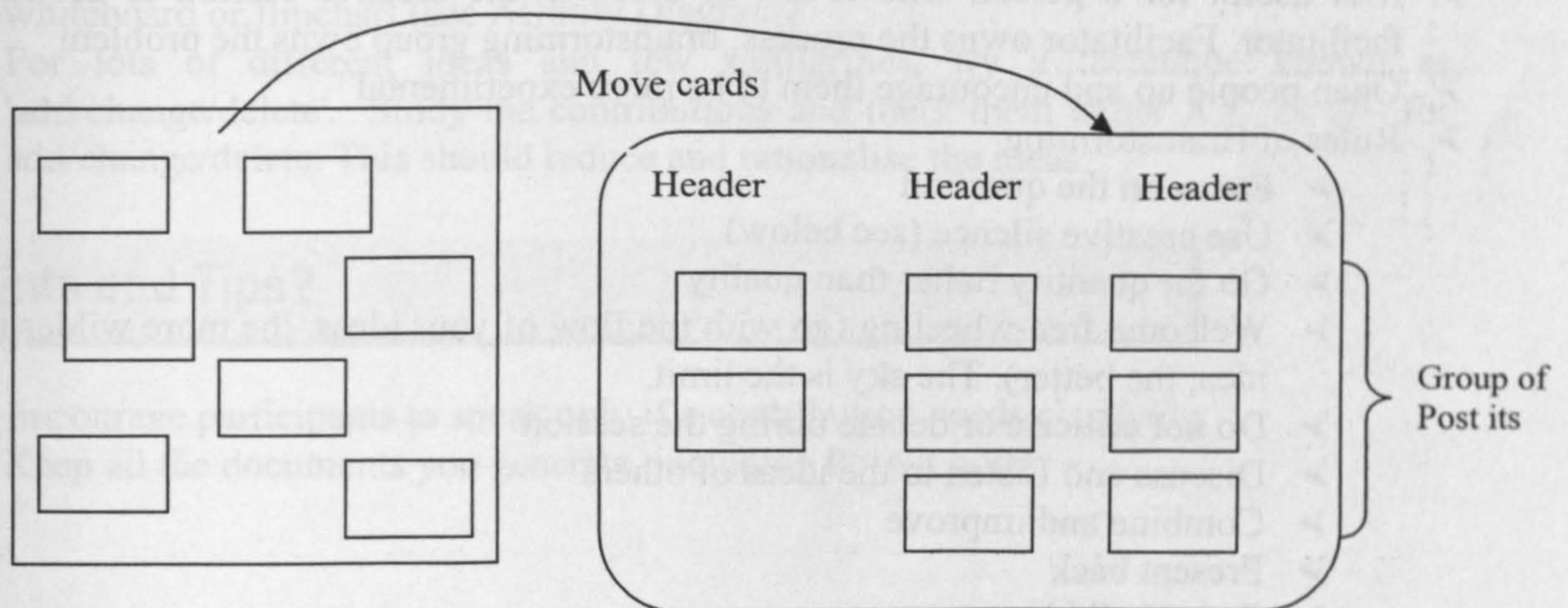
Owner: Whose problem is it really?

Timing: How much time have we got?



- Display the rules of brainstorming on a flipchart
- Lay out the meeting room with participants facing the whiteboard or flipchart.
- 6 questions to ask about any new idea, solution, or course of action:
 1. Is it really new?
 2. Is it both relevant and practical?
 3. Whom will it involve?

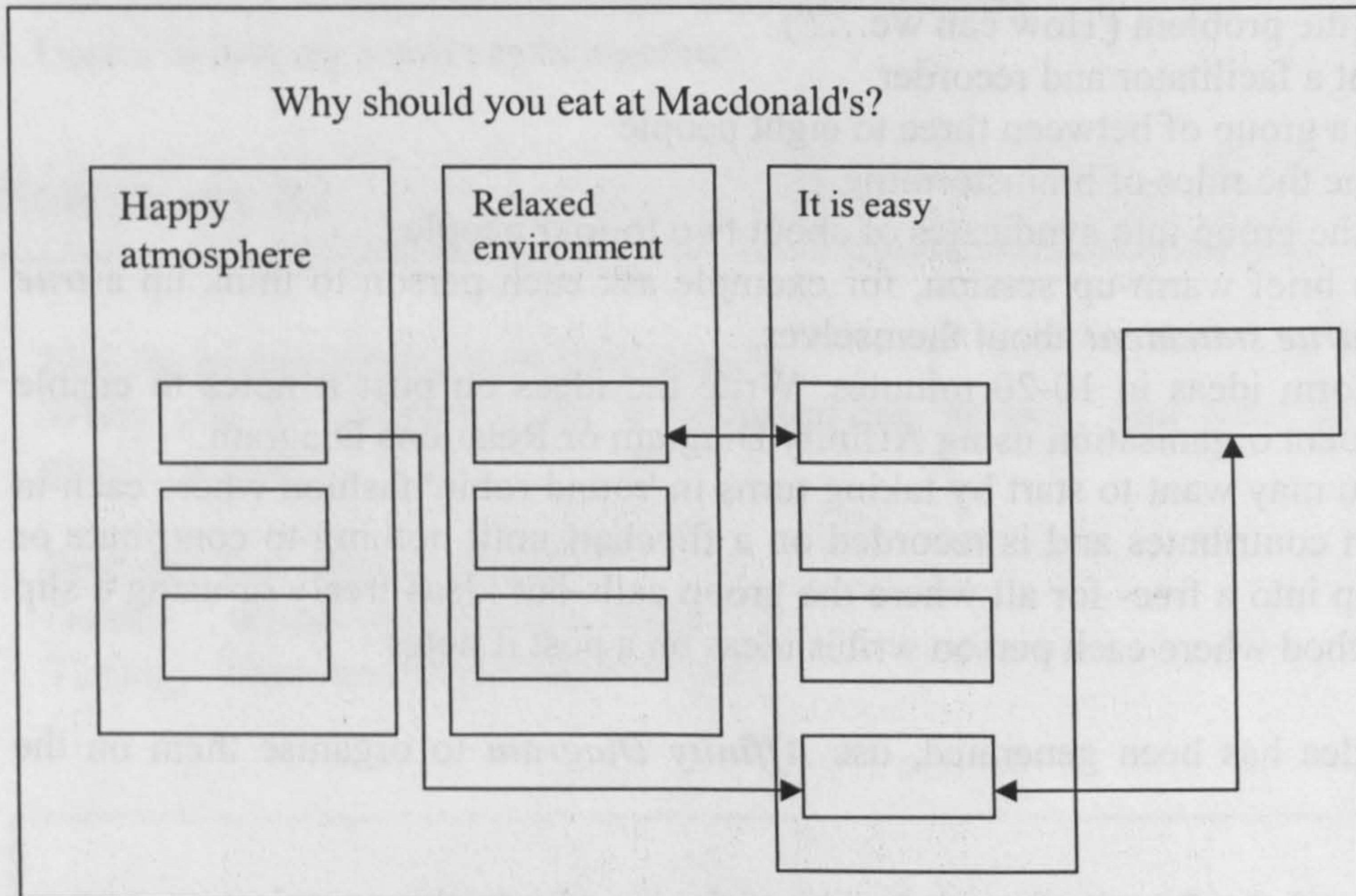
4. How much will it cost?
 5. How much will it save?
 6. Will it require more formal evaluation?
- Run a brainstorming session
 - Define the problem ('How can we...?')
 - Appoint a facilitator and recorder
 - Gather a group of between three to eight people
 - Describe the rules of brainstorming
 - Break the group into syndicates of about two to four people
 - Have a brief warm-up session, for example ask each person to think up a **true and untrue statement** about themselves.
 - Brainstorm ideas in 10-20 minutes. Write the ideas on post it notes to enable subsequent organisation using Affinity Diagram or Relations Diagram.
 - You may want to start by taking turns in 'round robin' fashion where each in turn contributes and is recorded on a flipchart until nothing to contribute or drop into a free- for all where the group calls out ideas freely or using a slip method where each person writes ideas on a post it notes.
 - After an idea has been generated, use **Affinity Diagram** to organise them on the board.
 - 1 Spread the Post-its from left side of the board into the organisation area on the right side. Allow enough space for the team to freely move.
 - 2 Silently, the group reads the post it and moves them one by one from left side to the organisation area as shown below.



Parking area (post it notes in random order) Organisation area (notes in groups)

- 3 Discuss each group, shown in boxes to identify common features of the group. Create a header and place it at the top of each group.

- 4 Use flipchart paper for the organisation area. Create four columns per sheet and one column for each group and you may want to add arrows to show relationships as shown below.



Hints and Tips?

- It is useful for a person who is not involved in the creative session to act as a facilitator. Facilitator owns the process, brainstorming group owns the problem
- Open people up and encourage them to be more experimental
- Rules of Brainstorming
 - Focus on the question
 - Use creative silence (see below)
 - Go for quantity rather than quality
 - Welcome free-wheeling (go with the flow of your ideas, the more wilder the idea, the better). The sky is the limit.
 - Do not criticise or debate during the session
 - Discuss and Listen to the ideas of others
 - Combine and improve
 - Present back
 - Record all ideas
- Take a break. Rest the mind.
- About 40 minutes is the optimum time for a brainstorming session.

Tool Name: Creative Silence Workshop**What is it for?**

Participants individually and silently generate ideas in response to a question.

Why use Creative Silence?

- Leads to a significant improvement in quality and diversity of ideas.
- Useful way of accelerating the process
- Allows quieter members of the group to contribute

When to use it?

- Use it if group problem-solving is less productive

How to use it?

- Use Post-Its, and get them to write one idea per Post-it for 2-5 minutes.
- No comments from the group
- Ask each person to stick them onto a blank wall until all the ideas are presented.
- Ask the participants to group their ideas into families of similar ideas on a whiteboard or flipchart (see Affinity Diagram)
- For lots of different ideas and few similarities, try a technique known as 'add/change/delete'. Study the contributions and mark them either A,C, or D - for add/change/delete. This should reduce and rationalise the ideas.

Hints and Tips?

- Encourage participants to speak only if a contribution needs clarifying.
- Keep all the documents you generate, including Post-It notes

Tool Name: Run Workshops

What is it for?

This part gives you material and instructions to run a series of workshops in your own company. For your pilot project, some of the workshops you will need to run during your change programme will be envisioning, validation of AS IS model and redesign session.

How to use it?

1. Preparing the workshops

Before you start

You must:

- Appoint a facilitator
 - Understand the process and contents of the workshops
 - Agree the way forward with key people
-
- Who needs to agree the workshop design?
 - What equipment you need
 - Where to hold the workshop - have fun away from the office!
 - What techniques to use
 - Do you need to circulate materials to participants before workshop?
 - Have an agenda ready

Agenda for AS IS Process Validation Workshop	
15 mins	OPENING BRIEFING
10 mins	ACTIVITY 1 PRESENTATION What is validation and analysis and how can it help?
45 mins	ACTIVITY 2 WALK-THROUGH PROCESS
15 mins	BREAK
90 mins	ACTIVITY 3 ANALYSE THE PROCESS
30 mins	ACTIVITY 3 REVIEW & AGREE NEXT ACTIONS

- Prepare an evaluation criteria before workshop

2. Run the workshop

- Who should take part
- When to hold it

- Accommodate innovation time
- Expose your teams to your customers and brainstorm with them. Test your ideas with them
- Use your suppliers as well if they are likely to be part of the process-redesign requirements
- Post completion, take away about three themes for expansion from the workshop

Hints and Tips?

- Some of the techniques you will be using may be new, so a brief run-through may help.
- Keep all the documents you generate, including Post-It notes. This ensures a permanent record of decisions.

Template to Identify the Implementation Team

<i>Role in Team</i>	<i>Person</i>	<i>Responsibilities</i>	<i>Team Concerns and Issues</i>
Process Owner			<p>Links with line managers and staff need to be strengthened.</p> <p>Time is always a constraint</p>
Process Leader		Training Booking process owner	
Team Leader		Identifying Requirements	
<i>Process/Team Facilitator</i>		Process and Team facilitator	
Other team Role		Support the line manager's role aspect of the process.	

IMPLEMENTATION PLAN

ACTION PLAN							
PROJECT NAME: TRAINING PROCESS					REF:		
Actions	Steps to Achieve Plan	Responsibility	Start Date	Finish Date	Time Required	Deliverable	Cost £

SECTION 3: TOOLS AND TECHNIQUES

Project:	Start date:						Process Owner	
Process Improvement	End date:						Process Leader	
Process: Development & Learning Process								
Activities	Jan	Feb	Mar	April	May	June	July	
Whole Project		↔						
Activity 1- Create Information Pack			↔					
Activity 2.- Redraft Forms		↔						
Activity 3 - Update Models & Database			↔					
Activity 4 - Check booking form alterations with Chris Scarlett (P&SD)				↔				

Sample Outcome/Deliverable: Evaluation Measurement Report

Table of Contents

1. The Business Case

2. Summary of BPI Initiative Report

3. Attained Report

Quantitative

- Customer Satisfaction
- Quality – Product and Service
- Cost Reduction
- Cycle Time
- Employee Satisfaction – attitude, morale, empowerment
- Productivity

Qualitative

- Individual Performance – competencies, values, beliefs, behaviours and emotions
- Organisational Performance – Infrastructure, environmental, logistical, political

4. Human Objectives

- Changes in human resources
- Skills, knowledge and attitudes
- Competencies

5. Technical Objectives

- Process Changes
- Technology Changes

6. Gap Analysis

- Commitment
- Set out to accomplish and did
- Gaps, accomplishments yet to be realised
- Observations

7. Conclusions and Additional Actions/Recommendations

Balanced Scorecard Example

Customer Related <ul style="list-style-type: none"> ➤ Customer satisfaction 	Financial Related <ul style="list-style-type: none"> ➤ Sales ➤ Income ➤ Cost per unit
Process Related <ul style="list-style-type: none"> ➤ Effectiveness measures ➤ Efficiency measures 	Miscellaneous Related <ul style="list-style-type: none"> ➤ Systems and structures ➤ Employee morale ➤ Competencies required

Meetings should be held regularly by leaders to address strategic issues on process performance using the Balanced Scorecard to ensure the processes are functioning to support business objectives.

Balanced Scorecard Example

Customer Related <ul style="list-style-type: none"> ➤ Customer satisfaction 	Financial Related <ul style="list-style-type: none"> ➤ Sales ➤ Income ➤ Cost per unit
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Meetings should be held regularly by leaders to address strategic issues on process performance using the Balanced Scorecard to ensure the processes are functioning to support business objectives.

Process Improvement Matrix

WHAT WE ARE TRYING TO ACHIEVE

The matrix is a management tool used as a consistent method of scoring all processes, with the ultimate view of creating a benchmark for all internal processes.

Score	0	1	2	3	4
Ownership					
Definition					
Staff operating and managing the process					
Effectiveness of process					
Scoring					
Top score is 40					

HOW THE SCORING WORKS

The first column lists the principles of the process that are being measured. The subsequent columns contain descriptive performance indicators numbered 0 - 4; 0 meaning "poor" and 4 meaning "excellent".

Read across each row and decide which of the indicators match the principle being measured. Once a match has been found, take the number from the top of that column. Repeat this for each principle that's being measured. Once all of the principles listed in the first column has been given a score, add all the scores together to give the process a rating. The maximum score for this particular matrix is 40. It is up to Managers/Project Teams to decide, based on the descriptive indicators, what is a satisfactory score.

here is an example.

The principle in this example is "Staff operating and managing the process". I want to measure how well staff are performing within the process. It has been shown that while staff have been assigned to operate and manage the process, they don't all know their responsibilities and are not sufficiently competent in performing the relevant tasks. This principle of the process would, therefore, score 1.

Process Improvement Matrix

Score	0	1	2	3	4
Ownership	No one owns the process	Process has an owner	Process owner has fully accepted responsibilities, understands the process and the techniques	Success of the process impacts the owner's personal rewards; KPIs are linked to the owner's objectives. Owner is an effective leader.	Recognised role model process owner. Owner has been rewarded for improving the process
Definition	It exists. It's purpose is unclear	The purpose of the process has been documented	Audit shows a process and documentation to match	Measurements and mechanisms included in the process definition. Task frequencies are tied to SLAs	Process is fully understood
Staff operating and managing the process	It is unclear who has a role in the process	Staff have been assigned to operate and manage the process	All know their responsibilities and are competent. Role objectives reflect involvement in the process	All are skilled, committed and competent, work as a team, know the outline of others' responsibilities.	Working with customers and suppliers to improve the process
Effectiveness of process	Inputs and outputs not known	Deliverables assumed	Deliverables confirmed with customers, sometimes being achieved	Deliverables to customer achieved most times	Process is stable. Outputs consistently achieved. SLA targets 100% met

Scoring 0 4 8 12 16

Top score is 40

Section 4– Glossary of Terms

Terms	Definitions
Business Process	<i>"a group of logically related tasks that use the resources of the organisation to provide defined results in support of the organisation's objectives"</i>
Process	<i>"the transformation of inputs into outputs, the inputs can be resources or requirements, whilst the output can be products or results. The outputs may or may not add value and could be an input to another process".</i>
BPI	<i>"a methodology that is designed to bring about step-function improvements in administrative and support processes using approaches such as fast, process benchmarking, process redesign and process reengineering".</i>
BPR	<i>"To rethink, restructure and streamline the business structures, process, methods of working, management systems and external relationships through which we create and deliver value"</i>
Benchmarking	<i>"continuous process of evaluation and performance improvement of products, services and practices with respect to those of the strongest competitors or of the enterprises recognised as leaders"</i>
IGOR	<i>Input, Guides, Output, Resources</i>
AS-IS Model	<i>A representation of the current process</i>
TO-BE Model	<i>A representation of what the future process should look like</i>
Continuous process improvement	<i>"a localised and company-wide process of focused and continuous improvement innovation".</i>
IDEF	<i>Integrated Definition Language</i>
XPat	<i>eXpert Process Analysis Technique</i>
KPI	<i>Key Performance Indicators</i>
EFQM	<i>European Foundation for Quality Management</i>
BSC	<i>Balanced Scorecard</i>