DETERMINING THE ROLE OF INNOVATION MANAGEMENT & MEASUREMENT IN STRATEGIC FACILITIES MANAGEMENT – ENSURING OPTIMISATION & CONTINUITY

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For my dearest father...I am what I am because you are there... Thank you.

ABSTRACT

"It came together wonderfully. My job was just to make sure that it was running smoothly"

(Frost, 1994)

With an aim to contribute to the area of Innovation Management and innovation in Facilities Management (FM), this research highlights on how innovation today can be best described as being fundamental to corporate success. Most work has concentrated on the numerous external and internal factors that are associated with generic innovation but more recently some attention has been paid to innovation in the management of multiple supplier contracts and within the field of facilities management. The importance of understanding the concept of innovation is beginning to be realised as the flawed logic that innovation is coincidentally linked to information technology (IT) solutions are exposed. This thesis explores the concept of generic innovation and suggests that these concepts apply equally within the FM role driving its role as a dynamic business tool. It moves away from the classical view of continuity planning which looks at damage limitation in everyday business activities and emergency damaging business events. It aims towards defining appropriate practice in supplier contract management to find maintain and protect the optimum position rather than simply limiting the damage. The study allows Facilities Managers to exemplify their knowledge and skill by apprehending the role of Innovation Management in Facilities Management at operational and strategic levels and establishes the factors that led to the growth and development of innovation as a field and as an important part of the facilities management world, including relationship with suppliers within the multiple contracts arrangements.

The study concludes that integration of business strategies, goals and objectives with facilities management innovation is an organisational reality that cannot be ignored in today's rapidly evolving business environment and customer focussed business culture. Hence, it is essential not only to have the appropriate knowledge base but also the skills to translate this knowledge into specific actions that add value in the business, benefit the customers and help gain competitive advantage. The role of Innovation Management in FM is not about producing innovative solutions but about the provision of a creative environment in, which these solutions can be conceived, developed and applied.

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DECLARATION

This is to certify that,

1) This thesis embodies the author's research
2) The originality (and contribution to knowledge) rests solely with the author

Signature of the candidate: .....

Date: :29\06\07.....

GLOSSARY OF TERMS USED

Terms used in Innovation Management, Business Development and Supply Chain Management

The following list of terms used has been referred from:

Hiles, A. and Barnes, P. (2001), "*The Definitive Handbook of Business Continuity Management*", John Wiley & Sons.

Sefton, A.C. (2002), "*The Role of the Facilities Manager in Business Continuity Management*", MSc. Dissertation, Heriot Watt University, pp.166-181.

Action Plan: A document used to guide the implementation of business process improvements. It contains task assignments, schedules, resource allocations, assignments, and evaluation criteria.

Benchmark: A measured, "best-in-class" achievement; a reference or measurement standard for comparison; this performance level is recognised as the standard of excellence for a specific business process.

Benchmarking: A systematic and continuous measurement process; a process of continuously comparing and measuring an organisation's business processes against business leaders anywhere in the world to gain information that will help the organisation take action to improve its performance.

Best Practice: A way or method of accomplishing a business function or process that is considered to be superior to all other known methods.

Brainstorming: A technique that teams use to generate ideas on a particular subject. Each person in the team is asked to think creatively and write down as many ideas as possible. The ideas are not discussed or reviewed until after the brainstorming session.

Business Case: A structured proposal for business process improvement that functions as a decision package for enterprise leadership. A business case includes an analysis of business process needs or problems, proposed solution, assumptions and constraints, alternatives, life cycle costs, benefits/cost analysis, and investment risk analysis. In some government agencies, a business case is called a Functional Economic Analysis (FEA).

Business Management: The organisation and running of business activities.

Business Plan: A detailed statement of the objectives, proposed operations, resource requirements, financial forecasts etc. of a new or established business.

Business Practice: The formal or usual way in, which businesses or an activity is conducted within the business.

Business Process: A collection of activities that work together to produce a defined set of products and services. All business processes in an enterprise exist to fulfil the mission of the enterprise. Business processes must be related in some way to mission objectives.

Business Process Improvement: The betterment of an organisation's business practices through the analysis of activities to reduce or eliminate non-value added activities or costs, while at the same time maintaining or improving quality, productivity, timeliness, or other strategic or business purposes as evidenced by measures of performance. It is also commonly called as functional process improvement.

Business excellence: Outstanding practice in managing the organisation and achieving results based on fundamental concepts.

Change Management: Change Management is the balanced management of the resources (human and technical) associated with the change initiative. It is about people leading the change effort and those who are expected to implement the new strategies. It is concerned with the organisational culture and context in, which change can occur; and the management of the emotional connections essential for a successful transformation. A number of strategies involved in change management include education, training, and communications.

Commercialisation: Making something into a business proposition and applying the methods of business to something for profit.

Competition: Rivalry between two or more businesses striving for the same customer or market.

Continuous Improvement: The ongoing improvement of products, services, or processes through incremental and breakthrough improvements.

Copyright: Legal right, which the creator of an original work has, to only allow copying of the work with permission and sometimes on payment of royalties or copyright fee.

Core competencies: A well performed internal activity that is central to an organisations competitiveness, profitability or efficiency.

Cost: The price or imputed value of each resource assigned to an activity that is consumed in the process of producing the products and services of that activity.

Corporate Social Responsibility: Policies and practices to measure and manage the environmental performance and social impact of the organisation, its reputation in these areas, and two-way communication with society and stakeholders.

Creativity: The generation of ideas for new or improved working practices and/or products and services.

Crisis: An abnormal situation or perception, which threatens the operations, staff, customers or reputation of an enterprise.

Critical success factors: The prior conditions that must be fulfilled in order that an intended strategic goal can be achieved.

Culture: The total range of behaviours, ethics and values which are transmitted, practised and reinforced by members of the organisation.

Customer: The recipient of an output product or service. Customers can be both internal and external to the organisation.

Driver: An activity or condition that has a direct influence on the operational performance or cost structure of other activities.

Empowerment: The vesting of employees with necessary skills, knowledge, information and authorities in such a way as to enable them to take all actions necessary to produce the specified outputs in the most effective and efficient way. A periodic setting of clear targets gives the necessary guidance within the framework of the overall objectives of the organisation.

Enterprise: When used generically, an enterprise is defined as the aggregate of all functional elements participating in a business process improvement action regardless of the organisational structure housing those functional elements. It is also defined as an organisation, a corporate entity, a firm, an establishment, a public or government body, department or agency; a business or a charity.

External Customer: A person or organisation who receives a product, a service, or information but is not part of the organisation supplying it.

Excellence: Outstanding practice in managing the organisation and achieving results based on a set of Fundamental Concepts which will include: results orientation, customer focus, leadership and constancy of purpose, management by processes and facts, involvement of people, continuous improvement and innovation, mutually beneficial partnerships, corporate social responsibility.

Finances: The short term funds required for the day- to-day operation of the business, and the capital funding from various sources required for the longer term financing of the organisation.

Fundamental Concepts of Excellence: The set of principles and ideals upon, which the EFQM Excellence Model framework is based.

Good/best practice: An error free, proven and documented working practice that exceeds the norms of known, current operational performance within a specific business environment.

Idea: Something, such as a thought or conception that potentially or actually exists in the mind as a product of mental activity, or can also be described as a plan, scheme, or method.

Impact: Impact is the cost to the enterprise, which may or may not be measured in purely financial terms.

Incident: Any event, which may be, or may lead to, a disaster.

Incremental Improvement: A small change made to an existing product that serves to keep the product fresh in the eyes of customers.

Information System: An engineered arrangement of computers, communications facilities, software code, and data designed to support a business process.

Information Technology (IT): A package of equipment and/or systems related to data and/or communications that can be used as an enabler of process reengineering.

Information Resources: Business, technical data and other information in all its forms, as well as the means of making the information available and accessible.

Innovation: The practical translation of ideas into new products, services, processes, systems and social interactions.

Innovation Cycle: The general progression that innovations pass through from basic R&D, to full commercialisation, widespread diffusion, and eventual obsolescence. Each stage just described frequently influences the other stages and different stages often coexist with one another.

Innovative Culture: The environment within a business or organisation, which encourages their staff to be creative in their work practices and nurture any ideas they have.

Innovation Process: The process of practical refinement and development of an original invention into a usable technique or product.

Intellectual capital: The value of an organisation that is not captured in its traditional financial accounts. It represents the intangible assets of an organisation and is the difference between market and book value. Commonly defined components are human capital, structural capital and customer capital.

Intellectual Property Rights (IPR): The generic name given to the means of protecting and extending intellectual property rights over all commercial inventions, innovations, and expressions of ideas contained in digital and non-digitised formats. The IPR tool kit consists of patent, trademark & service mark, design registration, copyright, layout design for integrated circuits, trade secrets and undisclosed information, geographical indications, protection of new plant varieties and anti competitive practices in contractual licenses. From the perspective of communication, copyright and to a lesser extent patents are the key instruments for enquiry.

Knowledge: Knowledge is part of the hierarchy made up of data, information and knowledge. Data are raw facts. Information is data with context and perspective. Knowledge is information with guidance for action.

Knowledge Management: Explicitly or implicitly affecting the processes, an agent or collective of agents use to discover, create, use, change, transfer, store, or replace their internal and external validated rule sets.

Leaders: The people who coordinate and balance the interests of all, who have a stake in the organisation, including: the executive team, all other managers and those in team leadership positions or with a subject leadership role.

Leadership: Leadership is the study of the organisational direction provided by senior managers. Leadership covers, but is not limited to, the dynamics of visioning, planning, decision making, motivating, organizing, developing, empowering, and directing the activities of others to achieve specific goals.

Management System: The framework of processes and procedures used to ensure that the organisation can fulfil all tasks required to achieve its objectives.

Mission: A statement that describes the purpose or "raison d'être" of an organisation. It describes why the business or function exists.

Model: A representation of a complex, real-world phenomenon such that it can answer questions about the real-world phenomenon within some acceptable and predictable tolerance.

Networks: A group of people who exchange information, contacts, and experience for professional purposes.

New Technology: Emerging areas of research and innovation that are of increasing prominence in the innovation and technological landscape.

Operational impact: An impact, which is not quantifiable in financial terms but its effects, may be among the most severe in determining the survival of an organisation following a disaster.

Organisational agility: The ability of an organisation to react positively to required changes in speed, focus, goals, actions, and timescales that affect its ability to deliver.

Partnerships: A working relationship between two or more parties creating added value for the customer. Partners can include suppliers, distributors, joint ventures, and alliances. Note: Suppliers may not always be recognised as formal partners.

People: All of the individuals employed by the organisation including full time, part time, temporary and contract employees.

Performance: A measure of attainment achieved by an individual, team, organisation or process.

Process: A sequence of activities which adds value by producing required outputs from a variety of inputs.

Quality: The degree of excellence possessed by a product, service, or other output of a business activity or business process (traditional definition). The Total Quality Management definition of quality is in conformance to the customers' requirements.

Research and Development: The activities representing the research (testing) and development (designing) of new products, new technology, new knowledge, and/or major improvements to an existing product or process. It includes conceptual formulation and pre-production prototypes and models.

Risk assessment and management: The identification and evaluation of operational risks that particularly affect the enterprise's ability to function and addressing the consequences.

Risk reduction or mitigation: The implementation of the preventative measures, which risk assessment, has identified.

Service level agreement (SLA): An agreement between a service provider and service user as to the nature, quality availability and scope of the service to be provided.

Skills: Can be defined as the ability to perform a task or function to an agreed-upon-criterion and also as an expertise, practised ability, or a facility in an action.

Small to Medium Enterprises (SME's): Businesses with less than 200 employees.

Stakeholders: All those who have an interest in an organisation, its activities and its achievements. These may include customers, partners, employees, shareholders, owners, government, and regulators.

Strategic Planning: Strategic Planning is the top management decision process that focuses on the longer range direction of the enterprise and establishes the means by, which that direction is reached. It includes the definition of missions and objectives — how the enterprise sees its purpose and where it wants to go. Strategic Planning provides the basic direction and focus of the organisation, the so-called big picture.

Supply chain: The integrated structure of activities that procure, produce and deliver products and services to customers.

Teams: Two or more persons working effectively together.

Total Quality Management (TQM): TQM is both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organisation. It is a strategic, integrated management system for achieving customer satisfaction and is based on three basic principles, namely; Focus on achieving customer satisfactions; Seek continuous improvements; and fully involve the entire workforce.

Values: The understandings and expectations that describe how the organisations and its people behave and upon, which all business relationships are based (e.g. trust, support and truth).

LIST OF ABBREVIATIONS USED

BCG: Boston consulting group

BIA: Business Impact Analysis

BIFM: British Institute of Facilities Management

BPO: Business Process Outsourcing

BSC: Balance Scorecard

BT: British Telecoms

CAFM: Computer aided facilities management

CBT: Computer Based Training

CE: Concurrent Engineering

CIOB: Chartered Institute of Building

CPI: Continuous Process Improvement

CR: Corporate Responsibility

CSC: Computer Sciences Corporation India Pvt. Ltd.

DCM: Divisional Commercial Manager

DRP: Disaster Recovery Plan

DTI: Department of Trade and Industry

FM: Facilities Management

FM: Facilities Managers

FSG: Financial Services Group

HRM: Human Resource Management

IDP: Individual Development Plan

IFMA: International Facilities Management Association

IM: Innovation Management

LIST OF ABBREVIATIONS CONTINUED

ISB: Invest to Save Budget

ISL: Integrated Systems Learning

IT: Information Technology

KIBS: Knowledge Intensive Business Services

KM: Knowledge management

KPI: Key Performance Indicators

LADS: Land and Development Services

LCC: Liverpool City Council

PDMS: Plant Design Management System

PMG: Project Management Group

POE: Post Occupancy Evaluation

R&D: Research and Development

ROI: Return on Investment

SLAs: Service Level Agreements

SME: Subject Matter Expert

SQC: Statistical Quality Control

TQM: Total Quality Management

TSG: Technical Steering Group

TW: Taylor Woodrow

TWC: Taylor Woodrow Construction

VA: Value Added

VA/C: Value Added divided by Costs

VA/E: Value Added per Employee

LIST OF PUBLICATIONS RESULTING FROM THIS RESEARCH PROGRAMME

Research Publication

Books/Chapters

Pitt, M. and Goyal, S. (2006) *Strategic Facilities Management.* Heinemann-Butterworth: Oxford, Forthcoming.

Scholarly Journal Publication

Pitt, M. and Goyal, S. (2004) "Business Continuity Planning as a Facilities Management Tool." *Facilities*, Vol.22. No. ¾, pp. 87-89, ISSN 0263-2772

Pitt, M., Goyal, S., Holt, P., Ritchie, J.M., Day, P.N., Simmons, J.E.L., Robinson, G. and Russell, G.T. (2005) "An Innovative Approach to Facilities Management in Workplace Design Brief: Virtual Reality in Design." *Facilities,* Vol. 23 No. 7/8, pp. 343-355, ISSN 0263-2772

Pitt, M., Goyal, S. and Sapri, M. (2006) "Innovation in Facilities Maintenance Management." Building Services Engineering Research Technology, Vol. 27 No. 1, ISSN 0143-6244

Goyal, S. (2006) "Increase in ingenuity." FM World-The Magazine of the British Institute of Facilities Management, 14 July 2006, pp.24-25

Goyal, S. and Pitt, M. (2007) "Determining the role of Innovation Management in Facilities Management." *Facilities*, Vol. 25 No. ½, pp. 48-60

Refereed Conference Papers

Pitt, M. and Goyal, S. (2004) *"Data relating to the adoption of Business Continuity Planning as a Facilities Management Tool."* ICCPM Conference, Singapore.

Pitt, M., Goyal, S and Sapri, M (2005) *"Innovation in Facilities Management Service Contract Management."* ARCOM, London.

Goyal, S. and Pitt, M. (2006) *"Determining the role of Innovation Management in Facilities Management."* SOBE Postgraduate Conference, Liverpool John Moores University, Liverpool.

Goyal, S. and Pitt, M. (2006) *"Innovation and Facilities Management."* CIB W70 Facilities Management Symposium, Trondheim.

CHAPTER 1

INNOVATION IN FACILITIES MANAGEMENT – AN INTRODUCTION

1.0 Aim of the study

1.1 Objectives of the study

1.2 Scope of the study

1.3 Need for Study

1.4 Research Implications

1.5 The Study

1.6 Research Methodology

1.7 Literature review

1.8 Chapter outline

Chapter 1

INTRODUCTION

1.0 Aim of the study:

To consider how an organisation can strategically manage its position with regard to suppliers of multiple services and to suggest an appropriate strategy for obtaining and protecting optimum multiple contract management and performance.

1.1 Objectives of the study:

1. To explore and understand generic innovation and study the various types of innovation models.
2. To determine the extent to, which innovation management plays a part in strategic facilities management.
3. To determine the extent to, which innovation is managed within organisations.
4. To establish how management of innovation is measured and the various performance measurement methods used by organisations.
5. To determine whether lack of innovation retards efficiency.
6. To study the role of organisational culture as it relates to innovation including business continuity planning and risk management.
7. To develop systems that reveal what innovation does.
8. To propose an innovation strategy, enabling appropriate practice in supplier contract management.

1.2 Scope of the study:

1. The study was limited to the impact of innovation changes in environment and technology on supplier relationships.
2. The study analysed the transition of innovative thinking from a management concept to its importance in the strategy formation of an organisation.
3. The study explored the present scenario of innovation management in the context of developments, concepts and management within the field of facilities management.
4. Due to time constraints the case studies and questionnaire-based research was limited mostly to businesses in the United Kingdom and one case study in India.

1.3 Need for Study:

This research will not only help facilities managers to exemplify their knowledge and skill by apprehending the role of innovation management in facilities management at operational and strategic levels, but also help in concluding the factors that led to the growth and development of innovation as a field and as an important part of the facilities management (FM) world, including relationship with suppliers within the multiple contracts management environment. The study focussed on the prominence of communication, awareness required within business environment to ensure effective innovation. Hence, determining the various factors that would guide innovation within the multiple contracts environment in the future, and maintain its role in the ever-changing business patterns and customer demands.

1.4 Research Implications:

1. Innovation management and innovation in multiple contracts is a vast subject and due to time constraints the work has been restricted to specific areas.
2. The literature reviewed is not exhaustive. Many concepts are mentioned and referenced but not explained fully due to space constraints.
3. The research suggests future use of innovative strategies in FM solutions and multiple contract management, thereby enabling more effective facilities management.
4. Even though the research samples are relatively small, findings from this study are applicable for any FM organisation, as the sample organisations were drawn from different backgrounds, having different organisational characteristics.

1.5 The Study:

The general directions and objectives of research formulated after literature search and review were as follows:

1 Moves away from the classical view of continuity planning which looks at damage limitations in everyday business activities and emergency damaging business events.

2 Moves towards defining appropriate practice in supplier contract management to find, maintain and protect the optimum position rather than simply limiting the damage.

3 Considers management procedures including multiple contracts with a single supplier.

4 Considers independence of the supplier, interdependence and the effect upon positive market pressures that allow greater input.

5 Grouping or bunching of contracts into different types not just core and support to enable assessment as to appropriate strategic management. There may also be linkages between certain activities, which may naturally lead to bunching of contracts or at least similar strategic treatment of the contract. How those linkages are best addressed?

1) The size of the supplier and its business ethics history and management Style;
2) Forms of tender;
3) Aspiration, innovation and expectation;
4) HRM as a method of raising the level of service provided by suppliers;
5) Managing customer expectations and experience.

1.5.1 Purpose of Research:

The following parameters form the focus for the programme of work

1 Demonstration of value added through innovation.

2 Innovation under multiple contract management and with various suppliers.

3 Difficulties with innovation under cost pressure.

4 Innovation as part of performance from day one of a contract.

5 Learning from the experience of industry, companies that have already followed such concepts.

6 Strategic importance of supplied item, affecting innovation.

7 Innovation value during supplier selection process.

8 Achieve sustainable value, partner and innovators.

9 Track record of service providers indicating the ability to deliver continuous cost reduction.

10 The size of the supplier and its business ethics, history and management style.

1.6 Research Methodology:

Grix (2004) believes that every research needs a well-defined methodology for it to be successful. While preparing the thesis, the data collection and the assembly of information was done by studying and analysing data from various sources. The various tools used during the course of study are explained below *(refer figure 1.1).*

1.6.1 The tools used in Research

The author's interest in the area of Innovation Management in Multiple Contracts came while studying for a Masters in Facilities Management and Asset Maintenance, which then followed by background reading finally led the author to write papers on "Innovation in Facilities Maintenance Management" *(Pitt, Goyal & Sapri, 2006),* "Innovation as a Strategic Facilities Management Tool" *(Goyal, Pitt & Sapri, 2005),* "Determining the role of Innovation Management in Facilities Management" *(Goyal &Pitt, 2006),* "An Innovative Approach to Facilities Management in Workplace Design Brief: Virtual Reality in Design" *(Pitt et al, 2005)* and "Determining the role of Innovation Management in Facilities Management" *(Goyal & Pitt, 2007).*

1.6.2 Qualitative and Quantitative research methods:

Naoum (1998) states that there exist two types of research strategies, namely; 'Quantitative research' and 'Qualitative research' and deciding on, which type of research to follow depends on the purpose of the study and the availability of information required. In the area of multiple contract management and innovation, both qualitative as well as quantitative researches are essential to achieve best results. Hence, this study is based on qualitative analysis determined through the quantitative results. A questionnaire was given out to a sample size of 100, out of which 66 responses were received, giving a return rate of 66%. The results of the questionnaire were then converted in to qualitative analysis, also based on the literature survey done.

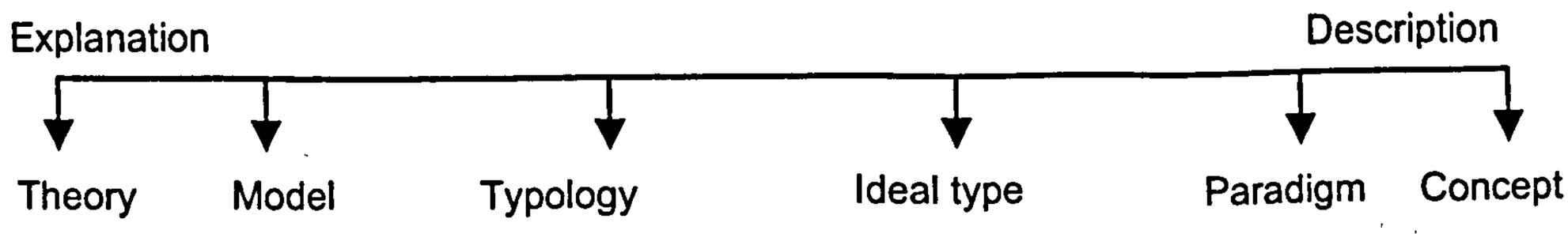

Figure1.1: The tools in question.
Source: Grix (2004)

1.6.3 Methodology followed to achieve objectives:

1. The objective of exploring and understanding generic innovation and innovation in multiple contracts was achieved through literature review and documentary analysis.
2. The objective of proposing an appropriate innovative strategy defining appropriate practice in supplier contract management was achieved through the researcher's own amalgamation of evidence obtained from the objective of exploring and understanding generic innovation. This included interviews with a number of experts in this field and chosen case studies within the United Kingdom and India.
3. The researcher then emulated on the utility and efficiency of the proposed strategy as a tool for evaluating past arguments and achievements and for goal setting in the field of multiple contract management.
4. The strategy was then defined and consideration given to its more general application within the chosen industry.
5. Results and research work was also carefully and selectively fed into various conferences, presentations and academic papers during the course of the study.

1.6.4 Use of case studies from varying industries – Research Strategy & Data Collection:

Case study as a research strategy comprises an all-encompassing method – covering the logic of design, data collection techniques and specific approaches to data analysis. Hence, case study is neither a data collection tactic nor merely a design feature alone but a comprehensive research strategy *(Yin, 2003)*.

Yin (2003) explains that case study research includes both single and multiple case studies that can be described as two variants of case study designs and have a distinctive place in evaluation research. Based on the above mentioned, this research follows a multiple case study research methodology based on a mix of quantitative and qualitative evidence. The identification and development of a research design, which is the logic that links the data to be collected to the conclusions to be drawn is the difficult part of doing a case

study based research as there are still not much textbooks or literature available on the development of case study research designs *(Yin, 2003)*.

Data for case studies as stated by *Yin (2003)* can come from many sources of evidence. However, the six most important sources are Documentation, Archival records, Interviews, Direct observation, Participant-observation and Physical artifacts. Key to conducting a high quality case study is also following the three principles of data collection relevant to the six important sources and addresses the design challenges of construct validity, internal validity, external validity and reliability. These three principles of data collection as explained by *Yin (2003)* are:

1. Using multiple, not just single sources of evidence;
2. Creating a case study data base; and
3. Maintaining a chain of evidence

For the purpose of this research four out of the six described sources of data collection were used while conducting the case studies *(refer table 1.1)*.

1.6.4.1 Three Principles of data collection

Yin (2003) stresses that the advantages from these six sources of evidence can be further enhanced and their benefits maximised when these are applied with the three principles of data collection. These principles are relevant to all six sources and when used properly, can help to deal with the problems of establishing the construct validity and reliability of the case study evidence. The three main principles of data collection as explained by *Yin (2003)* and also used during this research in all case studies are as follows:

Principle 1: Use of Multiple Sources of Evidence – Triangulation:

For effective case studies result it is highly recommended to use multiple sources of evidence than to use individual sources of data collection. *Yin (2003)* accentuates that the use of multiple sources of evidence in case studies allows an investigator to address a broader range of issues and helps in development of *converging lines of inquiry*, which is a process of *triangulation. Paton (1987)* states the four types of triangulation in doing evaluations. These are the triangulation:

1. Of data sources (data triangulation)
2. Among different evaluators (Investigator triangulation)
3. Of perspectives to the same data set (theory triangulation) and

4. Of methods (methodological triangulation)

Principle 2: Create a Case Study Database:

This principle deals with the way of organising and documenting the data collected for case studies. *Yin (2003)* explains that lack of a formal database for most case study efforts is a major shortcoming of case study research. The problem of developing the database is described in terms of four components: notes, documents, tabular materials and narratives.

Principle 3: Maintain a Chain of Evidence:

Maintaining a chain of evidence helps in increasing the reliability of the information in a case study. The principle is to allow an external observer such as the reader of the case study to follow the derivation of any evidence, ranging from initial research questions to ultimate case study conclusions *(Yin, 2003)*. It is essential that the external observer trace the steps in either direction that is from conclusions back to initial research questions and from questions to conclusions. *Yin (2003)* explains this further by giving an example of a case study report that should have enough citation to the relevant portions of the case study database for example, by citing specific documents, interviews or observations, making it easier for the reader. Hence, if the reader has been able to move from one part of the case study process to another, with clear cross-referencing to methodological procedures and to the resulting evidence, then the *"ultimate chain of evidence"* is achieved *(refer figure 1.2)*.

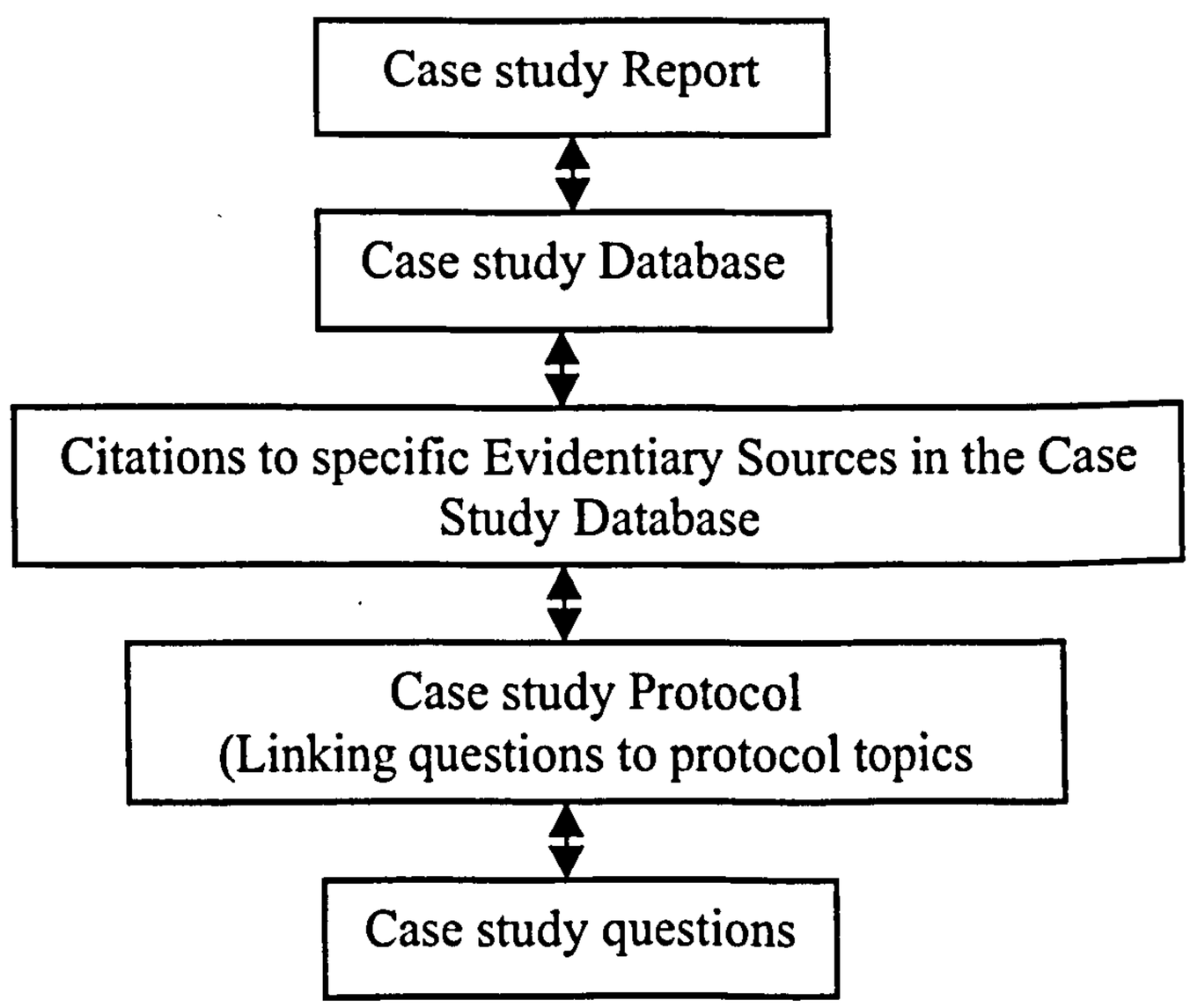

Figure 1.2: Maintaining a chain of Evidence
Source: Yin (2003)

Documentation	Interviews	Archival records	Direct observation	Participant observation	Physical artifacts
Used for all secondary case studies and Taylor Woodrow and AMEC Documentary information is likely to be relevant for every case study topic. This type of information can take many forms and should be the object of explicit data collection plans. This source of evidence has the advantage of being stable as it	**Used for all case studies** Described as one of the most important case study information by Yin (2003), interviews are an essential source of case study information and are usually guided conversations rather than structured queries. Interviews are an essential source of case study evidence because most case studies are	**Used for all case studies** For many case studies, archival records are often relevant. Examples are classified under: Service records (those showing number of clients etc.), organisational records (such as organisational charts and budgets over a period of time),	Observational evidence is often useful in providing additional information about the topic being studied. If a case study is about a new technology then observations of the technology at work serve as invaluable information. The reliability of observational evidence can be increased by	This is a special mode of observation which can involve participation in the events being studied. It gives an opportunity to gain access to the events and the ability to perceive reality from the view-point of some-one "inside" the case study rather than external to it. Though this	**Used in AMEC** One of the most important sources of information and evidence is physical or cultural artifact – a technological device, a tool or a instrument, a work of art or some other physical piece of evidence. Such artifacts may be collected or observed as a part of a field visit. Physical artifacts

Documentation	Interviews	Archival records	Direct observation	Participant observation	Physical artifacts
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can be reviewed repeatedly and covers a broad area, long span of time, many events and many settings. However, the reporting can be biased and its access may be deliberately blocked. For case studies, the most important use of documents is to agree with and expand on evidence from others.	human affairs. Interviews have the advantage of being focussed and targeted directly on the case study topic and provide with perceived casual inferences. This source can be disadvantageous as sometimes the interviewee gives what interviewer wants to hear and can be biased due to poorly constructed questions.	maps and charts (of geographical characteristics or layouts of a place), list of names and other relevant items, survey data (such as census records) and personal records (such as diaries etc.). These and other records can be used with other sources of information in producing a case study.	having more than a single observer making the observation. The observations can vary from formal to casual data collection activities.	method of data collection in insightful into interpersonal behaviour and motives it can be biased due to investigator's manipulation of events. This method tends to be more time consuming and costs – hours needed by human observers.	have less potential relevance in the most typical kind of case study.

Table 1.1: Six sources of evidence
Source: Adapted from Yin (2003)

1.6.5 Interviews and Questionnaires:

For the purpose of this study, interviews and questionnaires have been largely used to collect data along with other sources of evidence. The pilot study was done through postal questionnaires followed on by interviews with various facilities managers, project managers, directors and people at technical level from various industries. Responses to these questionnaires formed the base for personal interviews at selected case studies.

1.6.5.1 Constructing the Questionnaire:

While designing the questionnaire the following points were kept in mind (*Naoum, 1998):*

1. What is the purpose of asking the question?
2. Which objective is the question related to?
3. Is the question relevant to the aim of the study?
4. Can the answer be obtained from other sources?

Successful response rate depends on the kind of questions constructed and their relevance to the study. It is not the order or the wording of the questionnaire that is critical, rather it is essential to develop a questionnaire that relates to the objectives of the study and helps in obtaining relevant data for analysis. To this extent, numerous ideas were listed which generated from background reading and developed them into a questionnaire at the later stage. The following process was pursued during the study period in order to achieve desired conclusions. This formulated approach helped in gaining maximum results.

1.6.5.2 Advantages and disadvantages of using questionnaires as a data collection method:

As explained by *Saunders et al (1997)* both experiment and case study research strategies can make use of questionnaire survey strategy, including structured interviews and telephone questionnaires as well as those in, which the questions are answered without an interviewer being present.

Questionnaire design affects the response rate, reliability and validity of the data collected. This can be maximised by:

- Careful design of individual questions
- Clear layout of the questionnaire form

- Lucid explanation of the purpose of the questionnaire
- Pilot testing
- Carefully planned and executed administration

Questionnaires maybe used only for data collection or linked with other methods in a multi-method approach, if worded correctly they require less skills and sensitivity to administer than semi-structured or in-depth interviews *(refer figure 1.3)*

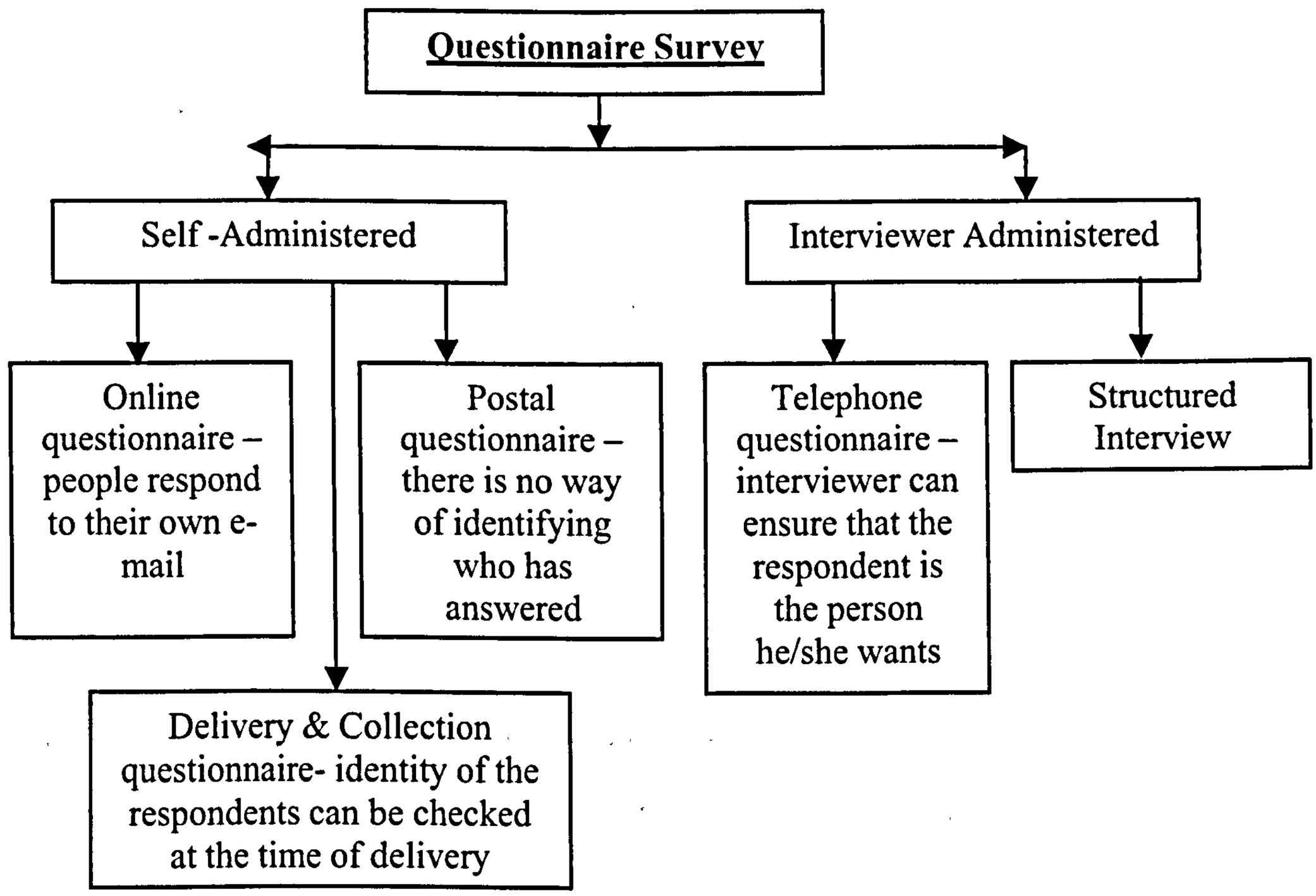

Figure 1.3: Various types of Questionnaires
Source: Adapted from Saunders *et al.* (1997)

E-mail questionnaires offer greater control than postal questionnaires as most users read and respond to their mails at their personal computer.

To ensure that only essential data is collected, a data requirements table should be created. This includes:

- Decision on whether the main outcome of research is descriptive or explanatory.
- Sub-division of each research question or objective into more specific investigative questions about, which data needs to be gathered.

- Identification of variables about, which the interviewer will need to collect data to answer each investigative question.
- Establish how to measure data for each variable.

Various factors that influence the choice of questionnaire are:

- Types of questions needed to be asked for data collection
- Number of questions needed to be asked for data collection
- Size of sample required for analysis, taking into account the likely response rate.

1.6.5.3 Interviews - An important research methodology:

Saunders et al (1997) stress that use of interviews help gather data, which is both valid and reliable and is relevant to the research questions (s) and objectives. Nature of any interview (s) should be consistent with research questions and objectives, the purpose of research and the adopted research strategy. Interviews can be divided into the following *(Saunders et al, 1997):*

Structured interviews: Use of questionnaires based on a predetermined and standardised or identical set of questions and where the response rate is recorded on a standardised schedule usually with pre-coded answers. This is used more frequently in a descriptive research.

Semi-structured interviews: This includes a non-standardised questionnaire where the researcher has a list of themes and questions to be covered and may vary from interview to interview. This is used more frequently in an explanatory research.

Unstructured interviews: This includes a non-standardised, informal questionnaire and is referred to as in-depth interview to explore a general area of interest. In such kind of interviews, the interviewee is given an opportunity to talk freely about events, behaviour and beliefs in relation to area or topic being researched. This is more frequently used in an explanatory research.

Conducting an interview is the most advantageous approach to attempt to obtain data when:

- There is large number of questions to be answered
- Questions are either complex or open ended
- Where the order and logic of questioning may need to be varied

Number of data quality issues can be identified in relation to semi structured and in-depth interviews, related to:

- Reliability
- Forms of bias
- Validity and generalisation

1.6.6 The Research Process Diagram:

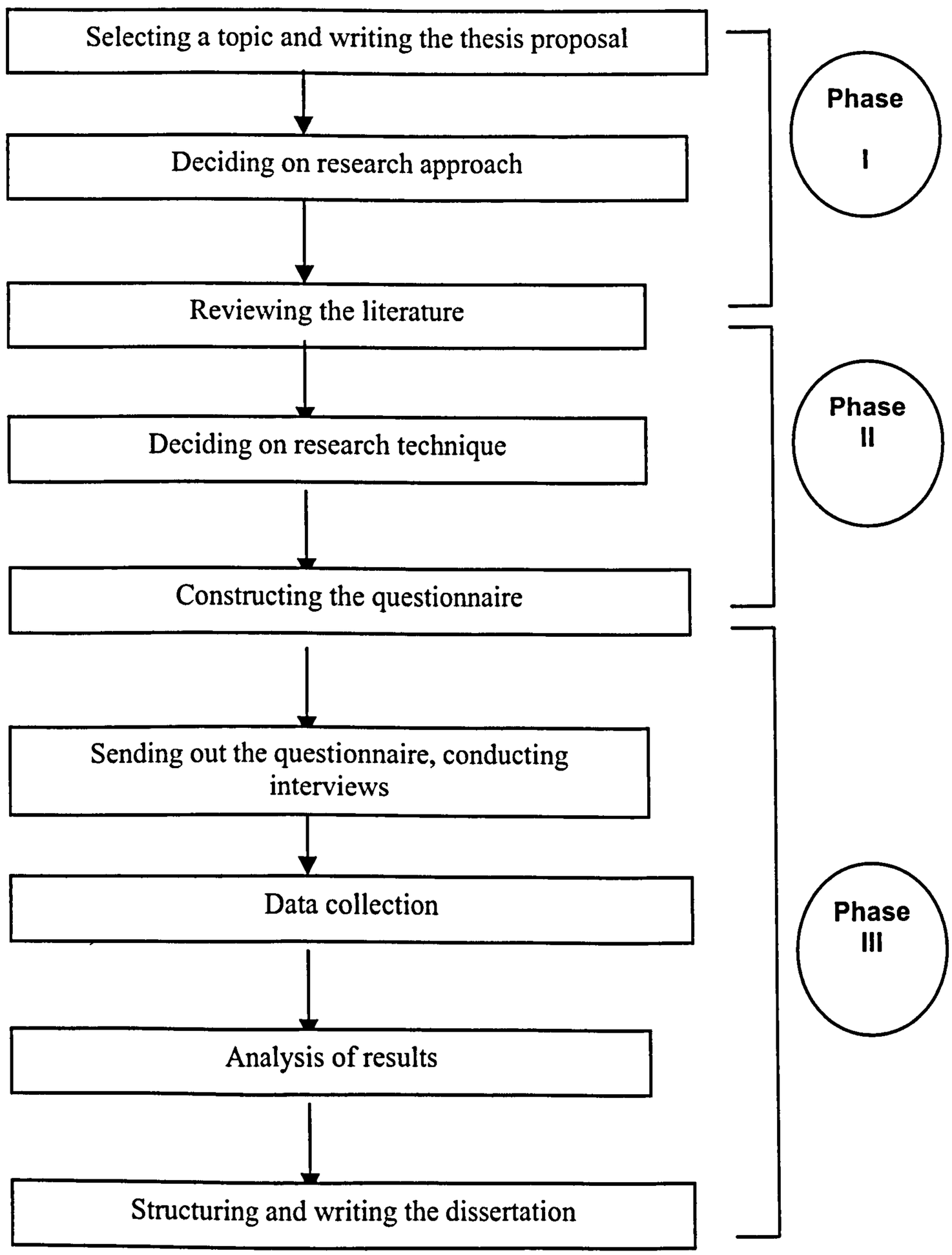

Figure 1.4: Research Process Diagram
Source: Naoum (1998).

1.6.6.1 Diagrammatic representation:

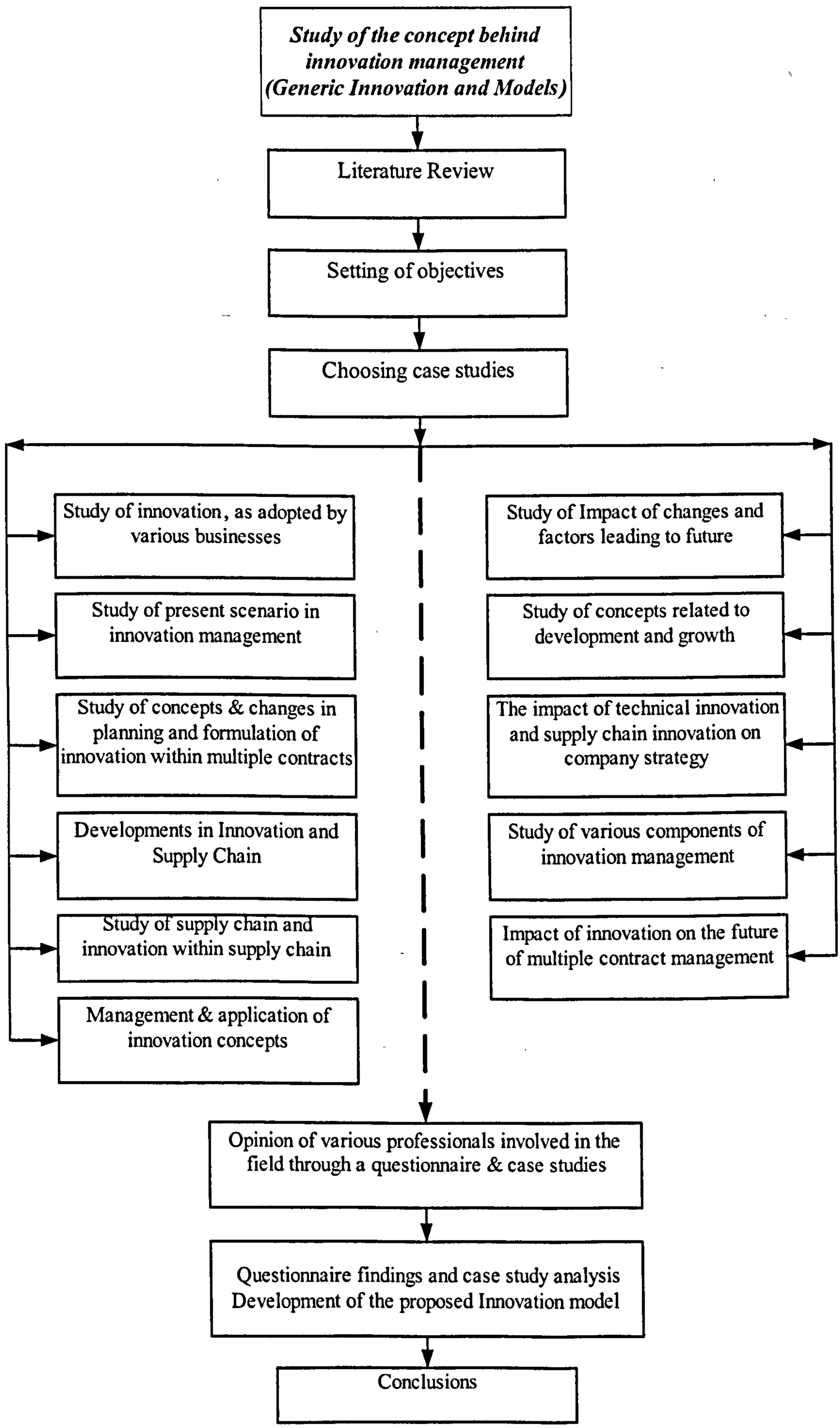

Figure 1.5: Diagrammatic Representation
Source: Self-Survey

1.6.6.2 Detailed structure of research:

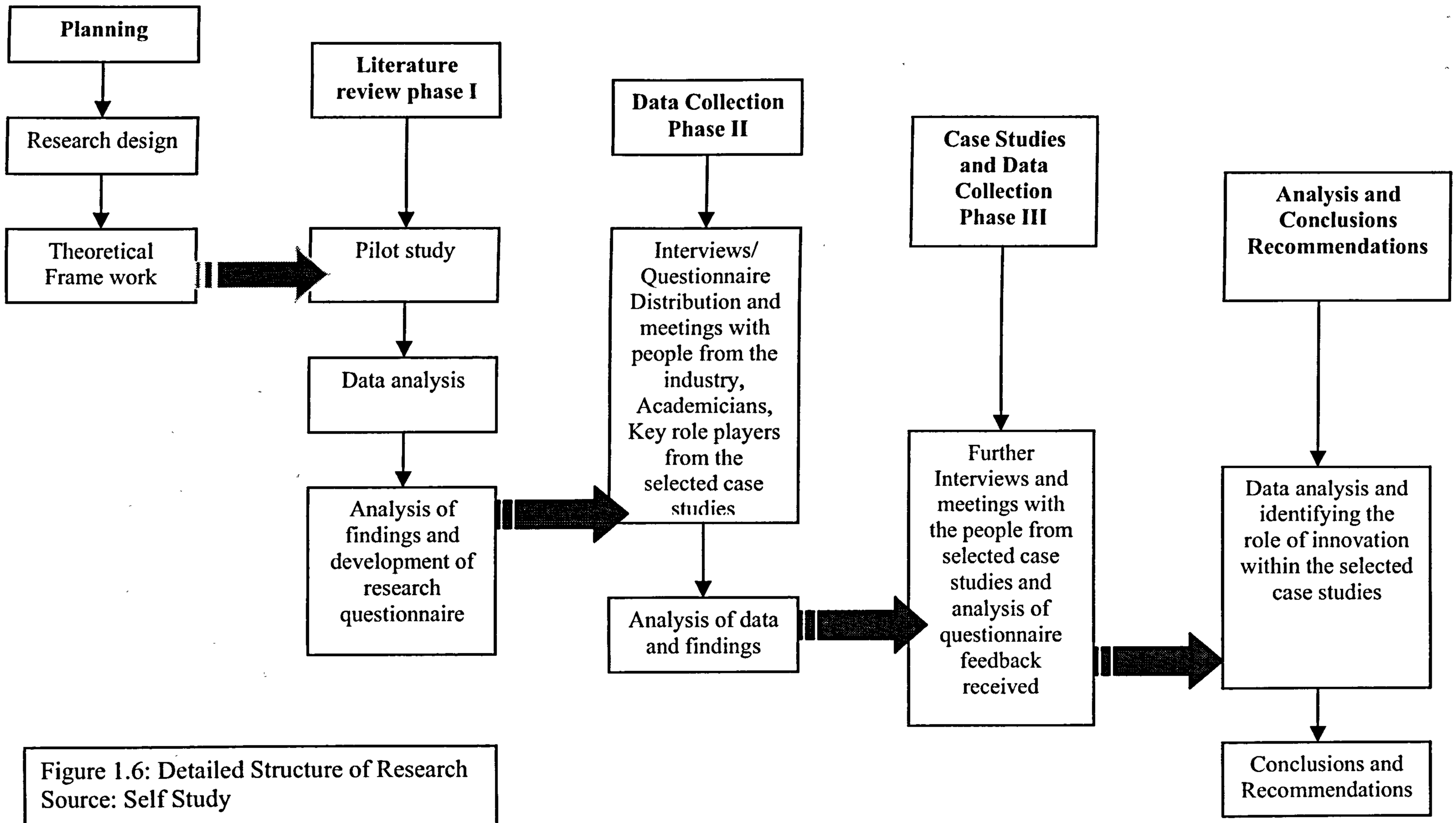

Figure 1.6: Detailed Structure of Research
Source: Self Study

1.7 Literature review:

It is true that the process of reviewing the literature never ends and it forms an indispensable part of every research project. Hence, the process of literature review was carried out throughout the whole research process. *Hart (2001)* believes that it is never too much, and the learning never ends, however it was in the earlier stages of the study that the literature review was carried out more extensively and used to form the basis of the questionnaire and the study. The principles as suggested by *Hart (2001) (refer figure 1.7)* were followed.

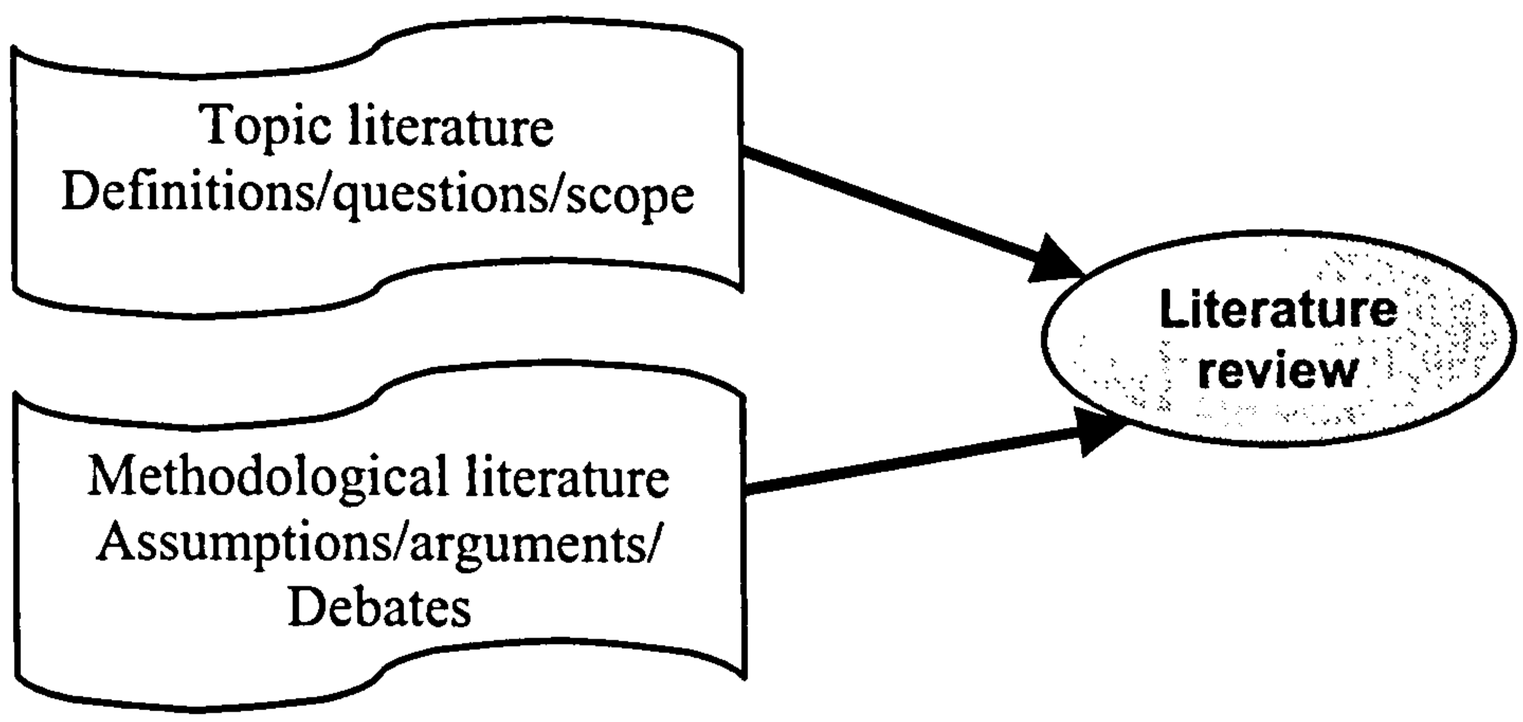

Figure1.7: Two types of literature survey
Source: Hart (2001)

Hart (2001) further asserts that there are two areas to be searched at the beginning of any research project. These are:

1 The literature relevant to the topic;

2 The literature on research methodology and data collection techniques;

This makes the researcher not only familiar but also even more confident about the topic.

1.7.1 Key points in a PhD research:

There is difference between 'knowing that' and 'knowing how'

Philosopher Gilbert Ryle in Philips and Pugh (2006)

Pugh (2006) emphasises that there exist twin elements of exploration and practice, which are basic to all learning skills. This is why a PhD research takes time and among the numerous reasons as to why people decide to work towards a PhD, is the strong desire to make a significant contribution to the chosen field.

1.7.1.1 Basic types of research:

Research has traditionally been classified into two types, namely; *(Pugh, 2006):*

1) Pure research: this type of research supplies the theories;

2) Applied Research: This type of research uses the theories supplied in pure research and tests them out in the real world.

Pugh (2006) accentuates that often what happens in most academic disciplines cannot be characterised, as it is possible that some researches generate their own theories and do not just apply 'pure' theories. Therefore, research can be classified into three basic categories, which apply to both quantitative and qualitative research. These are:

1. Exploratory;
2. Testing out; and
3. Problem solving.

This thesis is based on 'Exploratory' type of research, which involves tackling of new problems/issues/topics about which little is known. As a result the research idea cannot be well formulated at the beginning itself. The problem may come from any part of the discipline; it may be theoretical research puzzle or have an empirical basis. The research work will need to examine what theories and concepts are appropriate, developing new ones which are necessary and using existing methodologies wherever possible. It obviously involves pushing out the frontiers of knowledge in the hope that something useful will be discovered.

1.7.2 Data collection:

Listed below are the activities that were followed in designing the research *(Naoum, 1998)*:

1. Studying, reading and critically appraising what other people have written in the subject area.
2. Designing the sample; this involved deciding the target group and the number of questionnaires to be issued.
3. Deciding on the questions to be asked for the collection of quantitative data.
4. Collecting data, quantitative as well as qualitative data, through questionnaire responses and contact via electronic mails.

5. Analysis of data with respect to background reading done, the questionnaire replies received and information collected through case studies.
6. Arriving at conclusions and proposal for future study.

A good survey has the potential to reach a large number of respondents, generate standardised, quantifiable, empirical data (as well as some qualitative data), and offer confidentiality / anonymity (*Leary, 2004).*

1.8 Chapter outline:

1.8.1 Chapter 2 – Innovation Management:

Chapter 2 deals with various existing definitions and models of innovation today and how these are integrated into today's constantly changing and rapidly growing business environment. From understanding generic innovation to study of various types and forms of innovation, this chapter highlights the existing nature and understanding of the innovation process and the various organisational characteristics that facilitate the process of innovation in any organisation. The chapter goes on to emphasise the growing need of business innovation and the necessity of measuring its performance for long-term organisational success and competitive advantage. The chapter concludes with highlighting the various barriers to the process of innovation and brings forward the conception of innovation must *'break with the past'*, which acts as a barrier by forcing people to try and come up with entirely new ideas.

1.8.2 Chapter 3 – Facilities Management Innovation:

Chapter three accentuates the importance of introducing innovation as an integral part of Facilities Management and integration of overall business objectives and goals with those of separate functional departments. The chapter emphasises that facilities management adds value to the business as it merges and incorporates itself with the core needs of the organisation and changes in management structure and operational procedures across all its core and non-core activities. The real measure of the services provided here then becomes the satisfaction of the customer. The chapter builds on first understanding the term 'Facilities Management' and then how the discipline is evolving itself to define the future working on the business environment, how it affects productivity, what are the various tasks of facilities managers and how

they can be integrated with the entire business. The chapter concludes by highlighting the various drivers of innovation in the field of facilities management.

1.8.3 Chapter 4 – Performance Measurement-Measuring FM performance:

This chapter highlights the need of performance management and supports the study done by *Wauters (2005)* who accentuates the need for benchmarking within organisations that can be linked directly to the competitive environment, in which they operate making its essential to be extremely dynamic in order to achieve long term success in the ever changing business environment fuelled by globalisation and advances in information technology and communication. The chapter aims to intensify the fact that today's facilities managers are not only liable for the operational aspect of the business, but also are responsible for adding value to the organisational value chain. It is further explained that benchmarking or other performance measurement metrics, if applied correctly can lead to effective value management of facilities services provision. Organisations need to realise the true meaning of facilities management as a discipline, which encompasses much more than costs alone and need to adapt its transition from being operational to being strategic facilities management.

1.8.4 Chapter 5 – Innovation and Management:

Chapter 5 deals with the need of having a carefully and a well-thought strategy that forms the essence of any successful business in a competitive, ever changing business environment governed mainly by the principles of globalisation. The chapter emphasises that an innovation strategy should be closely linked to the company's vision and overall business strategy and be based on comprehensive and relevant information – both from the inside of the company as well as from the market and external environment. It is stressed that only companies that react strategically to new market conditions and rising customer demands can achieve organisational success and excellence, which is why companies should also constantly search for creative and innovative solutions and continuous improvements of products and processes.

1.8.5 Chapter 6 – Innovation in Multiple Contract Management:

Chapter 6 details the importance of formulating an efficient supply chain for long term organisational success and reviews some of the fundamental changes that are taking place within the field of service innovation. The chapter highlights the fact that services still suffer from and are bound by many historical and institutional legacies, which shape and more particularly, constrain their development. Academics, industrialists and policymakers have been slow to realise and accept the way services have changed over the last few decades. Perceptions have been bound by old ways of thinking and even those academics and policymakers who have realised that services do have a larger part to play in the economy still tend to view them as providing a supporting, infrastructural role, 'serving' rest of the economy as facilitators, mediators and repositories in the knowledge based economy.

1.8.6 Chapter 7 – Case Studies:

Chapter 7 brings forward the analysis of primary and secondary case studies done in the United Kingdom and one in India, to identify best practices and successful examples of innovation. Mixed samples of large to medium sized firms were contacted from different industries. The facilities managers and the executives contacted in all companies were given a summarised brief of the project and assured that the information collected would be used to build organisational case studies of innovation for the sole purpose of research only. Similar pattern of study was imparted during the case study done in India, which allowed the understanding of how innovation is perceived and followed in other countries and its impact on the organisational working environment. In all cases complete confidentiality was assured. The methodology deployed in this study was to identify companies from different industries who believed in making efforts towards innovation and then analysing the innovation activities carried out by each one of them to achieve best practice in innovation within their own respective industries that adds value to the business as a whole.

Also included is the analysis of the questionnaire that was prepared and distributed amongst various personnel belonging to the business industry as well as the Facilities Management field. This was done in order to test the academic study with management experiences, thereby gaining more

knowledge about the innovation management field and its continuous expansions within facilities management.

1.8.8 Chapter 8 – Conclusions:

Chapter 8 is a summary of the literature review and case study analysis done during the course of research work. The chapter emphasises that business innovation allows enterprises to satisfy the ever-increasing demands of customers and offer greater value satisfaction. However, any innovation would be successful only if it has a beneficial return on investment and brings financial gains to the company. The chapter also states various advantages of aligning innovation objectives with overall business goals and objectives and concludes that future research must be put in FM innovations that will not only cater to changing customer demands and wants but also create new ones by extinguishing the old. Since businesses today are experiencing tremendous change in customers' concept of value, new ways of satisfying these demands should be researched upon, which offer both customers and clients even greater value satisfaction and 'Value for Money' and also add value to the business of all stakeholders.

CHAPTER 2

INNOVATION MANAGEMENT – Literature Review

2.0 Introduction

2.1 Understanding Innovation – An integral part of the business

2.2 Forms of innovation

2.3 Newness in innovation

2.4 The Innovative workplace

2.5 The Process of Innovation

2.6 Models of innovation

2.7 Business innovation

2.8 Why innovate?

2.9 Innovation performance

2.10 Innovation clusters

2.11 Barriers to innovation

2.12 Factors affecting innovation

2.13 Summary

2.14 Chapter highlights

:

Chapter 2

INNOVATION MANAGEMENT – LITERATURE REVIEW

2.0 Introduction:

Different definitions focus on the various types of innovations that exist, while some focus on services, others stress more on technology or just define innovation in a very broad sense making it hard to isolate the particular innovation. Characterising innovation as inconclusive and indefinite, *Cardellino & Finch (2006)* state that wide application of the term *"Innovation"* has resulted in a large number of definitions that communicate innovation in a variety of contexts. *Cardellino & Finch (2006)* further express that because of this super abundance of definitions identifying innovation as a term, it has become difficult to establish a common understanding of the degree of:

- Novelty
- Change and
- Diffusion needed for a phenomenon to be characterised as innovation.

This definition of innovation given by *West and Farr (1990)* and adopted by *Cardellino & Finch (2006)* for their study on innovation in facilities management not only embraces the technological change but also encompasses new ideas, processes, procedures characteristic of services, also including a component of implementation, which suggests that without a planned introduction, an innovation is unlikely to be realised.

The capacity for strategy innovation is within the capabilities of any organisation *(Bate & Johnston, 2005)*. Deconstructing the innovation process involves consideration of a chain of common and numerous internal complex processes providing function and support to organisations, helping them in responding to changes *(Alexander et al, 2004)*. *Alexander et al (2004)* further support the perceived importance of innovation by stressing that the productivity of a worker is less frequently measured by how many "widgets" he or she produces but increasingly by how many successful ideas he or she conceives and implements. Over the past half a century a large number of different models of innovation have emerged. *Johannessen et al (2001)* describes innovation as being more focused on novelty and newness *(refer figure 2.1)*. The *European Commission Green Paper (1995)* on innovation

defines innovation rather broadly as a synonym for *"...the successful production, assimilation and exploitation of novelty in the economic and social spheres".*

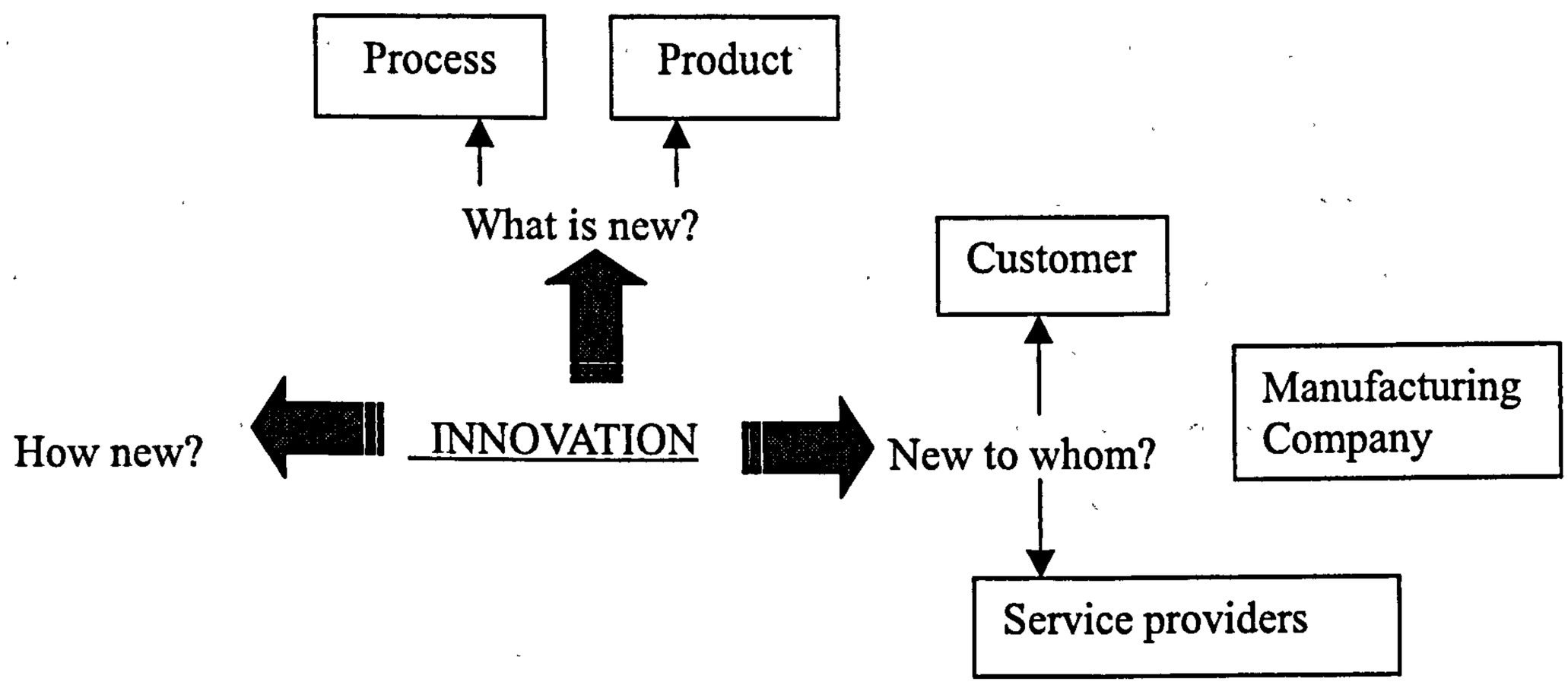

Figure 2.1: The nature of newness talked about in Innovation
Source: Adapted from Johannessen et al (2001)

Innovation has also been defined to include any policy, structure method or process or any product or market opportunity that the manager of an innovating unit perceives to be new *(Nohria & Gulati, 1996). Stroeken (2001)* describes process innovation in terms of standardisation, differentiation, and specialisation and integration (vertical and horizontal). However, in all of these and many more definitions of innovation, which have been constructed by both academicians and organisations what still does not seem to be very well described is the concept and nature of the "newness". What is new, how new and new to whom? There appears to be no definition of the term new, no detail of the temporal dimensions that apply and no information as to whom it all applies to. Various descriptions suggest that innovation is about successful adoption of change and new ideas, to think differently, to move away from the conventional methodologies but are vague in what is adopted and what constitutes success *(refer figure 2.1), (Johannessen et al, 2001).*

2.1 Understanding Innovation – An integral part of the business:

There has been a significant improvement in the level of understanding the subject of innovation. Various studies have been done concentrating on the numerous external and internal factors that are analogous to innovation. It

involves in itself consideration of a chain of numerous internal complex processes providing function and support to organisations to sustain and respond to change *(Alexander et al, 2004)*. Innovation today can be best described as being fundamental to corporate success; it can also be expressed as key to survival. In today's rapidly changing business environment a company cannot long maintain its market share or profits unless it is innovative *(Doyle & Bridgewater, 1988). Naughton (2004)* supports this view and confirms that the concepts upon, which the modern theory of innovation is based can be attributed mainly to advances in technology, changing customer needs, shorter product life cycles and global competition which have transformed the definition of innovation from luxury to practical necessity *(refer table 2.1)*.

Burgelman (1996) states that since World War II, innovation has been the norm; technology based innovations coming in rapid sequence, have been seen as the crucial source of prosperity, fundamental to business success and the remedy of all business problems. However, the solutions sought are not always and at all times advantageous. The criteria for success in the past cases should be applied to future outcomes. A lot of stress is given on the need to identify management criteria which effectively distinguishes between profitable and unprofitable new technologies and that these criteria have utility in assessing innovation in a wide variety of cases.

Table 2.1: Concepts of innovation

Concepts of innovation	Scholars
Innovation: a process of enhancing existing technology	Rosenberg (1976, 1982); nelson and winter (1977, 1982); Dosi (1982)
Innovation: a process of turning opportunities into practical use	Pavitt (1984); Tidd *et al.* (1997)
Innovation: an integrated process involving the above two	Schott (1981); Daft (1982); Rothwell and Gardiner (1985)
Innovation: any new technologies and new processes	Rogers and Shoemaker (1971); Porter (1990); Voss (1994)

Table 2.1: Concepts of Innovation
Source: Naughton (2004)

Tidd et al (1997) regard innovation as a process involving commercial use (a new business). However, in the studies done by *Wonglimpiyarat (2004),* innovation is described as a process of transforming the technology frontier into the commercialised product/process innovation in a competitive market. *Kondo (2000)* explains that innovative approach is essential for two reasons namely;

1. For developing new products and technology; and
2. Managing the business for future development, growth in market share and value addition or increase in profit.

While researching on innovation versus work standardisation, *Kondo (2000)* argues against the common belief that work standardisation prevents the display of creative and innovative activities and are not mutually exclusive and states that work standardisation consists of the following:

- Aim of the work;
- Constraints on carrying out the work; and
- Means and methods to be employed in carrying out the work.

This however, can be argued as all individuals have different characteristics and habits, which makes it very difficult to have a single standard that is efficient for everyone. Both innovation and standardisation principles according to *Kondo (2000)* are imperative for successful organisational management but are often treated as mutually exclusive in the business sector. Work standards are investigated and published in the hope of preventing and diminishing the faults of workers but are not always effective as workers maybe at times be forced to obey the standardised means and methods without any explanation about the aim of the assigned work *(Kondo, 2000).* Such kind of work environment diminishes the sense of responsibility among the workers, which on the other hand can be achieved with clearly indicating the aim of work and providing freedom as much as possible in the means and methods of achieving desired results.

The turn of century has brought about an increasing change in global market, which has no doubt resulted in an enormous increased competitive pressure on almost all companies, large scale or small scale. *Kondo (2000)* believes that one of the appropriate ways to survive in this highly competitive and constantly changing market is to follow the 'quality first' and 'being innovative'

philosophy, which would not only enhance corporate performance but also raise productivity.

"When quality is improved in creative ways, cost is reduced and productivity is raised"

(Kondo, 1977; Deming, 1980)

While encouraging the workers to enhance their productivity and skills, managers should encourage them to use their own initiative to develop standard actions into practical working methods that helps them to perform work efficiently. Managers should formulate a system that records the hints and tips brought up in this way by individuals or groups. *Greene (2003)* concludes that because innovation and work standardisation are not mutually exclusive, but complementary, therefore managers should constantly encourage and assist workers to improve and hone their skills and abilities. This will also increase their productivity from the given work standards, which is also fundamental and indispensable for successful organisational innovation.

The 2005 survey was the largest survey conducted so far, organised by the Department of Trade and Industry (DTI) *(DTI, 2005),* which also complemented other indicators of innovation by providing a periodic snapshot of the spectrum of innovation inputs, outputs and the constraints faced by UK businesses in their innovation efforts and the activities carried out by them. The survey also provided an additional benefit of providing the basis for companies to carry out comparisons with other European countries. The survey questionnaire was sent to 28,000 UK enterprises with 10 or more employees, achieving a response rate of 58%, initial analysis of the survey resulted in the following conclusions:

- In the three-year period 2002-04, 25% of enterprises with 10 or more employees were product (goods and services) innovators. 16% were process innovators, while 57% were active in developing or implementing innovations.

The most frequently reported impact of businesses' innovation activities was on the quality of goods and services produced or supplied, cited by a third of enterprises. Information to enable innovation came most often from sources within the business and from market partners. Technical and other

formal standards were also important sources. When compared with the 2001 UK innovation survey, it was found out that the proportion of firms engaged in innovation activity had increased by approximately 14-percentage points.

Robson and Ortman (2006) describe innovation activity where enterprises are engaged in any of the following:

- Introduction of new or significantly improved products (goods or services) or processes (Product or Process Innovation);
- Engagement in innovation projects not yet complete or abandoned; and
- Expenditure in internal R&D work, training, acquisition of external knowledge or machinery and equipment linked to innovation activities (organisational learning).

The 2002-2004 DTI innovation research as reviewed by *Robson and Ortman (2006)* indicates that 57% of enterprises were innovation active during this period and large enterprises (more than 250 employees) were more likely to engage in any sort of innovation activity when compared to small enterprises. Also the level of product (goods and services) and process innovation was considerably greater in larger enterprises. *Robson and Ortman (2006)* insist that firms need to recognise the need to allocate resources to innovation with most common items of innovation expenditure being machinery and equipment for innovation and in-house research and development.

2.2 Forms of innovation:

It is believed by numerous academicians and researchers that creativity, teamwork and motivation also form an indispensable part of innovation or in other words one of the most important elements of innovative process. *Nihibori (1972)* as cited in *Kondo (2000)* also accentuates the three elements that should necessarily be included in any human activity, these were:

- Creativity and free thinking (the joy of thinking);
- Physical activity; and
- Sociality and team work (the joy of sharing pleasure and hardship with colleagues).

Kondo (2000) stresses that the essence of human motivation is about introducing and fully displaying humanity in daily work and every organisation

should treat creativity and sociality as indispensable and central elements of humanity. In *(1985) Okusa* as refereed in *Kondo (2000)*, emphasised that a company, which is not innovative and merely operates on day to day basis has no reasons to exist and will gradually fade away into oblivion when compared to those organisations that make considerable contribution in terms of new products and processes or by merely by acting in individual and unique ways. This according to both *Kondo (2000)* and *Okusa (1985)* is imperative for keeping a company "alive" and "kicking" in the highly competitive global environment.

"Innovation creativity is indispensable for human motivation."

Greene (2003)

2.3 Newness in innovation:

Innovation is not wholly about the development or use of technology or other forms of product (goods and services) and process change. Enterprises can also change their behaviour or business strategies to make themselves more competitive, often in conjunction with product or process innovation but also as independent means of improving competitiveness *(Robson and Ortman, 2006).* The DTI (2005) innovation survey when compared to DTI (2001) innovation survey reveals that the proportion of enterprises reporting product innovation increased by 11 % and the ones reporting process innovation increased by 4 percentage points. Though the 2005 survey indicates lager proportion of innovation active enterprises but with relatively less emphasis on wider (marketing and managerial) innovation *(Robson & Ortman, 2006 DTI survey analysis).*

Sternberg et al (2003) state that innovations can be of eight different types and each represent a different kind of contribution. *Sternberg et al (2003)* research on various types of innovation brings out the belief that all inventions or innovations start with some kind of flexible and creative enterprise, which must produce work that is both original and useful. The economic aspect of creativity is explained as new products or services create more jobs, thus innovation according to *Sternberg et al (2003)* is the channelling of creativity so as to produce a creative idea and /or product that people can and wish to use. Individuals, organisations and societies must adapt existing resources to

changing task demands to remain competitive *(Sternberg et al, 2003).*
According to *Lorente et al (1999) and Trott (2005), (refer table 2.2)*, there are numerous forms of innovation. *Lorente et al (1999)* further expand by stating that;

1 Innovation can be in products and services, which are also related to research and development and meeting consumer needs.
2 Innovation in processes relates to changes in machinery and other elements that have no direct association with employees but aims towards increasing quality and reducing costs thereby gain in productivity. However, analysis done during the course of study exposes the fact that process innovation is not merely related to changes in machinery and other associated elements. Process innovation is also highly dependant on the employees and their ability to adapt to new processes introduced. Appropriate research and development facilities given to the employees and effective knowledge management are also directly related to any kind of process development.

Table 2.2: Types of Innovation

Type of innovation	Example
Product innovation	The development of a new or improved product
Process innovation	The development of a manufacturing process
Organisational innovation	A new venture division; a new internal communication system; introduction of new accounting procedure
Management innovation	Total quality management (TQM) systems, Business process re-engineering (BPR)
Production innovation	Quality circle; just-in-time (JIT) manufacturing system; new production planning software
Commercial / marketing innovation	New financing arrangements; new sales approach
Service innovation	Internet based financial services

Table 2.2: Types of Innovations
Source: Trott (2005)

3 Innovation in management systems is an outcome of changes in environment conditions and work that enables improvement in the way people are managed. *Lorente et al (1999)* describe that this form of innovation can become necessary by changes in the process, such as automation.

2.3.1 Technological Brokering – New concept of Innovation

According to *Hargadon (2005)* the concept of technology brokering is another type of innovation strategy that is designed mainly for developing new products and services by not inventing wholly new technologies but rather by recombining and integrating the existing ones. The focus of the strategy as per *Hargadon (2005)* is putting oneself or the group or the organisation as a whole in the position to be the first to see how existing technologies in other fields can be used to create breakthroughs in their own technologies and methods. *Hargadon (2005)* concludes that for companies wanting to embrace an innovation strategy of technology brokering it is essential that they first recognise their competencies and decide the best strategy. Technology brokering according to *Hargadon (2005)* is all about recognising the opportunity and then responding in a 'brokering 'fashion, which brings the pieces together from the outside rather than invent internally.

"Technology brokering is not just about moving between multiple 'worlds' and recognising connections. Ultimately, when you identify a good combination, that's when the hard work starts."

(Hargadon, 2005)

It is imperative for organisations to understand that there is no best way and something else, which is new, will always come along. However, for some organisations their strong belief in themselves and old ideas makes it impossible for them to realise the importance and value of new ones.

2.3.2 Technological Innovation:

Studies done by *Hamel & Prahalad (1994)* suggest that listening to customer could lead to technological innovation and play an instrumental role in long-term business survival and success. *Hamel and Prahalad (1994)* accentuate that to be successful in industries characterised by technological change and

in order to exist in the competitive environment, firms may also be required to pursue innovations that are not actually required by their customers.

The rate and success of technical innovation largely depends on the innovators and their understanding of users' needs and demands. Successful innovators have the ability to fulfil customer expectations by paying more attention to marketing and making greater efforts to sell innovation. Also, advice from outside the business along with through and speedy development work helps in the success of technical innovation. A large number of factors with respect to the choice of strategy have an immense influence on technological innovation and its performance. These are;

Economic factors: Innovation in general is linked with size and the duties of all organisations and business units, large or small changes with time. Amongst the various advantages of larger organisations is their ability to have greater market control, large-scale production that enables them to balance success and failure by product diversification. Therefore, it would be safe to say that larger organisations have more advantage over smaller ones as new technical opportunities appear.

Organisational and managerial factors: These factors affect technical innovation as they help create an environment for technical progress. Organisational and business management helps technical innovation by providing high funding for innovation functions and obtaining confluence of technology by promoting interdisciplinary teams.

Role of individuals: This includes personnel who have the ability to form newer ideas and be creative. Employees in innovation should be able to challenge resistance to change thereby promoting innovation with full confidence.

Information and communication factors: All organisations and business units, large or small should engage individual employees in external communication to possess effective outside contacts and gain information and ideas from numerous sources. This is imperative for basic research input to technical innovation. Research and development is different from innovation, as the basic data collected at research level is not considered as innovation until a commercial product is launched.

Social and behavioural factors: New products and processes are adopted differently depending upon various factors. Customer group that is young with

high income prefer new products than traditional ones indicating that more stress should be given to increased communication and reduction in traditional fixed values. Similarly, the level of production or increased efficiency along with user group status also has an impact on adoption of products and services.

2.4 The Innovative workplace:

Innovation today forms an integral part of any argument related to corporate success. It is in this respect that the concept of innovative workplace is also being researched upon. Innovation brings with it the new and emerging concept of 'workplace'. *Kaczmarczyk & Murtough (2002)* accentuate that an accomplished relationship between people, tools and space is becoming increasingly important in business considerations. The look and feel of an office space has a distinct affect on employee satisfaction. It is also commonly viewed as being imperative to business survival. *Naughton (2004)* states that the concepts upon, which the modern theory of innovation is based can be attributed mainly to

1 Advances in technology,
2 Changing customer needs,
3 Shorter product life cycles and
4 Global competition

These have transformed the definition of innovation from one of luxury to practical necessity. It is argued that innovative workplaces are often difficult to measure and therefore more advanced and fresh ideas must be devised to measure their impact on users *(successful long-term innovation is possible only when the outputs are measured to evaluate the value added in the business).* This can also be related to findings by *Alexander et al (2004),* who state that the goal of a knowledge workplace is to develop knowledge about the relationships between:

1 Organising;
2 Development;
3 New ways of working;
4 Modern information and communication technologies;
5 Architecture;
6 New office solutions; and

7 Physical infrastructure in a knowledge based, knowledge intensive and knowledge producing organisations and networks, thereby supporting different modes of communication in knowledge exchange at all operating levels within the organisations and also between organisations. This would also enable better planning of workplaces by facilities managers to fulfil the diverse and increasing requirements of knowledge workers *(Alexander et al, 2004)*. Various developing business units today are convinced that an innovative workspace can make a difference on employee recruitment, retention and productivity *(Kaczmarczyk and Murtough, 2002)*. Change agents are transforming today's workplaces, allowing people in innovation leadership positions to take their seat at the table along with top managers *(Naughton 2004)*. Innovation can therefore also be described as *(see figure2.2)* the result of a complex set of processes, which also depends on the organisation's marketing ability, its strategy, the resources, networks and processes it builds, together with the culture and leadership in the firm *(Doyle & Bridgewater, 1988)*.

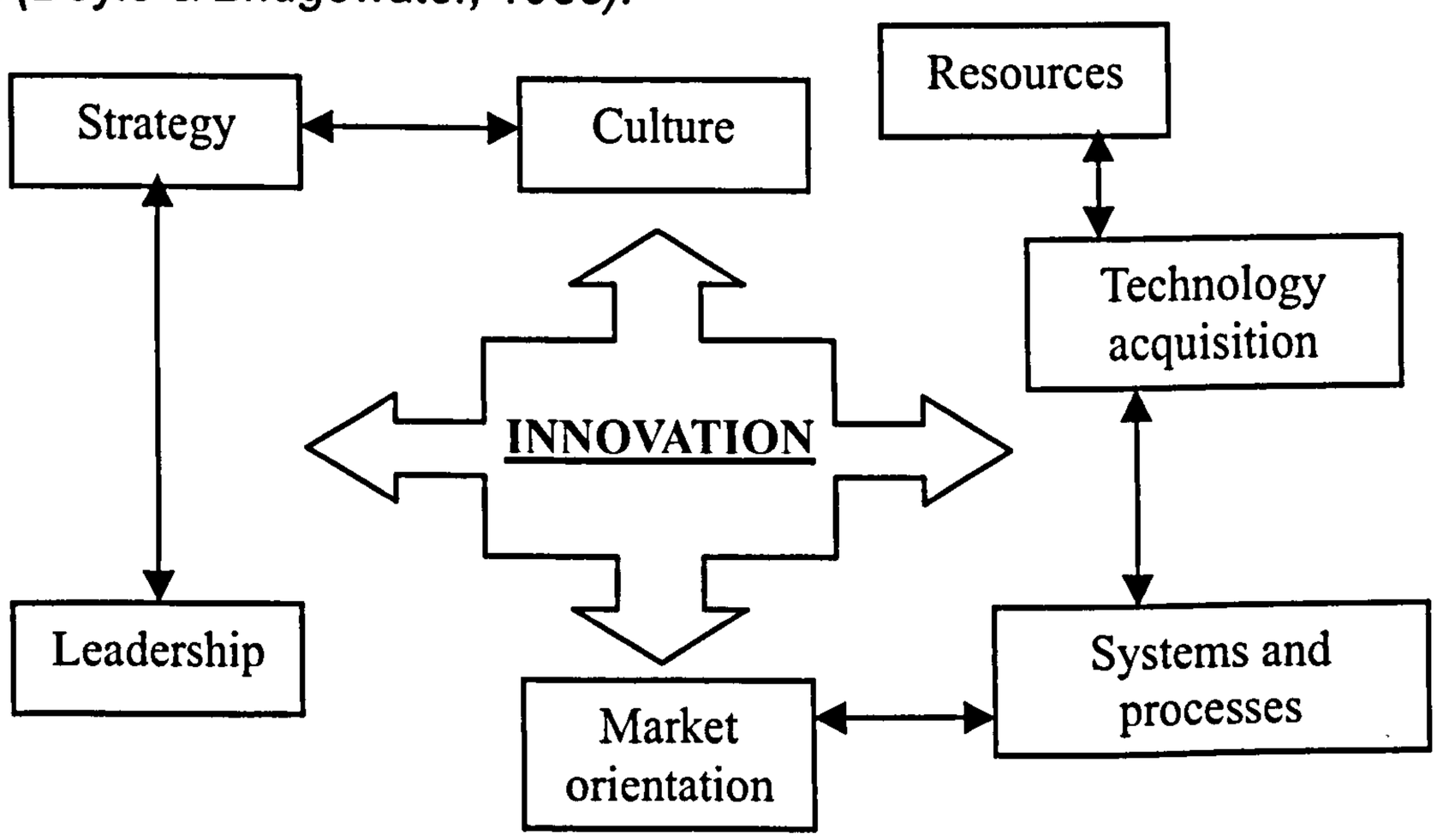

Figure2.2: Set of processes that result in innovation
Source: Doyle and Bridgewater (1988)

Facilities Management (FM) along with Information Technology (IT) and Human Resource (HR) forms an integral part of the *'workplace'* concept. It is the convergence of these three aspects in addition to innovation that leads to continuous development in the workplace. *Kaczmarczyk and Murtough (2002)*

define that the responsibilities of a facilities manager extend beyond issues of operation and should focus more on the fundamental goals of providing high performing and sustainable workplaces thereby shifting the performance measurement criteria accordingly from measuring facilities to measuring workplaces. Innovation in workplaces and its measurement itself requires innovative and new techniques that are different from the traditional.

Naughton (2004) highlights that; *'Time has come to convert challenges into opportunities'. Doyle and Bridgewater (1988)* accentuate the importance of continual innovation and change by explaining that if a company's product or services are not continually improved; competitive pressures invariably lead to falling prices, declining margins and the commoditisation of its offer. *Doyle and Bridgewater (1988)* also lay stress on the fact that innovation should be regarded as the path to achieving growth in sales and profitability. *Alexander et al (2004)* conclude that knowledge economy has a dominant effect on the way people work and this increases the need to identify work environments and places that are favourable to changes and new ways of working. This according to *Alexander et al (2004)* also creates the need to understand and adapt to the demands of sustainable development and construction to help maintain the built environment for now and future.

2.5 The Process of Innovation:

Rapid innovation requires an effective process, "The process of innovative search and selection, exploration of the cycles of divergent thinking and convergence *(Leonard & Sensiper, 1998).* Innovation according to *Kotelnikov and Ten3 East-West (2005), (refer figure 2.3)* is the key driver to advantage, growth and profitability. The mechanism of innovation and change as defined by *Naughton (2004)* is a systematic process that should be aligned with business strategy and eventually grows out of the core strengths of the organisation. From the largest public corporation to the smallest private company the requirements for successful innovation are the same *(Naughton 2004)*;

- *Leadership with vision*: The most innovative organisations are run by leaders who not only see the possibilities of the future but who know how to communicate that vision to their employees.

- *Deeply rooted values*: An organisation's values provide the foundation for its strategy and strategy provides the road map to innovation.
- *Inclusive culture*: The most innovative cultures empower employees, welcome ideas, celebrate success and tolerate risk.
- *Focus on the customer*: The secret of value-added innovation is to put the customer at the centre of everything. *Naughton (2004)* accentuates that the ultimate power in the business lies with the customers. Understanding the customer's needs and creating an organisation that successfully delivers a product or service that meets the need is something that the successful business person never looses sight of.
- *Open communication*: Innovation thrives with the free flow of information from the top to the bottom and vice versa.
- *Collaboration*: The best innovation comes from interaction and the power of teamwork that makes the whole greater than the sum of its parts.

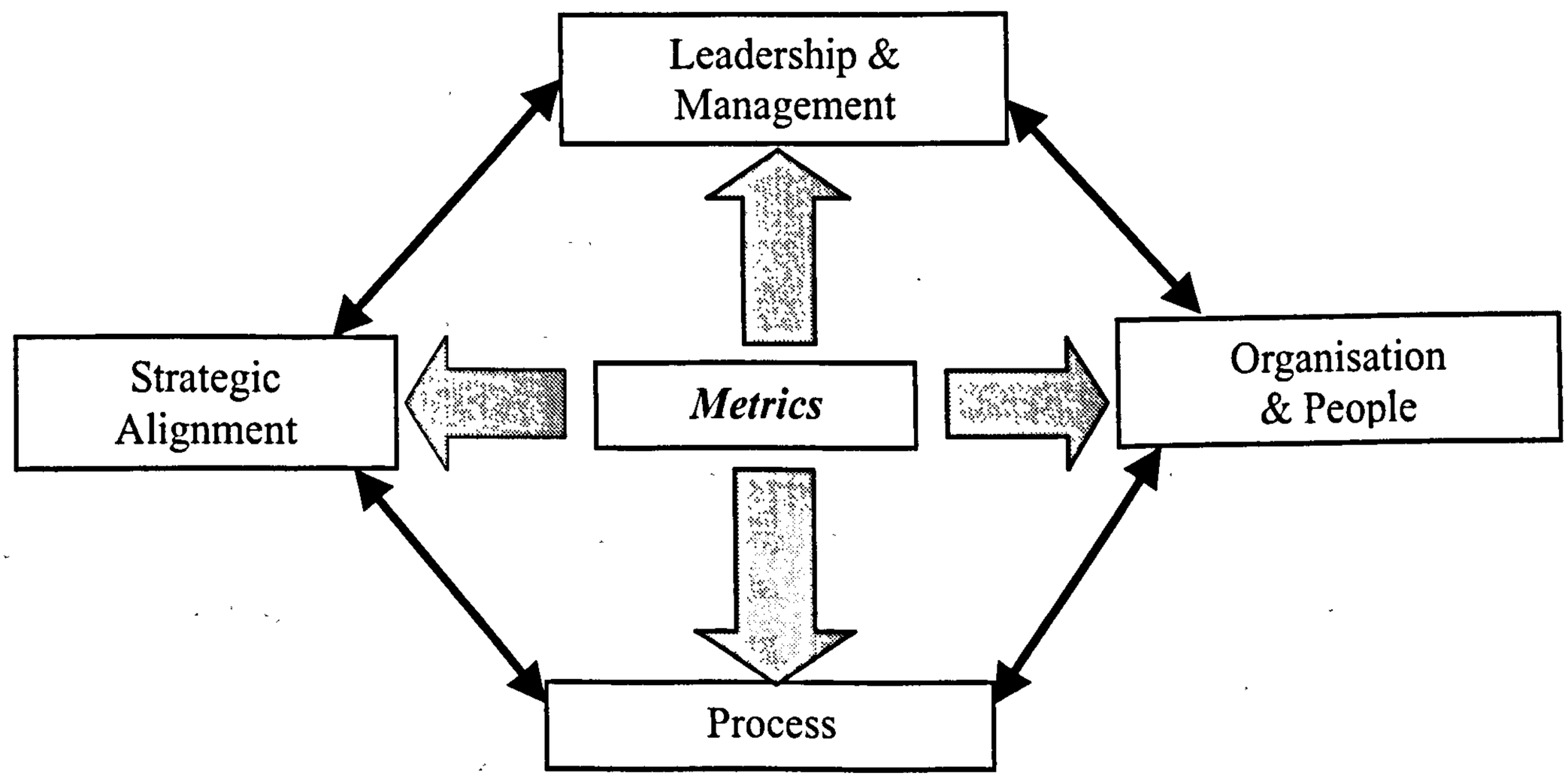

Figure 2.3: Corporate Innovation System and its Core Elements
Source: Kotelnikov and Ten3 East-West (2005)

It is not always necessary that innovation or innovative ideas come out of a few brilliant people; it is all about getting the most out of many people working in the organisation. Hence, it's imperative to encourage each and every member of the company to put in their ideas, to never stop encouraging employees to innovate and equip them with appropriate tools that would help

them in thinking more creatively. These continuous changes in the state of knowledge produce new disequilibrium situations and therefore new profit opportunities or "gaps" *(Jacobson, 1992)*. According to *Trott (2005)*, technology developments and progressions, increasing changes in nature of customer demands and the much talked about globalisation that leads to global competition have also contributed to a large extent in the 'rate of change' *(refer figure 2.4)*.

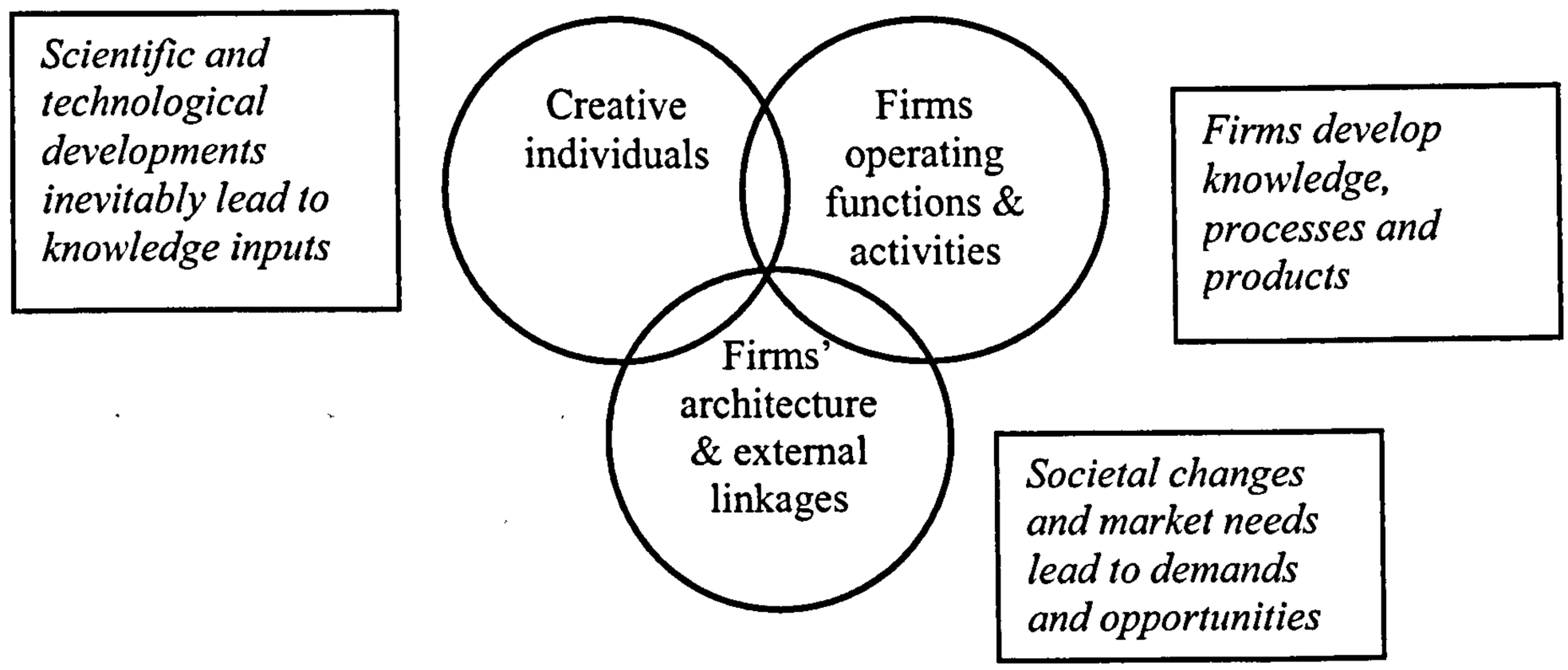

Figure 2.4: Overview of the Innovation Process
Source: Trott (2005)

2.5.1 Organisational characteristics that facilitate the innovation process:

Innovation process in general can be categorically said to be a 'people activity', it is essentially dependant on the people carrying out the innovation activity and the results affect them directly. The aspects of organisational structure, formal decision-making processes, delegation of authority and other formal aspects lead to a successful innovation activity only when an organisation realises that innovation, primarily is a people process *(refer table 2.3)*, *(Trott, 2005)*. In continuation to *Porter's (1985)* model of competitive advantage, *Trott (2005)* lays out the concept of a 'virtuous circle of innovation'. Porter in his study suggested that companies, which are able to perform better than the rest in the industry/sector enables them to reinvest the profit and benefits gained into innovation activities or activities that created the profits in the first place, therefore creating a circle of improvement and value addition. This continuous process of investing and re-investing has been described by *Trott (2005)* as the virtuous circle of competitive advantage/continuous

improvement *(Refer figure 2.5 & 2.6).*

Table 2.3: Organisational characteristics that facilitate the innovation process

Organisational requirement	Characterized by
Growth orientation	A commitment to long-term growth rather than short term profit
Vigilance	The ability of the organisation to be aware of its threats and opportunities
Commitment to technology	The willingness to invest in the long term development of technology
Acceptance of risks	The willingness to include risky opportunities in a balanced portfolio
Cross-functional co-operation	Mutual respect among individuals and a willingness to work together across functions
Receptivity	The ability to be aware of, to identify and to take effective advantage of externally developed technology
Slack	An ability to manage the innovation dilemma and provide room for creativity
Adaptability	A readiness to accept change
Diverse range of skills	A combination of specialization and diversity of knowledge and skills

Table 2.3: Organisational characteristics that facilitate the innovation process
Source: Trott (2005)

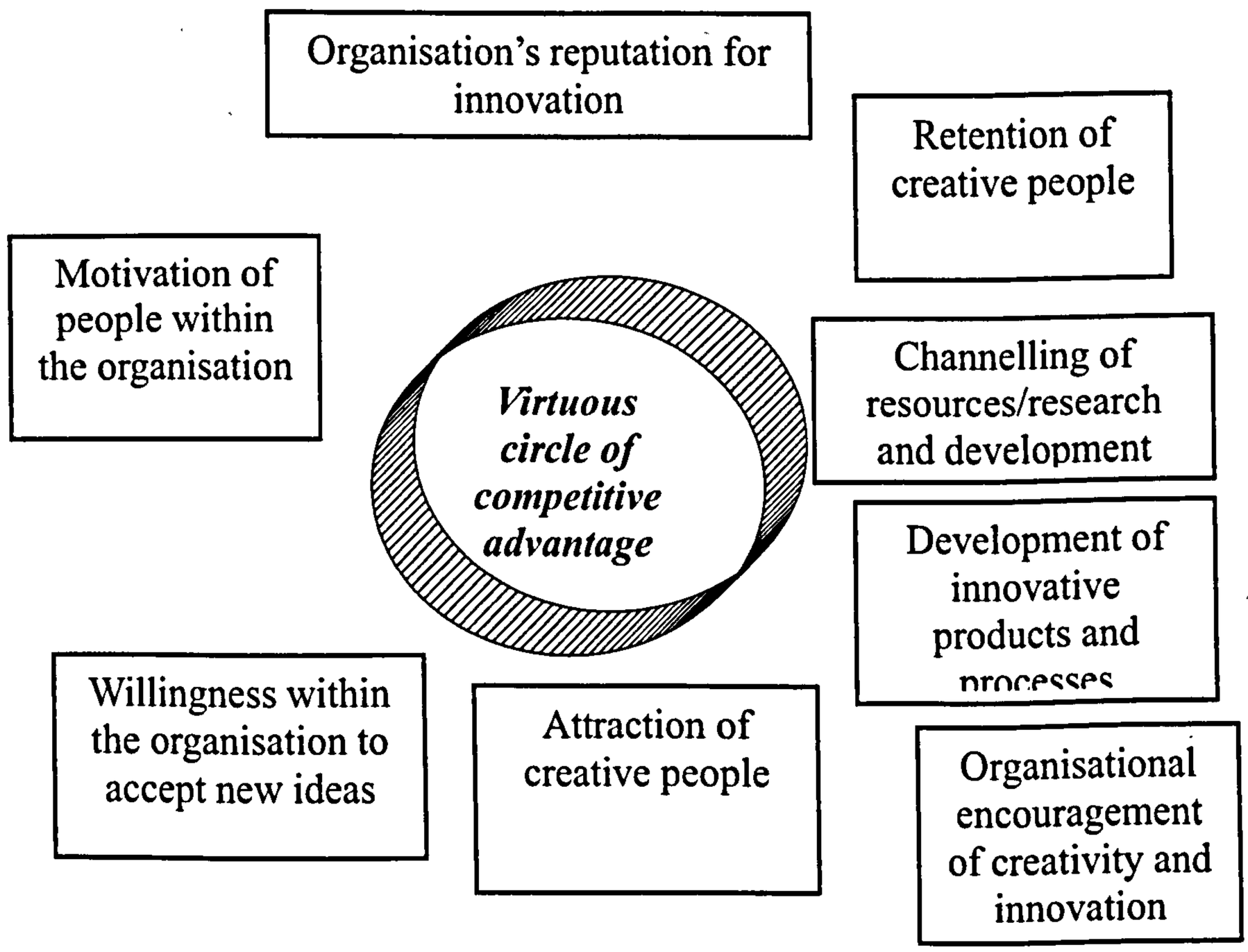

Figure2.5: Porter's Virtuous circle of competitive advantage
Source: Porter (1985)

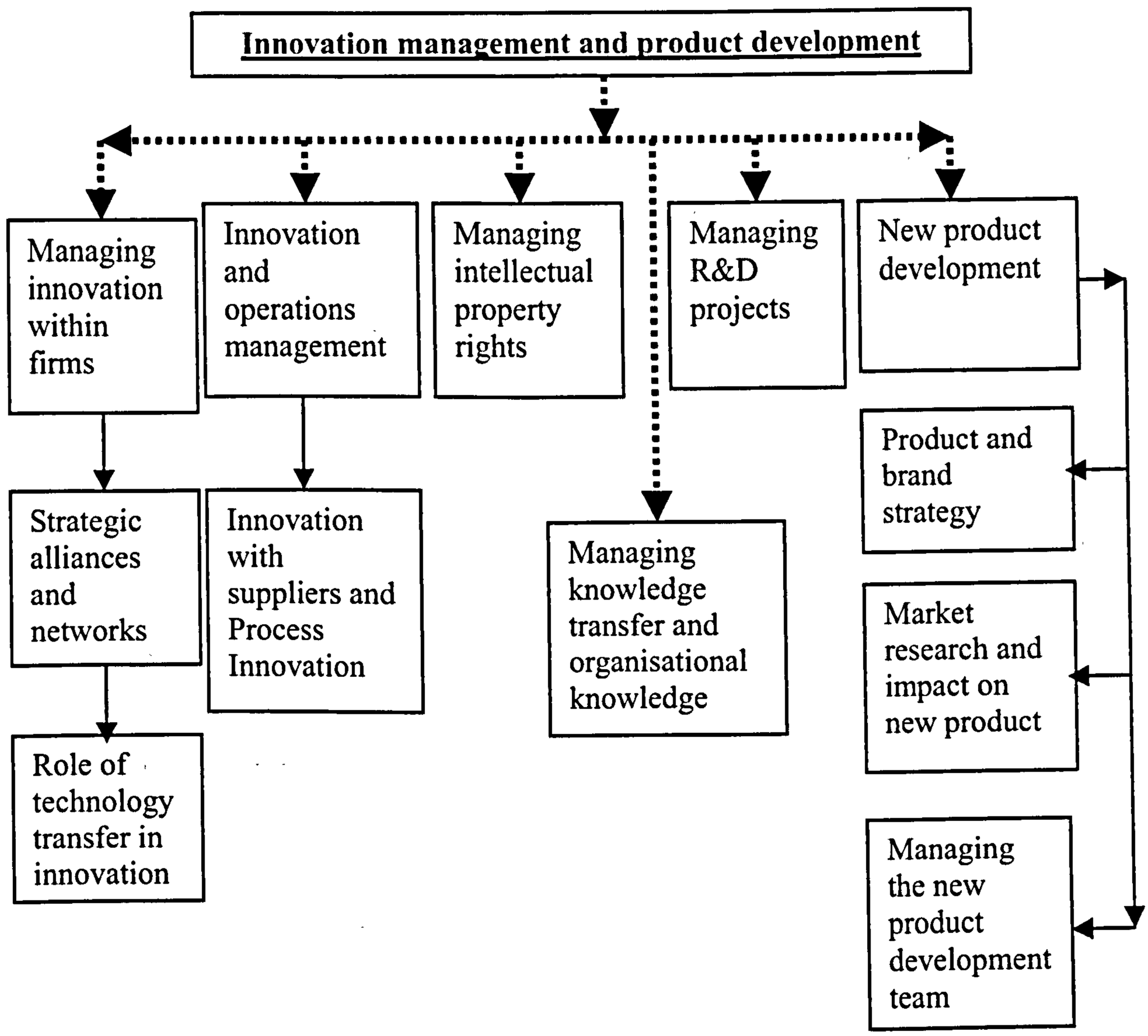

Figure2.6: Multidimensional framework for Innovation and new Product Development
Source: Trott (2005)

2.6 Models of innovation:

Cooper (1998) in his multidimensional model of innovation suggests that innovations are not so much either/or, but that a given innovation possesses the characteristics of various types at the same time. This is also a more reasonable and justifiable approach towards innovation than what it has been in the past few years. *Cooper's (1998)* model proposes that all the dimensions and facets to innovation are important but only if they co-relate in total and to the other dimension that exist for a given innovation *(Refer figure 2.7).*

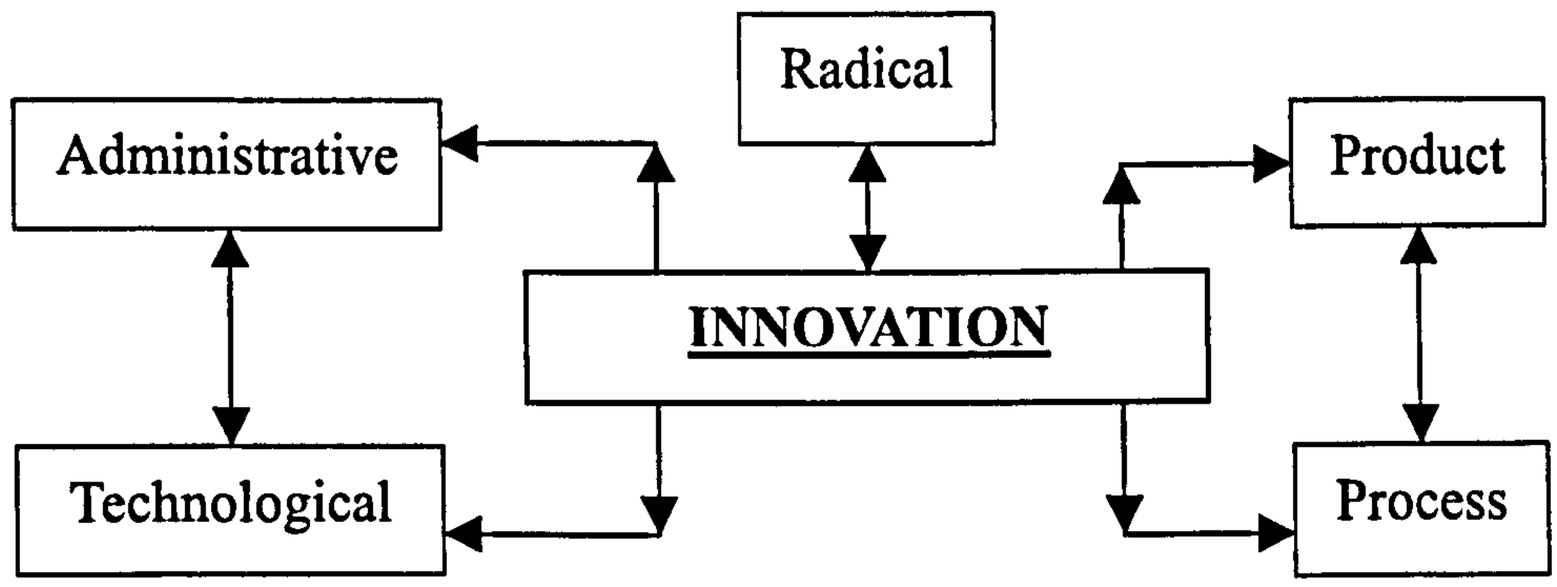

Figure 2.7: A multidimensional model of innovation
Source: Adapted from Cooper (1998)

The activity of innovation can be further sub-divided into six different categories these are *(Johannessen et al, 2001)*:

1 New products;
2 New services;
3 New methods of production;
4 Opening new markets;
5 New sources of supply; and
6 New ways of organising.

When a firm adopts a new technique for assembling a given product, it has a technological dimension, since it directly influences the basic output processes of the organisation (*Daft, 1978 as cited in Cooper, 1998)*. The same innovation also constitutes a process innovation, since the firm uses this technique in production of an end product *(Zaltnam et al, 1973 as cited in Cooper, 1998)*. This innovation must also be assessed in terms of radical/incremental dimensions based on the extent to which it departs from existing techniques within the firm *(Ettlie et al, 1984)*.

Wonglimpiyarat (2004) explains the historic pattern of innovation through *Rothwell's (1992)* innovation model, highlighting the importance of networking *(refer table 2.4)*. This explains the theory of technological change as an interaction within network of companies, acting as triggers of innovation. In contrast to this was a migration paths model introduced by *Hamel and Prahalad (1994)*, which stated that technological push is insufficient due to the extreme and fast technological changes that create numerous alternatives from, which firms choose their technological strategy.

Table 2.4: Development of Innovation-Model by Rothwell

Generation	Key Features
First	Technology push: simple linear sequential process
Second	Need pull: simple linear sequential process
Third	Coupling model: recognising interaction, between different elements and feedback loops between them
Fourth	Integrated model: integration within the firm, upstream with key suppliers and downstream with demanding and active customers, emphasis on linkages and alliances
Fifth	Systems integration and extensive networking model: flexible and customised response, continuous innovation

Table 2.4: Models of Innovation
Source: Rothwell (1992)

Hamel and Prahalad (1994) further explain that the strategy of demand and pull also does not work in circumstances where customers lack the necessary foresight of possibilities with new products and systems, thus innovation should be seen more as an outcome of coherence for integration of skills and capabilities when competing for the future market.

2.7 Business innovation:

Lorente et al (1999) rationalise that business innovation describes the innovation in management thinking aiming towards creation of new value and wealth for all concerned stakeholders, which also leads to increase in economic prospects. Various reasons motivate business innovation, some of which are listed below:

1 External and internal environmental changes;
2 Customers;
3 Competitors;
4 Suppliers; and
5 Employees and the ability to adapt to these fast changes in the business environment is the main key to success.

Two types of business innovations are suggested by *Curry & Clayton (1992),*

Imai (1986) and *Miller (1995)* as cited in *Lorente et al (1999)*, these are:

1 Drastic business innovation: proposed by reengineering; and
2 Progressive business innovation: proposed by TQM through continuous improvement.

It is argued by *Lorente et al (1999)* that total quality management (TQM) does not hinder business innovation and some of its dimensions actually help in the growth and development of business innovation. These dimensions as explained by *Lorente et al (1999)* are:

1 Customer focus;
2 Training;
3 Empowerment;
4 Teamwork;
5 Rationality in the analysis of production; and
6 Benchmarking.

These assist an organisation in becoming more innovative in its business activities and hence, the concepts behind TQM need to be well understood and comprehended by members of senior management. It is insisted by *Lorente et al (1999)* that TQM is also subject to changes and has to adapt to new conditions of work, competition and environmental situation that tend to be driven by business innovation. *Lorente et al (1999)* accentuate that business innovation supports innovation in management thinking with the primary purpose of creating value and wealth for all stakeholders with the aim to increase the economic prospects. Both internal and external factors within the organisational environment have considerable effect on the nature of innovation and it is not just the changing customer needs or stakeholder expectations but also the ever increasing needs to employees, suppliers and competitors that have to be taken into consideration. Like many other innovation researchers, *Lorente et al (1999)* also believe that innovation can take place in many forms and is not a one-time event.

Products (related with Research and development and meeting customer demands), services (also related with research and development and customer satisfaction), production processes (changes in machinery and other elements not directly associated with employees and with the aim of escalation in productivity through quality expansion and cost reduction),

management systems and thinking (in response to new environmental conditions that improve the way in which people work and are managed in an organisation), business strategy, and all form part of these various forms of innovation that have been discussed till date.

2.8 Why innovate?

D'Aveni (1994) stresses that companies today should focus more on being innovative especially because of the unending and increasing stream of knowledge that keeps the market places in constant motion. Innovation today should be treated by all organisations as highly critical and vitally important for most firms to embrace in order to create and sustain a competitive advantage. The pivotal role of innovation to entrepreneurship and business success within the increasingly knowledge based and hyper competitive environments has made it even more necessary for all to understand and adapt innovation *(Johannessen et al, 2001)*. Time has come when it is essential for the established companies to prepare themselves for a future that brings with it immense competition. Business enterprises need to realise how powerful forces are aggregating once-distinct product and geographic markets, enhancing market-clearing efficiency, and increasing specialisation in the supply chain. They should respond by adopting a new approach to strategy—one that combines speed, openness, flexibility, and forward-focused thinking.

It is an era of new opportunities and regeneration especially for executives who realise the importance of change and innovation, for mature companies, which acknowledge that the time for slow change is over and it is important to accept changes in their own best interest. It is extremely essential that organisations, both large and small should be able to adapt and evolve for survival. *Trott (2005)* states that businesses operate with the knowledge that their competitors will inevitably come to the market with a new product that will change the basis of competition, hence the ability to change and adapt is fundamental to survival.

Doyle and Bridgewater (1988) explain the importance of continuous innovation and change by explaining that if a company's product or services are not continually improved; competitive pressures invariably lead to falling prices, declining margins and the commoditisation of its offer *(refer figure 2.9)*. *Doyle and Bridgewater (1988)* lay stress that innovation should be regarded

as the critical path to achieving growth in sales and profitability *(Refer figure 2.8 & 2.9)*.

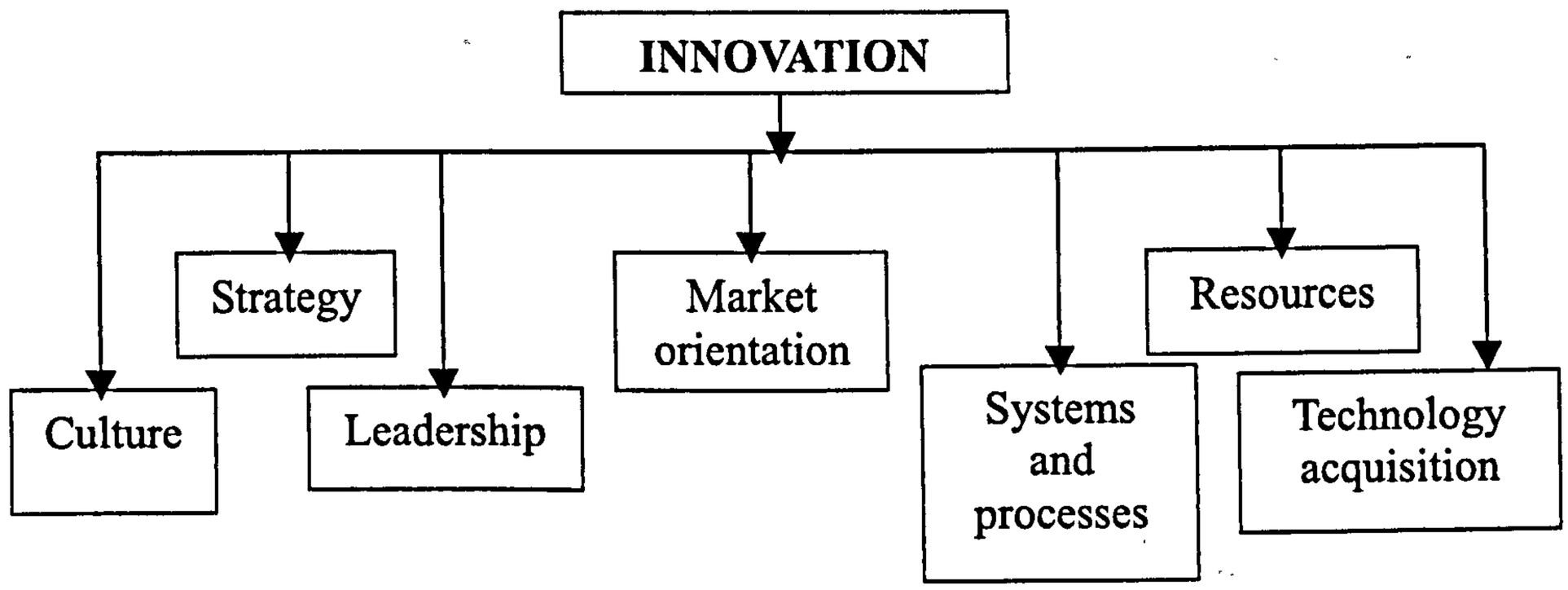

Figure 2.8: Set of processes that result in innovation
Source: Doyle and Bridgewater (1988)

The element of competition and its unit of analysis for a very large period of time has been a particular product or service. In contrast to this common thinking *Hamel & Prahalad (1994)* accentuate that competition for competence is not product versus product, or even business versus business, it is more related to corporation versus corporation. More beneficial is to compete with a broad array of 'competence competitors'. This concept is well explained by *Hamel and Prahalad (1994)* through various examples like that of Cannon. In competing to build leadership in competencies like electronic imaging, printing and fine optics, Canon competes with a large number of other equally placed companies like Toshiba, Kodak, and Nikon. Similarly, Wal-Mart competes with Kmart and Sears in developing world-class logistics. *Hamel and Prahalad (1994)* explain that core competencies are more long lasting than any individual product or service. They contribute to the competitiveness of a range of products or services, winning or losing the battle for competence leadership has a profound impact on a company's potential for growth and competitive differentiation, a much greater impact than the success or failure of a single product.

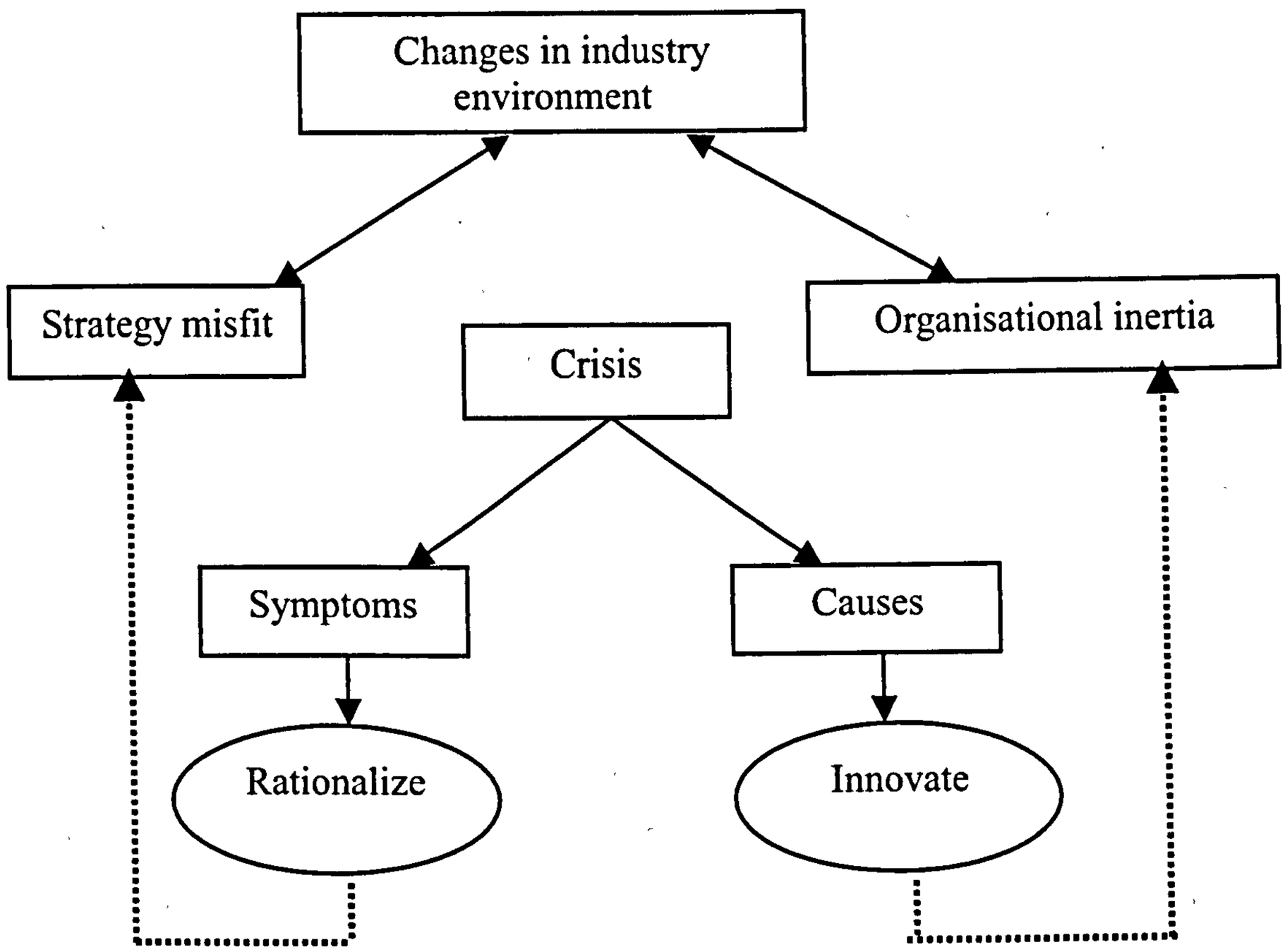

Figure 2.9: Symptoms and causes of failure
Source: Doyle and Bridgewater (1988)

Nemeth (2004) brings out the importance of innovation by stating that it is necessary for all companies, which strive to be admired and stand out in the highly competitive to ingrain the ingredient of innovation within its business objectives and day- to -day work of its employees. *Nemeth (2004)* defines this as a *"spark that ignites the work force"* and allows the enterprise to respond readily to change. For an organisation to carry out innovation activities in order to satisfy their customers and have the desired returns, it is essential that they think 'out of the box' or the traditional boundaries of corporate culture that emphasises uniformity, loyalty and cohesion as mechanisms for innovation. Creativity in individuals and innovation at organisational level are not easily achieved. On the contrary the answer is in finding original solutions to old problems, freedom to break the rules given to the employees, being ready to handle the risks involved and considering different options *(Nemeth, 2004).*

According to *Christensen (2002)* the past few years have seen noticeable progress in the identification of important variables that have had a considerable affect on the rate of innovation success. These as defined by

Christensen (2002) are:

1) Taking root in disruption: Disruptive innovations don't initially perform well enough to be sold or used successfully in mainstream markets but have other positive sides of simplicity, low cost that are found to be useful to new, small and 'unattractive' customers (as defined by the firms). On the other hand, new entrants that take root with customers in markets, which are otherwise unattractive to established companies/leaders are safe and have nothing to do with the cash or proprietary technology they possess. Taking root in disruption is hence the first condition that innovators need to meet to improve the probability of successfully creating a new growth business, failing to do such would increase the chances of innovation being unsuccessful.

2) The necessary scope to succeed: This depends on the degree of 'integration'. Highly integrated companies make and sell their own proprietary components and products across a wide range of product lines or businesses whereas the non integrated companies outsource them as much as possible to suppliers and partners and the style that is likely to be successful is determined by the conditions under which companies must compete as disruption occurs

3) Leveraging the right capabilities: Innovations fail when managers attempt to implement them within organisations that are incapable of succeeding. Beyond technology, the resources that drive innovative success are managers and money. Corporate executives often tap managers who have strong records of success in the mainstream to manage the creation of new growth in businesses.

4) Disrupting competitors, not customers: If innovation helps customers to do things they already are trying to do in a more simple and convenient way, then there is always a higher probability of it succeeding.

Naughton (2004) insists that innovation today is more than just a pathway to success and should be treated more as *'key to survival'* in the constantly changing competitive business environment. From being a mere luxury to practical necessity, innovation is a result of a large number of factors, out of which the most important are *(refer figure 2.10 & 2.11):*

New and more advanced technology;

Globalisation and high market competition;

Active customer participation and increasing needs of the customer; and

Increased communication and knowledge flow across the organisation

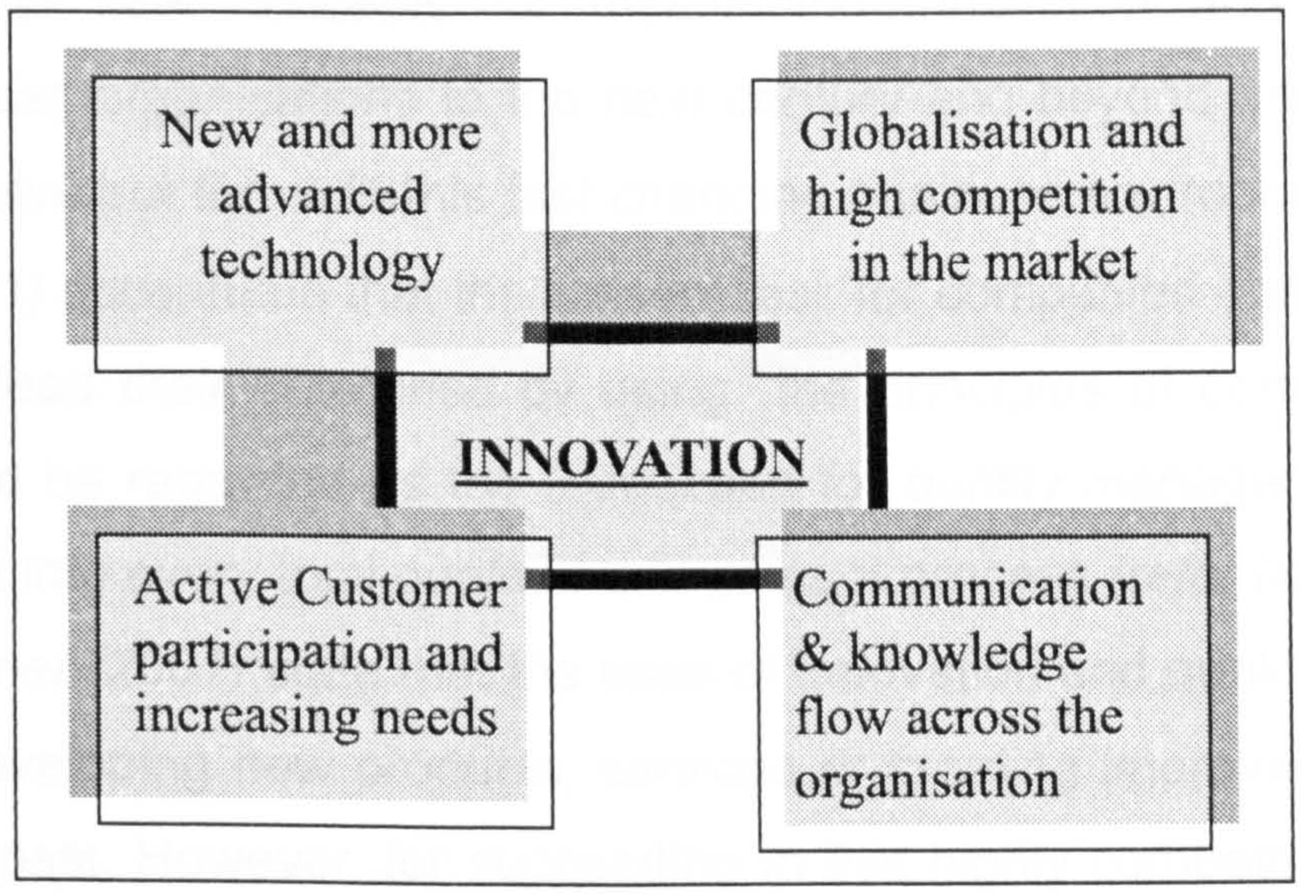

Figure 2.10: Innovation drivers
Source: Naughton (2004)

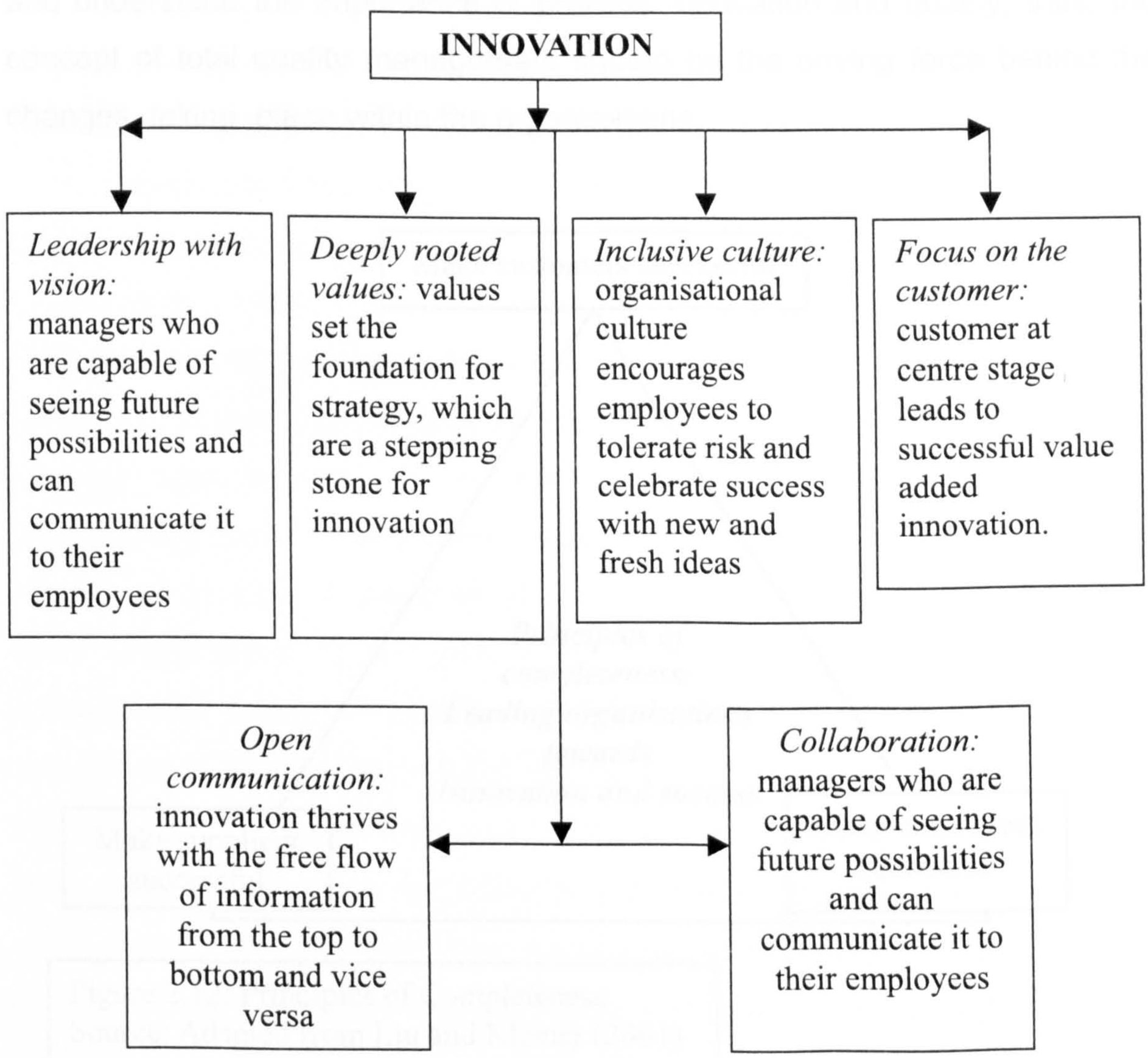

Figure 2.11: Successful innovation requirements
Source: Naughton (2004)

2.8.1 Importance of Quality in Innovation:

Since Total Quality Management calls for continuous improvement, it will be inevitable that new concepts for maintaining innovation and quality will emerge to lead organisations to the next century and beyond and help them not only survive but thrive in this fast changing business environment. *Liu and Kleiner (2001)* accentuate that the present task for companies and for years to come is to lead their enterprise by using "the principles of completeness" , which should be regarded as the foundation for quality management and be incorporated into every total quality management process *(refer figure 2.12).*
Liu and Kleiner (2001) state that the uses of innovation and quality have been limited to developing new products, services or creating improvements in old ones in the past. However, for succeeding in this highly competitive business environment, *Liu and Kleiner (2001)* feel that companies must study the leading examples of innovation and quality. The key to success is to recognise and understand the importance of process innovation and quality; thus, the concept of total quality management should be the driving force behind the changes taking place within the organisations.

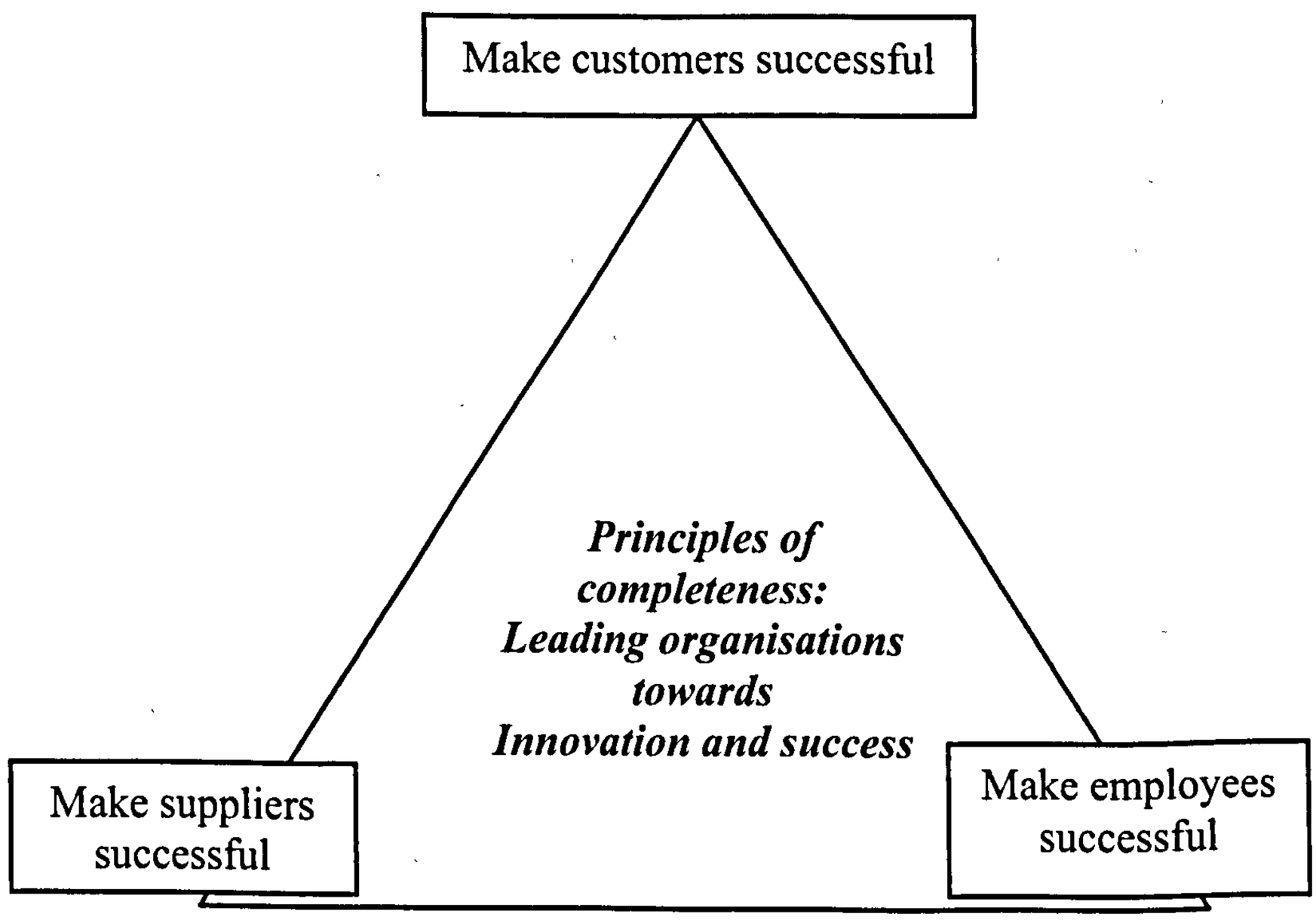

Figure 2.12: Principles of Completeness
Source: Adapted from Liu and Kleiner (2001)

Further explaining the role of total quality management within innovation management, *Liu and Kleiner (2001)* define the Total Quality Management concept with two factors, which are:

- Quality requirements: these are the specific needs that a product or service must meet if they are to be any value to the customers
- Performance standards: are the frequencies with which an organisation must meet with the demands of the customer
- A manager's role in a total quality management and innovation system is to ensure that all requirements are met such that an organisation can effectively and efficiently provide the product or service needed by its customers and the system must operate on the basic premise that any product, process or reward can be always improved upon by introduction of innovative activities. Innovation and total quality management systems are only beneficial when all activities and personnel are fully integrated into its implementation both internally and externally, there is existence of effective communication between all involved and within the company as a whole in order to support the improvement process *(Liu and Kleiner, 2001).*

2.9 Innovation performance:

Christiansen (2000) while explaining various factors that affect innovation performance states that the fact that there exist many factors which influence innovation makes the process of innovation and the goal to improve it a complex task in itself. If the management team wants to manage a revolutionary transformation, they have to go through various changes which are all not possible to make all at once. These require extensive training or other preparations to be able to execute some of the changes at all *(Christiansen, 2000). Christiansen (2000)* explains that for any organisation or management team to carry out a change programme it is imperative for it to follow certain principles. This may include making simple changes at first and taking advantage of the expertise outsiders can provide to accelerate the change process. Once the larger management team begins to recognise the importance of innovation, more complex changes will become possible and the company will be well on its way to an improved performance and value

addition. One of the most important facets of innovation is that the process and system of innovation also differs across industries and across companies within industries. *Christiansen (2000)* explains this theory by giving an example of a pharmaceutical company, whose innovation problem may not be same as that for an industrial product manufacturer, similarly the innovation problems faced by a company that wants to diversify, is not the same as that of a company wanting to focus on one or two products.

Burgelman (1996) states that it is useful to differentiate between the innovative capabilities at a business unit level and at a corporate level, this will enable in better understanding of these comprehensive set of characteristics of an organisation that facilitate and support its innovation strategies. Further elaborating on the two levels, *Burgelman (1996)* explains that a business unit is a unit for, which a particular strategy and resource commitment posture can be defined because it has a distinct set of product markets, competitors and resources, whereas the corporate level deals with a number of business units therefore it is imperative to identify the critical variables that influence both the relationships between corporate level and business unit level in terms of innovative capabilities and the formulation of overall corporate innovative strategy.

Five important categories of variables influence the innovation strategies of a business unit. These are (*Burgelman, 1996), (refer figure 2.13):*

1 Resource available for innovative activities;
2 Capacity to understand competitor strategies and industry evolution with respect to innovation;
3 Capacity to understand technological developments relevant to business unit;
4 Structural and cultural context of the business unit affecting entrepreneurial behaviour; and
5 Strategic management capacity to deal with entrepreneurial initiatives

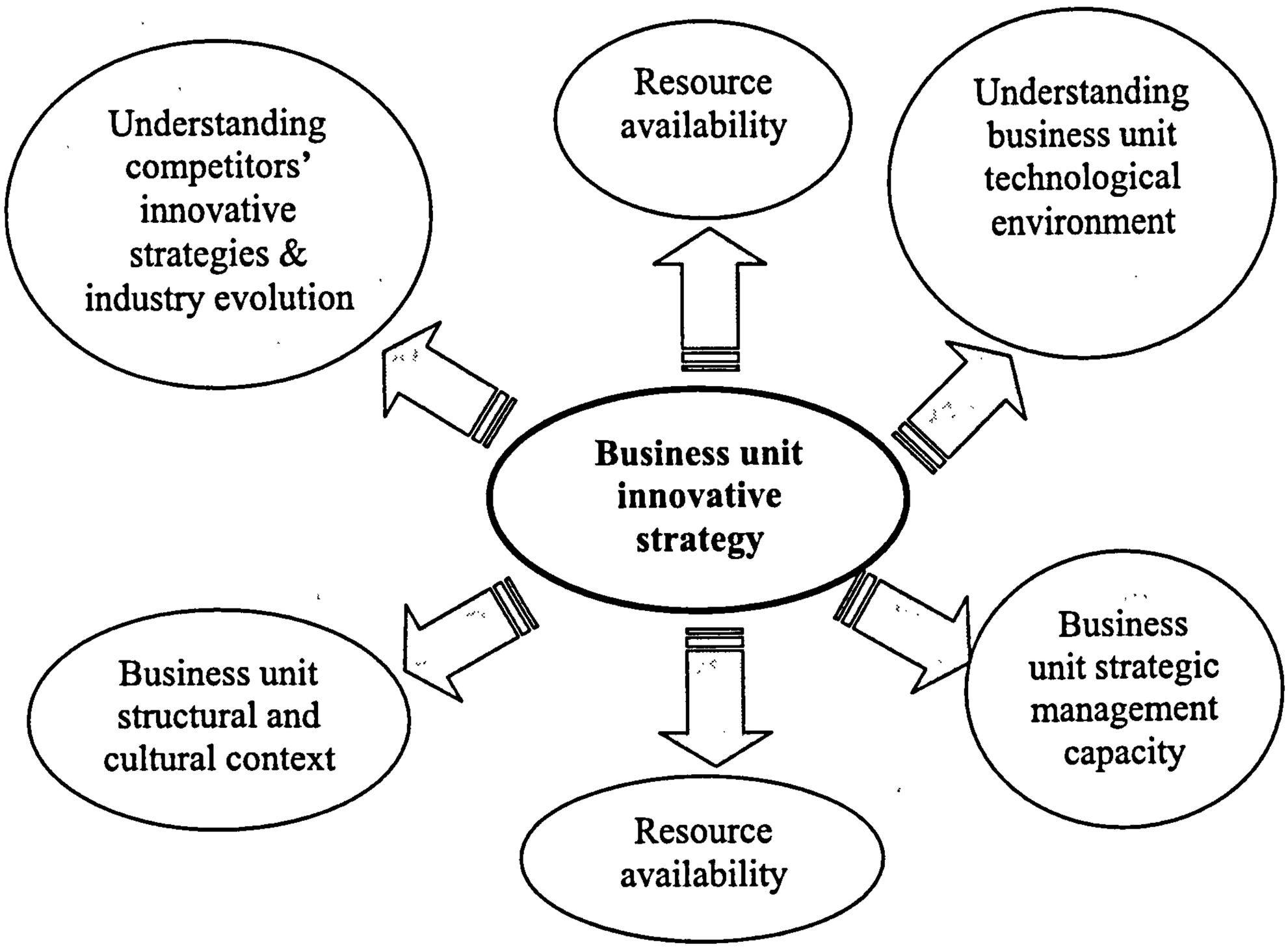

Figure 2.13: Innovative capabilities at a business unit level
Source: *Burgelman (1996)*

Johannessen et al (2001) state that during the last decade, substantial amount of interest has been shown in the field of innovation as a means to create and maintain sustainable competitive advantage. This has been done both in the popular press and academics. Considered as a key element to entrepreneurship, innovation can also be easily stated as fundamental to business success *(Nonaka and Takeuchi, 1995)*. Organisational theorists and managers alike have long shown more of an interest in the role of innovation in organisations primarily because of the crucial role innovation plays in securing sustained competitive advantage *(Porter, 1980)*. *Porter (1980)* accentuates that the willingness of any organisation to innovate, develop and adapt new products, processes, techniques or procedures becomes further complicated as the firm/ seeks to innovate. However, it is imperative for any organisation, which wants to succeed to innovate continuously and not treat it as a one-time event. In this context *Cooper (1998)* explains that the concurrent nature of innovation is a key driver in the pursuit of competitive

advantage because managers must do more than develop, implement or approve innovations; they must serve as the architects of the innovation imperative.

2.10 Innovation clusters:

Beaver and Price (2002) suggest that innovative small and medium sized enterprises do better when they are a part of a community or a cluster of firms that think alike, which also helps them to participate in a supportive infrastructure that encourages development and prosperity of these like minded firms. This is further emphasised by, *Beaver and Price (2002)* through the examples of Silicon Valley in California, USA and the Cambridge Phenomenon, U.K. in clusters like these there is frequent and strong interaction between many individuals and organisations, on both formal and informal levels. Clustering is often seen as a key means of driving regional development – of building private and public sector partnerships to mutual benefit through government and regional investment in innovation incubators, science parks and cities, technology transfer offices, etc *(www.compete.org, 2005)*

It is established by *Beaver and Price (2002)* that effective decision making at strategic levels requires information that also allows change and progression and firms that use and fashion their competitive advantage around information and external networking regularly achieve better results and are more optimistic about future prospects and successes. There is evidence that the creation and growth of new, technology based enterprises occurs most effectively in geographically-limited clusters, which as defined by *Porter (1980 &1985)* are a geographic concentration of competing and cooperating companies, suppliers, service providers and associated institutions *(www.compete.org, 2005)*. Information search and management activities can be extremely costly and also misdirected. Forming networks with other organisations in the search for information is a mechanism by, which small firms can lighten the problem of extending their knowledge base and strengthen their market standing *(Beaver and Price, 2002)*. Partnering *(innovation clustering)* vertically with strategic supply chain and horizontally with people in the industry *(for example competitors)* introduces an element of competition that helps in driving innovation. Lack of competition makes

partnering into a 'cosy affair' with no continuous development and mutual gains – the very essence of partnering hence, leading the relationship to stagnate.

Business development is often strongest when businesses cluster together, creating a critical mass of growth, collaboration, competition and opportunities for investment.

(U.K. government White Paper, 2000)

Graham and Christopher (2002) explain that the last decade witnessed an establishment of numerous science parks attached to universities within the United Kingdom, together with a network of Business Innovation Centres. *Graham and Christopher (2002)* argue that entrepreneurs involved in innovation often have different and special support needs and thus special environment needs to be established to facilitate successful technology transfer from the pure research in the university to the production and commercialisation requirements within the firm. The diamond model by Porter (1980 & 1985) for competitive advantage of nations effectively supports the need of continuous innovation/innovative product development within firms to constantly improve their competitiveness.

The diamond model proposed by *Porter (1980&1985) for* the competitive advantage of nations offers a model that can help understand the competitive position of a nation in a highly global competitive environment. However, *Porter (1980)* insists that continuous and sustained industrial growth cannot be maintained on the above-mentioned factors and in return introduced a concept of ***"clusters"***. This consists of:

- Groups of interconnected firms;
- Suppliers;
- Related industries; and
- Institutions that arise in particular locations.

And as a result of this the diamond model for competitive advantage of nations as proposed by *Porter (1980&1985)* supporting innovation is an outcome of four interlinked factors and activities in and between companies in these clusters, which are also influenced by the government *(refer figure 2.14)*.

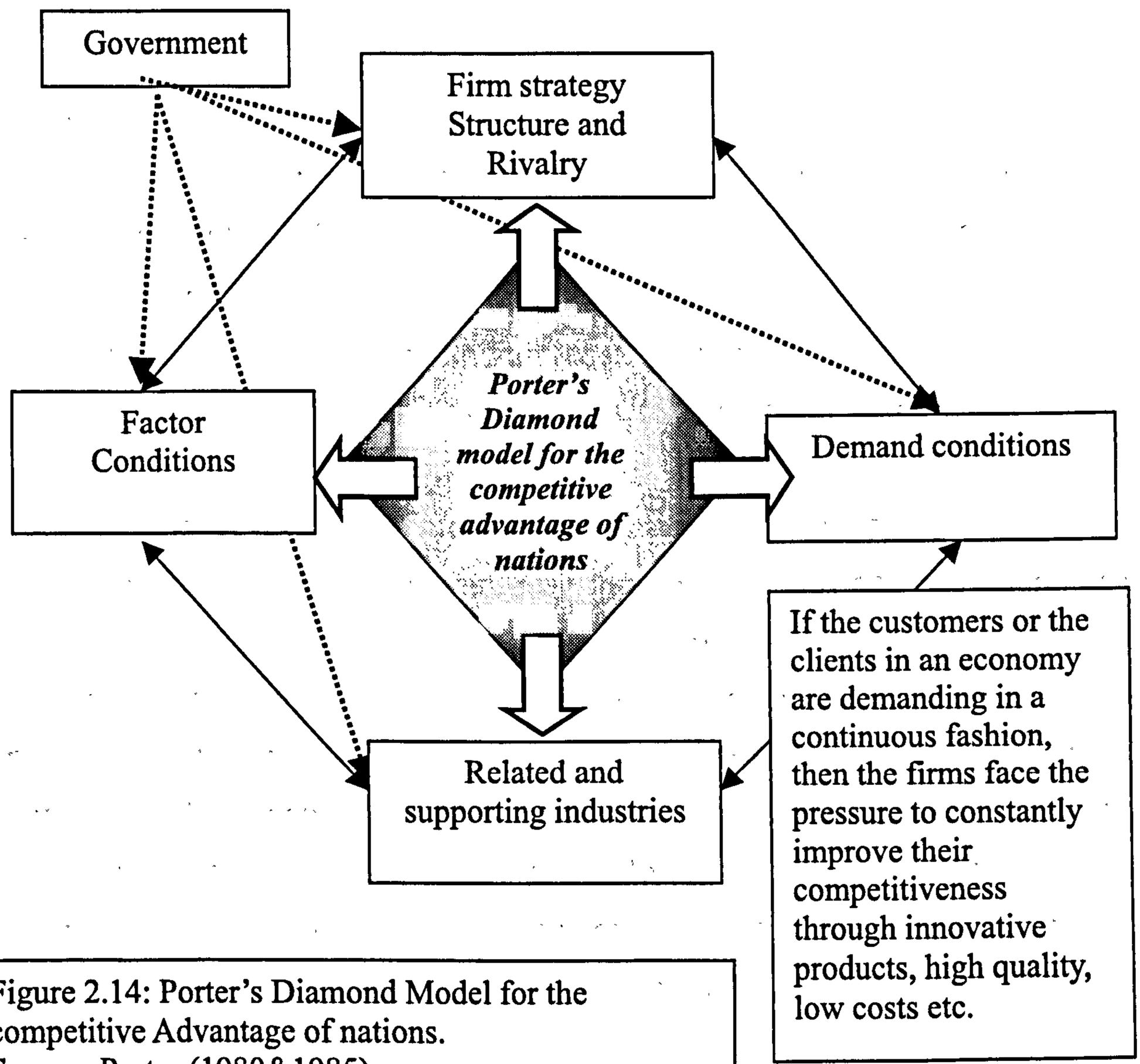

Figure 2.14: Porter's Diamond Model for the competitive Advantage of nations.
Source: Porter (1980&1985)

Out of all the four conditions proposed by *Porter (1980&1985)* the role of demand condition plays the most important role as it determines the rate of competitiveness between the firms and forces them for continuous development to satisfy their customers. The role of government in the diamond model, as per *Porter (1980&1985)* is that of a catalyst or a challenger, which encourages and pushes the companies to:

- Raise their aspirations;
- Move to higher levels of competitive performance;
- Focus on specialized factor creation;
- The factor of firms' strategy, structure and rivalry is dominated by direct competition that forces the firms to work for increase in productivity and ***innovation***

2.11 Barriers to innovation:

Barriers to innovation according to *Robson and Ortman (2005)* can be both external and internal. The internal barriers can be those, which the enterprise might face while carrying out the innovation activity and external factors that prevent innovation. Costs were most commonly regarded as significant barriers to innovation including the direct resource cost of innovation activity, their perceived economic risk and the costs of acquiring finance *(Robson and Ortman, 2005).* Amongst other constraints to innovation as perceived by the enterprises were lack of knowledge, lack of qualified personnel and lack of research and development facilities along with required necessary funding, these were viewed important more by the smaller businesses. According to *Hargadon (2005)* the main barrier to innovation tends to be an inappropriate fixation on invention, which affects the organisations at all levels whether managerial or administrative. It affects an individual seeking to create something wholly new to the manager rewarding individual achievements and directing project resources, all the way up to the organisational structures and strategies surrounding innovation process. The conception that innovation must 'break with the past' acts as a barrier by forcing people to try and come up with entirely new ideas.

The *DTI (2005)* innovation survey as reviewed by *Robson and Ortman (2006)* suggests that businesses learn about and understand the barriers to innovation only as a result of their attempt to innovate. Enterprises engaged in innovation activity are more likely to perceive barriers than businesses who did not attempt to innovate.

Patents, copyright, embedded products as barrier to innovation

Hargadon (2005) insists that open source is the notion that if a technology is open to the entire market, it can be worked upon, improved and will develop far faster than if it is hidden and controlled by a select few people.

"It has become far more difficult to borrow and improve on ideas as markets converge and companies become increasingly litigious about their claims on intellectual property." (Hargadon, 2005)

The trend of new digital rights and copyrights prevents innovation, but it is still being allowed to happen because people don't recognise that the innovation process has always been one of taking existing products and technologies

and reworking them to new results. Stating on the areas of commercial brokering and commercial secrecy, *Hargadon (2005)* accentuates that winning can not be achieved by keeping everything as a secret till the last minute and then suddenly releasing innovation overnight - secrecy reduces the flow of ideas. This also highlights the concept of partnering for mutual benefit and growth with openness and trust being the main parameters.

If people have been working in the same organisation for number of years then they have no varied experiences to draw from or share, hence restricting innovation and for a company with a single or few markets, it's difficult to support a culture that shares ideas and experiences because, with the lack of experiences, there is less chance that it will pay off as it is the experiences that people bring that make the organisational culture. *Hargadon (2005)* insists that for any innovation to be successful it is imperative to think in 'several boxes' rather than thinking 'outside the box'. This requires people with extremely open and enquiring minds with a focus to bring different strands together and apply them innovatively within the organisational strategy. The team work trick involved should not be to invest in these open minded people and let them go in their respective directions but instead to bring them together with a vision that manages them, their ideas and hence the project.

Ahmed (1998) stresses that innovation, as an organisational task is made difficult because not only does the organisation need to have the adequate and relevant knowledge but also needs to know how to translate the knowledge into specific and beneficial action plans.

2.12 Factors affecting innovation:

Ahmed (1998) feels that though there are many factors that have a profound affect on organisational innovation and that though numerous determinants of innovation have been identified, the understanding of ideal practices for innovation still remain incomplete. Stating the factors put forward by *Rothwell (1992), Ahmed (1998)* describes the factors that determine successful innovation. The suggestions made by *Rothwell (1992)* mainly concern the industrial sector but according to *Ahmed (1998)*, these can also be used in a non-industrial context *(Refer figure 2.15).*

Ahmed (1998) explains that innovation as a process has evolved from being a rudimentary activity to a more sophisticated and complex organisational

practice. Liner sequential processes were dominant in the 1960s to early 1970s and innovation in this era was more towards technology push and the market simply was used to absorb the output from technical advances. In late 1970s to 1980s, innovation remained linear in process but the shift was towards the needs of the market in contrast to the technology push. Mid 1980s saw organisations using their resources to capitalise upon both technical and market opportunities. Moving towards late 1980s to 1990s, innovation evolved into a tightly knit process within the organisation's strategies and goals. Transition was now from being a liner process to a complex process involving both parallel and sequential activities, involving a high degree of cross functional integration and collaboration with external partners such as suppliers and customers (Move towards Partnering) *(Ahmed, 1998), (refer figure 2.15).*

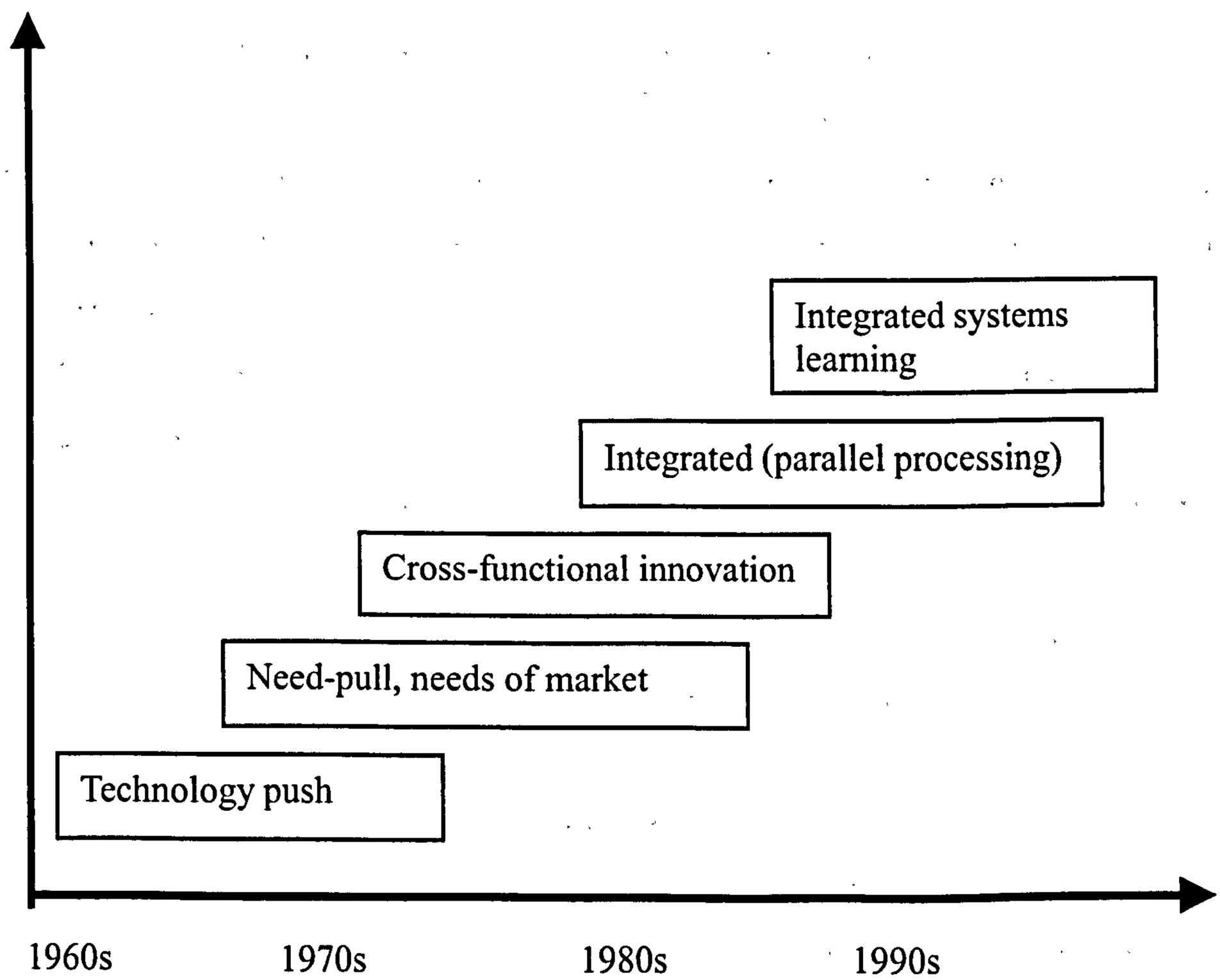

Figure 2.15: Stages of Innovation Evolution
Source: Ahmed (1998)

Ahmed (1998) summarises the key factors affecting innovation, originally put forward by *Rothwell (1992)* and *Cooper (1980),* in relation to firms that are

technically progressive or are associated with successful innovation. These are:

Factors for successful innovation (Rothwell, 1992):

1. Establishing effective linkages with external institutions and bodies of technical know-how and creating good internal and external communication. Possessing a willingness to accept and adopt "external" ideas *(refer partnering)*
2. Treating innovation as a corporate wide task by functional integration of business objectives and technology. Involving each and every member of the staff in the project at the earliest stage possible. Designing for marketability
3. Implementing careful planning and project control procedures, regularly appraising projets and making up-front commitment of resources to screening projects
4. Stressing efficiency and high quality work. Implementing quality control procedures and utilising effectively up-to-date production equipment.
5. Building a strong market orientation, emphasising user-needs by building customer linkages and involving users in the development process.
6. Providing a good technical service to customers, training customers and ensuring effective and efficient supply of spares.
7. Possessing the presence of certain key individuals: product champions and technological gatekeepers etc.
8. Having high quality management: dynamic and open minded which is able to attract and retain talented mangers and researchers.
9. Commitment to developing human capital

Factors for successful innovation (Cooper, 1980):

In addition to all the factors mentioned by *Rothwell (1992), Cooper (1980)* suggested three additional variables that are related to innovation and stated by *Cooper (1980)* as fundamental parameters to the understanding of successful innovation. These are:

1. Nature of the product;
2. The market environment; and
3. Existence of potential product technology synergy.

2.13 Summary:

Mudrak et al (2005) emphasise that the success of an innovation project not only depends on the routines and activities performed by an organisation during an innovation process but also on the internal organisational environment created by it that enables these innovative processes and activities *(refer figure 2.16). Mudrak et al (2005)* further state that specific innovations can only thrive in certain distinct and characteristic environments making it essential for the organisations to ensure that there exists a match between its organisational environment and the innovation process it is attempting to carry out *(integrating overall business goals and strategies with innovation objectives).*

In the innovation model as suggested by *Mudrak et al (2005),* the organisational environment represents the following:

1. The organisation's implementation, mechanisms and structure of innovation;
2. The organisation's external linkages for innovation;
3. The organisation's strategic approach to innovation; and
4. The organisational context for innovation

The innovation process is completely integrated with the organisational environment and starts with its decision to innovate, the project running as a process within the business environment, ultimately affecting the firm's performance. The innovation process talked about here according to *Mudrak et al (2005)* consists of the following phases *(refer figure 2.16)*:

- Scanning;
- Strategy;
- Re-sourcing;
- Implementation; and
- Learning and re-innovation

Cooper (1998) concludes that there is a need to understand the key factors that lead to innovation excellence and their effect on business performance, however these relationships are still to be explored and studied in the business environment. Academicians and researchers study best practices, but need to lay more stress and give attention to the link between practices

and improved performances.

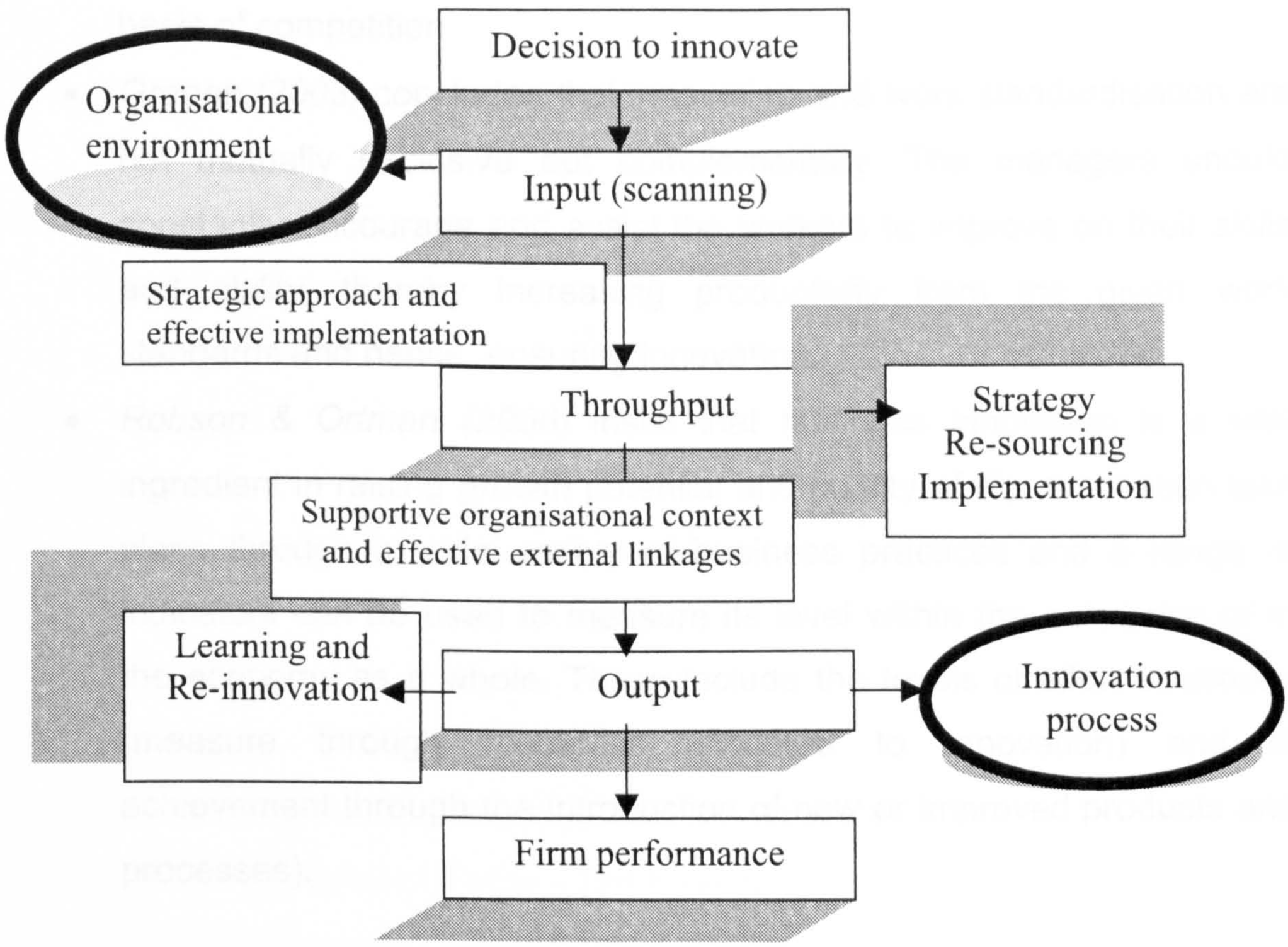

Figure 2.16: Innovation Management Concept
Source: Adapted from Mudrak et *al* (2005)

2.14 Chapter highlights:

- Barriers to innovation according to *Robson and Ortman (2006)* can be both external and internal. The internal barriers can be those, which the enterprise might face while carrying out the innovation activity and external factors that prevent innovation. Costs were most commonly regarded as significant barriers to innovation, including the direct resource cost of innovation activity, their perceived economic risk and the costs of acquiring finance *(Robson and Ortman, 2006).*
- Innovation performance and techniques of any company can be improved if the company is open to change and can adapt easily. This is however, only possible if the senior management allows the changes to happen and are equally receptive *(easy access to top management).*
- It is extremely essential that organisations, both large and small should be able to adapt and evolve for survival. *Trott (2005)* states that

businesses operate with the knowledge that their competitors will inevitably come to the market with a new product that will change the basis of competition

- *Greene (2003)* concludes that innovation and work standardisation are not mutually exclusive but complementary. The managers should constantly encourage and assist the workers to improve on their skills and ability, thereby increasing productivity from the given work standards and hence, ensuring innovation.
- *Robson & Ortman (2006)* insist that business innovation is a vital ingredient in raising growth potential and quality of life. Innovation take place through a wide variety of business practices and a range of indicators can be used to measure its level within the enterprise or in the economy as a whole. These include the levels of effort employed (measure through resources allocated to innovation) and of achievement through the introduction of new or improved products and processes).

CHAPTER 3

INNOVATION IN FACILITIES MANAGEMENT

3.0 Introduction

3.1 Understanding Facilities Management As a Discipline

3.2 Facilities Management Today - The Strategic Approach

3.3 Facility Management - Affecting productivity

3.4 Facilities management-defining future

3.5 Facility Manager and the Facility Management Tasks

3.6 Facilities management information systems

3.7 Innovation in facilities management

3.8 Partnering for Innovation

3.9 Innovation Budgeting

3.10 Summary

3.11 Chapter highlights

SECTION 1

Chapter 3

INNOVATION IN FACILITIES MANAGEMENT

3.0 Introduction:

It has become extremely important for the service industry today to be strategic in its approach. The real measurement of the services provided here then becomes not only the returns on investment (ROI) but also the quantum of returning customers and level of customer satisfaction achieved. Facilities management adds value to the organisation as it merges and incorporates itself with the core needs of the organisation and changes in management structure and operational procedures across all its core and non-core activities. Changes are taking place in the relationships between organisations, employees and their facilities and it is fundamental for every business enterprise to ensure complete management of all its workers to make them feel important and comfortable in the working environment, such that it increases their productivity, the core of FM relates to managing these changes effectively and efficiently.

In the information age of today, where one can see complete redefinition of work, change in the requirements of work and the management of workplace, there is a need to ensure that the most fitting workspaces are provided *(McGregor, 2000).* If one looks onto the future, it is the barrier free environments that are desired by people, such that they can work naturally and spontaneously, organise information and interactions, and where they can choose the location and pattern and timing of work, all of which increase productivity.

3.1 Understanding Facilities Management as a Discipline:

In the mid 1980's the promotion of facilities management as a profession was initiated by the Institute of Facilities Management (IFM), which grew out of the Institute of Administrative Management, and the Association of Facilities Management (AFM). Contributions are now made through their programmes of conferences, publications and examination-based qualifications that add to the vitally needed knowledge in the industry.

"Facilities management has existed long before the term was coined. Any business function, which required planning and support in order to function, is by definition FM."

(Willis, 1992)

As a discipline it is seen to add real value to organisations, not just a range of non-core activities to be managed as economically as possible (*BIFM, 2003).* *Barrett (1995)* defines facilities management as:

"An integrated approach to maintaining, improving and adapting the buildings of an organisation in order to create an environment that strongly supports the primary objectives of the organisation."

(Barrett, 1995)

Amongst various core activities of FM, lie the following chief issues:

- Deliver effective management of an organisation's assets;
- Enable new working styles and processes vital in this technology driven age;
- Enhance and project an organisation's identity and image;
- Deliver business continuity and work force protection in an era of heightened security threats and unforeseen risks;
- Facilities management is viewed with uncertainty. It is an ill-defined field, yet may be a valuable market opportunity.

Bell (1992) explains the term facilities management and the role of facilities managers by stating that facilities managers are responsible for co-ordinating and managing a very wide range of specialist areas. These include:

1. Property and estates
2. Construction and refurbishment
3. Space management
4. Maintenance and operations
5. Information technology
6. Support services
7. And to an increasing extent human factors

3.2 Facilities Management Today - The Strategic Approach:

FM is a profession requiring a wide range of skills and knowledge. Its practitioners are concerned with managing the multi-disciplinary activities within the built environment to optimise their impact on people and the workplace and giving its customers *'Value for Money'*. Some organisations to date, consider FM to be a low-lying part of the organisation and of not much importance and value to the business as a whole. The role of a facilities manager varies from strategic planning, policymaking and the creation of standards through day-to-day operations management, procurement and management of contract services and consultancy, and co-ordination of several projects such as re-location *(Nutt, 2000)*. Therefore, it is essential for all business units to realise that even though facilities management is not about making radical changes (as they deal with day-to-day operational functions) but the existence of the department and the realisation of it being imperative for organisational growth and development is extremely important.

3.2.1 The Emerging Changes: A Challenge for the Industry:

Introducing facilities management as a response to the need for more effective control and to promote effectiveness in the workplace sets new management challenges within an organisation. The challenge is to establish the conditions for a continual improvement of quality, whilst costs are being contained and property values enhanced and the risks to the business are minimised. *Alexander (1992)* states that it is extremely important for businesses today to recognise the needs and demands of their internal customers and also to foster a concern for the staff in order to achieve success. According to *Grimshaw (1999)* the relationship between organisations is constantly changing. The nature of these changes can be listed as alterations in the relationship between *(refer figure 3.1)*:

1. Organisations, employees and machines.
2. Organisations, employees and information.
3. Organisations, employees and machines.
4. Organisations, employees and communication.
5. Organisations, employees and the location of work.
6. The home and the work-place
7. Employers and employees

8. The office and the workplace.

Therefore if facilities management is to be the facilitator of change then the ability of all facilities managers to hold the ring even-handedly within an organisation, its space and employees is vital.

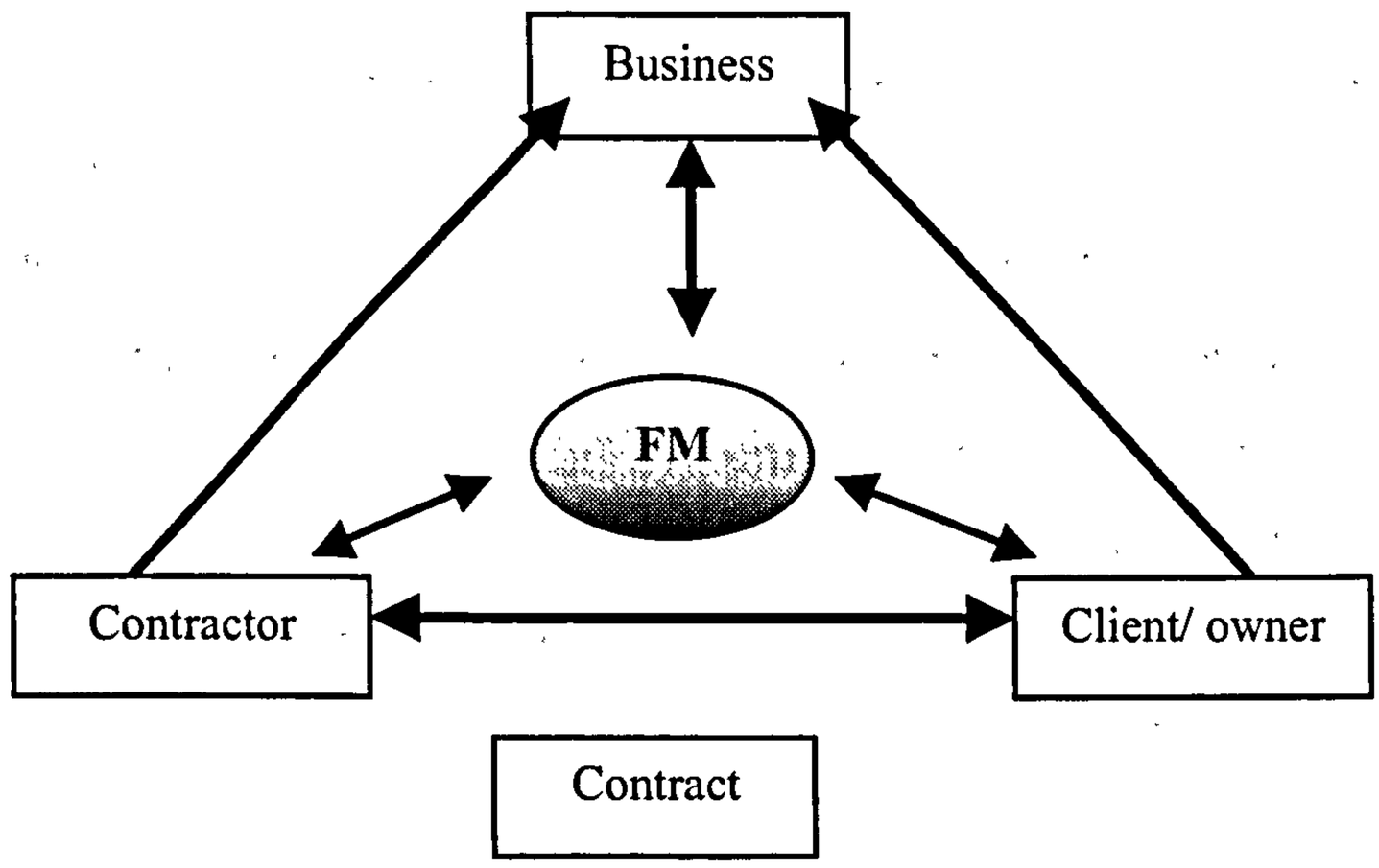

Figure 3.1: The Role of the Facilities Manager
Source: Grimshaw (1999)

"Facilities management is concerned with the care of people and the buildings they occupy to ensure that human resources are used effectively, that customers are provided with excellent service and that the public form a favourable image of an organisations."

(Alexander, 1992)

3.3 Facility Management - Affecting productivity:

A facilities management service has numerous customers, therefore it is imperative to identify and meet the needs of its customers, the end users of buildings. Creation of an efficient and high morale-working environment for the employees such that it aids productivity should be of foremost importance for any kind of organisation if it wants long-term success.

"While FM can enhance the performance, productivity and well being of individuals and teams, it has no remit to manage human resources directly, so the contribution of FM to HR Management will be indirect."

(Nutt, 2000)

The facilities manager will need to possess a deep understanding of the way the workplace affects the performance of people (*McGregor, 2000).* Findings by *Leamen (1995)* pointed out that an individual's productivity is surely affected by uncomfortable working conditions such as heat, lighting, ventilation. Occupants today ideally like to have some degree of personal control over the environment, as it affects their productivity, causes distraction and affects their ability to perform their work properly. Discomfort and low productivity thus go together. Buildings are total systems: their human and management systems are just as important as their technical and physical systems and it is where these systems correspond, there is a greater likelihood that the building will work well as a whole (*Leamen, 1995).*

3.4 Facilities management-defining future:

Facilities management has come a long way in a very short time, yet it has a long way to go. The key challenges can be listed as below (*Becker, 1990):*

1 Defining and measuring FM performance in a way that acknowledges both the need to contain costs and provide high quality service to management/customers.

2 Encouraging ongoing staff development and training, including career paths that will attract and challenge the best and brightest minds within the organisations.

3 Developing and supporting a research tradition that provides the management with an informed basis for making critical FM decisions.

4 Moving beyond tight fit model of the facility of an organisation to one that embraces diversity and can cope with change without sacrificing individual, group and corporate needs for control and identity.

5 Collecting and communicating information to top management that demonstrates the ways that FM can help the organisation to meet its basic business objectives.

Grimshaw (1999) explains that there exists a delicate relationship and interface in which the traditional relationships are now breaking down and only if the potential conflicts are understood, and redefined, will FM be able to come to terms with itself and its future. Facilities management is not only about reducing the running costs of buildings or maintaining them. Efficiency, management of space and other related assets for people and processes also

form an important part such that the missions and goals of the organisation may be achieved.

3.5 Facility Manager and the Facility Management Tasks:

The International Facilities Management Association (IFMA) defines facilities management as a combination of proven management practices with current technical knowledge to provide humane and effective work environments. It is the business practice of planning, providing and managing productive work environments. The role of a facilities manager is dynamic; it is an ever-changing role, different for each individual at different points. (*Lunn & Stephenson, 2000), (refer table 3.1).*

Table 3.1: Matrix of Facilities Management task

	Executive responsibilities	Management roles	Project tasks
Strategic	Mission statement. Business plan	Investment appraisal. Real estate decisions. Premises strategy. Facilities master Plan. Workplace and I T Strategies.	Strategic studies. Estate utilisation Corporate standards FM Operational Structure Corporate belief
Tactical	Corporate structure Procurement policy	Setting standards Planning change Resource management Budget management Database control	Guideline documents Project programme FM job description Prototypical budgets Database structure
Operational	Service delivery Quality control	Managing shared space Building operations Implementation Audit Emergencies	Maintenance procurement Refurbishment / fit – outs Inventories Post – occupancy Audits Furniture procurement

Table 3.1: Matrix of Facilities Management task
Source: Lunn and Stephenson (2000) and McGregor and Then (1999).

McGregor & Then (1999) state that the facilities manager, will usually be the person who is assigned an overall responsibility of the workspace planning and its implementation. On many exercises the facilities manager will be the provider of much of the information about the buildings occupied by the organisation and their infrastructure, and acts as the custodian of the information gathered as a consequence of the planning exercise. One of the strategic objectives of any company should be the interaction of the facilities team with the organisation as a whole, which is fundamental to the planning of the core business activity. Findings by *Pitt and Goyal (2004 a)* and *Pitt, Goyal, and Sapri (2005, 2006)* bring out the strategic role of the facilities manager in the formulation of an integrated business continuity plan and also in the formulation of innovation strategy within an organisation. However, only minimum research data is available on these topics. The strategic contribution offered by both innovation management and facilities management appears to be acknowledged and understood by the theorists, academics, professional bodies and key stakeholders, however wide scale acceptance and application at a strategic level is still not evident.

The very existence of facilities management as a modern discipline is based on integration, as it is clearly concerned with the overlap between people, processes and places in organisations. If the key business indicators that are studied, measured and monitored are the key integration indicators such as degree of team working, standardisation of inputs and co-ordination through shared purpose, then they also need to be applied to facilities management both in terms of the role of integration with facilities management and with respect to its relationship with the organisation as a whole.

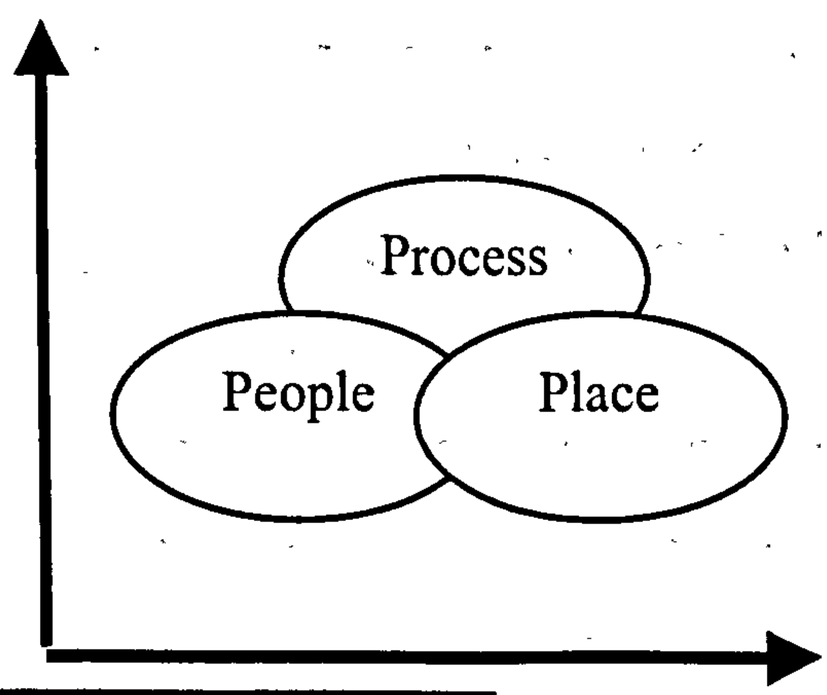

Figure 3.2: Integration for Competitive advantages
Source: Tranfield *et al* (1995).

Such an approach to improving performance in management of facilities puts the facilities manager firmly on spot and gives him/her the centrality in the process that he/she must have to orchestrate a performance, demonstrating a conscious and proactive approach.

3.6 Facilities management information systems:

Over the last 25 years, organisations struggling to survive and develop in the strategic and all-important business environment have identified facilities base as a key opportunity for increased performance. This was a major factor in emergence of the facilities manager as a strategic resource. During this same period there were also seen significant changes in the field of technology, with the power of IT systems and user availability soaring and cost plummeting (*McGregor and Then, 1999).* Few business organisations can afford to ignore the potential for improved tactical and strategic decision making, better support for core objectives, greater control of the asset base, reduced over heads, and increased facilities performance, transparency in monitoring and improved competitiveness.

McGregor and Then (1999) explain that the increased proliferation of Information Technology (IT) in facilities management has changed the profile of data importance. Information influences the organisation's tactical use of facilities while acting as a direction setting mechanism to help the facilities manager to be proactive, to predict and foresee change and hence optimise strategic decisions to meet the aims and objectives of the business's long-term goals. Thus it is essential to have a well-structured facilities information management system for controlling and managing the information specific to business needs and ensuring effectiveness and efficiency in the use of information. *Doran (1994)* also argues that for multi-location organisations, computer based tracking systems have tremendous promise as a facilities management tool as they allow easy flow of required information and resources within shorter time periods. He emphasises that with a properly designed building conditions assessment programme, managers not only achieve dramatic short and long-term savings in maintenance costs but they also gain a planning tool that can help protect capital resources while providing detailed documentation of financial needs.

Implementing integrated facilities management as part of the functional management of an organisation offers two important advantages, namely; cost savings and improved productivity, and also an automated system that allows simulations to be carried out at any time in support of facility planning *(Mooji &Broak, 1994).* Facilities management is evolving from an operational non- core business support services function to a strategic FM position, which supports and enhances both the core and non-core activities of an organisation (*Pitt and Goyal, 2004).* In the case of strategic FM, the lack of a clear definition is considered to be a critical barrier in the development of FM innovation and also in the penetration of the facilities manager in an innovation management process. Facilities management is first and foremost about organisational effectiveness. The decisions taken about facilities are business decisions. The business case for developing facilities depends on an understanding of the potential of facilities for creating quality-working conditions to support key activities. Effectively planned facilities and quality support services can create significant business returns. As competition intensifies and as change accelerates, many leading organisations are re-evaluating the contribution that facilities make to business success, recognising the business consequences of poorly managed facilities and searching for value that can be added through effective planning and management (*Alexander, 1996).*

3.6.1 Facilities Management - CAD Systems:

The last stage of the innovation evolution process as explained by *Rothwell (1992)* and *Ahmed (1998)* represents the era of Integrated Systems Learning (ISL). This generation of innovation processes is accelerated by greater utilisation of electronic technology and IT systems to create beneficial internal and external linkages, requiring higher collaborative approach to innovation, involving strategies such as joint ventures, partnering and strategic alliances, the basis of, which are working for mutual benefit and gains. *Ahmed (1998)* explains that these linkages, which become a part of the extended CAD system to develop new products or processes become norms rather than formalities. Emphasis is more on the learning capability of innovation system; therefore ISL is not only cross functional and multi-institutional but also involves an iterative learning scope capable of dealing with higher levels of

complexities representing the potential to build new platforms for competitive advantage *(Ahmed, 1998).*

3.7 Innovation in facilities management:

Innovation is often taken to be as non-existent in the field of facilities management. *Cardellino and Finch (2006)* state that often researchers and theoreticians; both question the existence of innovation in services. However, on the contrary recent high profile events such as the British Institute of Facilities Management (BIFM) annual awards for innovation reflect a growing recognition of innovation in the area of facilities management *(Cardellino & Finch, 2006).* However there are some key questions put forward by *Cardellino and Finch (2006),* which portray the lack of knowledge and research in the area of facilities management (FM) innovation. These are:

- Is Facilities Management an innovative sector?
- Is such innovation achieved by an intuitive informal approach or by a planned and reasoned approach?
- Do in-house and outsourced FM teams have the same approach to innovation?
- To what extent are new ideas driven by client's needs?
- What type of innovation is receiving the most widespread attention in facilities management?

It is felt that organisations not only need to realise the strategic importance of facilities management but also understand that the facilities managers need to be given enough resources, space and a platform to innovate, which will definitely add value to the organisation as a whole. Even though facilities management cannot bring immediate changes and returns, as it deals with everyday operational requirements of the clients, but if given the opportunity to exploit new areas and perform innovative activities that are regularly measured and integrated within the overall business goals and strategies of the key suppliers and those of the organisation, it will contribute towards organisational success. *Voss (1992)* emphasises that existence of certain barriers to innovation with respect to services explains the lack of innovation development within the service industry. Studies on innovation have stressed more on technological innovation rather than services or maintenance.

Contrary to this *Miles (2000)* suggests that more recently, service innovation has emerged from a neglected and marginal status to that of being worthy on in depth study and is slowly achieving wide recognition. This recognition has also gone to an extent where some researchers and academicians have suggested unifying approaches to innovation between the manufacturing and service sector *(Drejer, 2004)*. The lack of service innovation as perceived by *Cardellino and Finch (2006)* has been more because manufacturing industries create goods, whereas the services industries provide non-tangible products that are often difficult to comprehend.

3.8 Partnering for Innovation:

As explained by and *Barnhoorn (1995)* and *Crane (1999)*, partnering relationships between buyers and suppliers are not a new idea in the development of business. Semi- formal methods for building such a relation developed in early 1990's, helping all the parties involved in terms of making profits and being more innovative. Innovation is achieved as partnering provides an organisation with an opportunity to think and act beyond its organisational boundaries, it brings together aspirations, skills and knowledge of all stakeholders involved who work to gain profits and competitive advantage – the basis of any partnering agreement. Continuous Improvement is achieved through:

- Specified quantified targets;
- Measured progress;
- Competition is not the only way to achieve best value;
- Customer focussed, adding value, eliminating waste; and
- Identifying and aiming at best practice.

Other advantages of agreeing to a partnering relationship are:

- Making profits: As all parties involved work together to achieve mutual benefits by bringing together the diverse knowledge and skills of all the people involved.
- More competitive: Partnering should not be treated as a 'cosy option'. The element of competition and learning from industry best practices to achieve higher and better results should form the basis of the relationship.

- Mutual Objectives: Everyone involved achieves what is fair and reasonable profit in normal business through:

  Improved efficiency;
  Completion on time;
  Cost reduction;
  Guaranteed Profit;
  Continuity of workload
  Reliable product quality;
  Lower legal cost;
  Shared risks;
  Fast Construction; and

- Problem Resolution: Aims to understand problem correctly and resolve it at lowest level within the given time scale. This allows the faster decisions/dispute resolutions and with less paper work with each party making an effort to reach to a solution and not blame each other. Problem resolution in any partnering agreement is done at three different levels, namely:
  1. Technical;
  2. Managerial; and
  3. Political

Partnering as defined by *Constructing Excellence (2004),* promotes improved performance and helps the organisations in being more innovative in their outputs through collaborative business relationships that are based on best value rather than lowest cost and benefits of all parties involved, while simultaneously focussing and fulfilling the increasing and ever-changing needs of the customer group. There exist various other numerous industrial definitions that define the principle of partnering but in all of these, partnering is most commonly explained as (refer *www.pslcbi.com)*:

"...A long term commitment between two or more organisations for the purpose of achieving specific business objectives by maximising the effectiveness of each participant resources...based upon trust, dedication to common goals and an understanding of each others individual expectations and values".

(US Construction Industry Institute)

3.8.1 The need for Partnering:

Crane (1999) accentuates that partnering is only appropriate for parties who share the fundamental belief that people are honest, want to do things that

are valued and are motivated by challenge. From the viewpoint of a client the advantages are:

- Higher quality;
- Speedier delivery;
- Improved business environment;
- Increased certainty; and
- That profitability should not be viewed purely from the standpoint of lowest initial cost.

The concept behind partnering is that both customers & suppliers work together as a team with the goal to *(Refer figure 3.3)*:

- Drive down total cost;
- Improve quality;
- ***Innovate***; and
- Speed products to market more effectively in comparison to the traditional relationship.

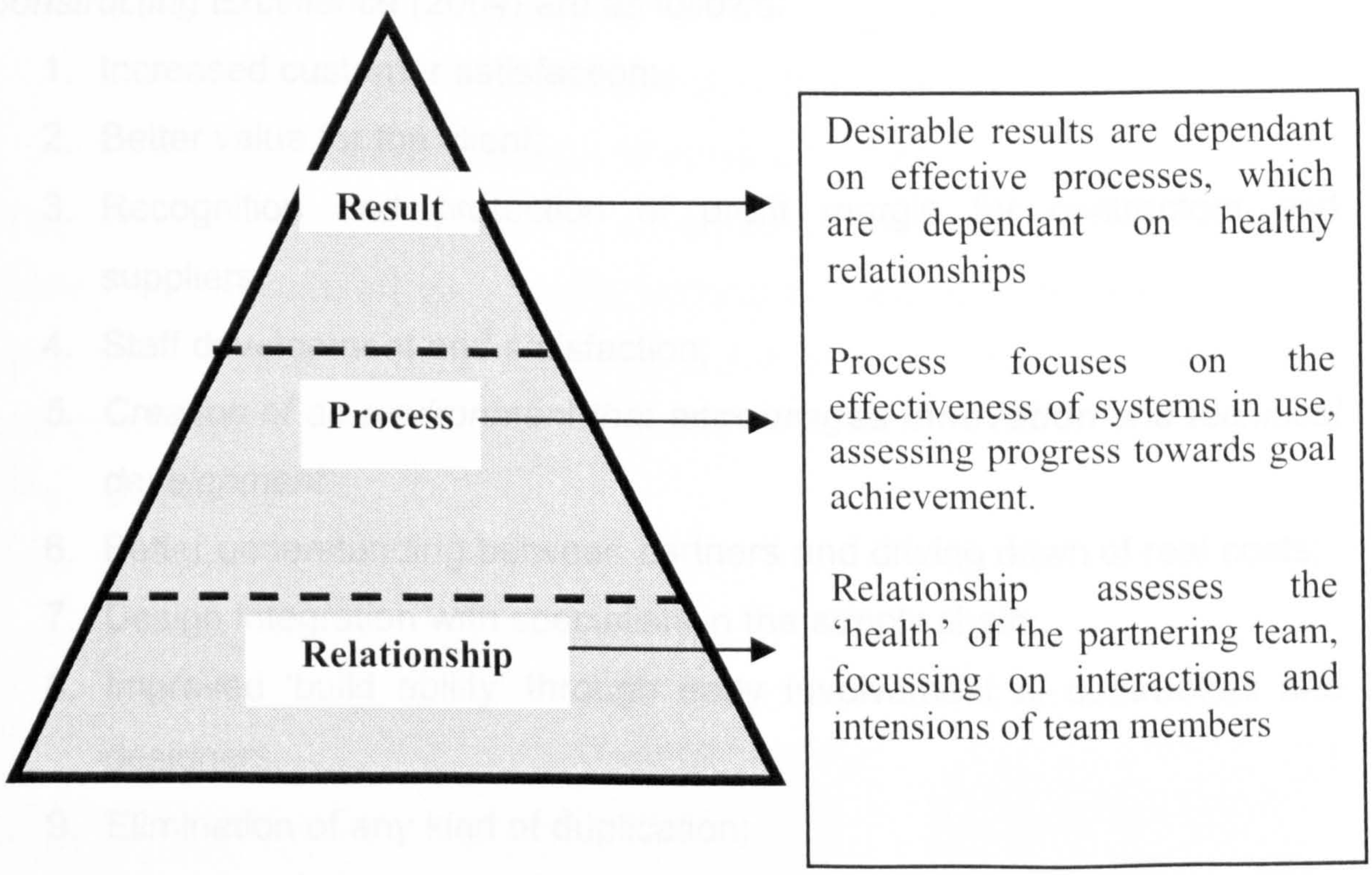

Figure 3.3: The Partnering Triangle
Source: Crane (1999) and Constructing Excellence (2004)

Barnhoorn (1995) explains that the importance of partnerships and the concept of partnering have increased enormously in the field of facilities management within the last few years. This has been possible due to the

information position of facilities managers improving tremendously within the business environment and employees showing stronger involvement in decision making within the FM department. According to the *Constructing Excellence (2004),* considerable effort is required to ensure that the enthusiasm and hopes with, which the enterprises begin, continue and mature throughout the period of partnering agreement through effective communication (encourage innovative ideas or suggestions), trust and openness, team-working (established through series of workshops run by an external facilitator), early and equal involvement of all participants (to take full advantage of their expertise) and understanding each other's needs (relationship is advantageous only when all parties work toward achieving mutual gains and benefits).

3.8.2 Benefits of partnering relationships:

Amongst the numerous advantages of entering into a partnering relation for achieving mutual benefits, the few important ones as listed by the *Constructing Excellence (2004)* are as follows:

1. Increased customer satisfaction;
2. Better value for the client;
3. Recognition and protection of profit margin for contractors and suppliers;
4. Staff development and satisfaction;
5. *Creation of an environment that* ***encourages innovation*** *and technical development;*
6. Better understanding between partners and driving down of real costs;
7. Design integration with specialists in the supply chain;
8. Improved 'build ability' through early involvement of contractors and designers;
9. Elimination of any kind of duplication;
10. Better predictability of time and cost;
11. Shorter overall delivery period; and
12. Stability that provides more confidence for better planning and investment in staff and resources.

3.9 Innovation Budgeting:

Greene (2003) talks about *'The Invest to Save Budget'*, operating since 1998 and is a joint venture between U.K. Treasury and the Cabinet office. It is kind of a venture capital fund designed to support innovative activity based on partnership working across the public and voluntary sectors. In its effort to facilitate increasing public sector partnerships, the U.K. government is promoting more partnerships working between public sector agencies, which according to the government can bring substantial benefits. The U.K. government believes that partnership projects can *(Greene, 2003)*:

- Exploit the economies of scale, which joint working can provide. This includes sharing of data and information, or streamlining delivery channels;
- Capture the benefits offered by information technology;
- Improve the focus on customers and consider what best meets their needs;
- Enhance service delivery for particular groups, like reducing the number of agencies which individuals have to deal with; and
- Capture expenditure savings, whichever budget they fall on.

'The Invest to Save Budget' (ISB) as explained by *Greene (2003)* provides funding that exploits the partnership working by funding to encourage two or more public bodies to jointly reconfigure elements of their work or to initiate new processes to provide *(Refer figure 3.4)*:

- Innovative
- Streamlined
- Or better modes of service.

Figure 3.4: The Invest to save Budget
Source: Greene (2003)

To date approximately £260m has been invested in approximately 250 partnerships projects across both the central government and the wider public sector. Managers in the public sector are invited to propose projects that are capable of making considerable contribution and fund allocation is done on the basis of an annual competition. The principles against which the bids are judged are *(Greene, 2003):*

- That they are based on a true partnership
- The concept is innovative, which breaks new ground and is not something that is an improvement of any existing concept/product or service.
- That the project would not have happened anyway or proceeded in the same form or on the same timescale without the support from the 'ISB', better known as "additionality" where ISB adds additional value and the project is additional to "standard" activity.
- And if successful, the proposed project will deliver measurable benefits to service users and/or taxpayers.

From the projects done to date, ISB identifies five generic areas that are worth sharing, these are *(Greene, 2003):*

- Project and risk management;
- Partnership working;
- *Innovation;*
- Sustainability; and
- Securing rollout

Greene (2003) also explains that out of all the lessons learnt so far on innovation, the principles of 'ISB' makes the organisations realise that:

- Innovation must have a purpose and not be confused with 'research' which usually is less focussed, undertaken to create knowledge, which may down the line be further developed and transferred into innovation activity.
- Innovation requires participation from all stakeholders and the processes involved in the innovation activity should be welcomed and understood by all stakeholders. The stakeholders being talked about here are usually the management, staff and most importantly the

customers. The success of the project or innovation activity is questioned if any of the above-mentioned is not comfortable with the process.

- And sometimes it is better to cut losses. Organisations handling large portfolios need to accept failures; however balancing risks can be the trick to avoid certain failures. Terminating a failing project is a positive act.

Greene (2003) stresses that innovation needs to be driving useful and practical changes and should not be regarded as an end in itself. Moreover, successful assessment of innovation happens only when it benefits the community funding innovation.

3.10 Summary:

Amartunga et al (2000) show that a continually changing facilities environment has created the need to pursue new ways to meet future demands for organisations. If FM is to successfully contribute to the rapidly changing business environment (which is greatly influenced by employee expectations and behaviour and value addition) and be indispensable to businesses in the future, then it must focus strongly on understanding and supporting core work processes in an organisation as well as continuing efficiency in supporting people and activities in buildings. To respond to the challenge of these changes in the work culture, facilities managers must be ready and willing to embark on a new learning experience with the main focus on management and performance disciplines, developing both a perspective and an understanding of business goals, combined with stronger management skills in special areas such as performance measurement, thereby ensuring value addition and better relationship with customers *(Amartunga et al, 2000).* The various other factors that accelerate the rapidly changing facilities environment as mentioned by *Procurement executives association (1998)* are:

- Technology advances;
- Scarcity of resources;
- Higher efficiency of operations demanded by customers;
- Discretion rather than rules dominating; and
- Outcomes/results-oriented management flourishing

And to respond to these demands facilities management organisations must create an effective and efficient performance management system to:

- Translate the FM vision into clear measurable outcomes that define successes that are shared throughout the FM organisation and with both customers and stakeholders;
- Provide a tool for assessing, managing and improving the overall health and success of FM systems;
- Continue to shift from perspective, audit and compliance based over-sight to ongoing, forward-looking strategic partnerships;
- Include measures of quality, cost, speed, customer service, employee alignment, motivation and skills to provide an in-depth-predictive performance management system; and
- Replace existing assessment models with a consistent approach to performance.

3.11 Chapter highlights:

- *Pitt & Hinks (2001)* state that facilities management is often seen as the management of, cost-efficiency rather than as a method of achieving the multi-dimensional enhancement of business competitiveness. It is imperative for organisations to realise the strategic dimensions of FM and be constructed in an enabling form that promotes the integration of the functional and strategic dimensions of FM.
- Successful integration of functional and strategic dimensions of FM, according to *Pitt & Hinks (2001)* can be achieved through the practice of physically separating responsibilities for the various aspects of supporting the business operation.
- Facilities management partnering with suppliers are critical and allow increase in productivity, effective management of cost, improvement in quality of service, continuous improvement and measurement focus and allows workplace and facilities services fit for business needs ends *(Barnhoorn, 1995):*
    1. From the core business (the primary process); and
    2. From the technological possibilities (for example document processing)

- Successful organisations build internal and external partnerships to enhance their overall performance. Internal partnerships promote labour management co-operation whereas, external partnerships agreements done with customers and FM suppliers *(Barnhoorn, 1995).* The construction industry has seen a beneficial shift within the partnering arrangements from one-to-one partnering to multiple partnering systems. As explained by the *Constructing Excellence (2004)*, multiple partnering, which binds a number of parties under the same agreement, dependant on and co-operating with each other, allows overall success and mutual gains.
- *Mudrak et al (2005)* conclude that FM organisations lack a seasoned portfolio of progressive innovative routines for enabling effective and successful innovation management. Innovation in FM industry is built slowly, project – wise, according to the demands and needs of client organisations *(Mudrak et al, 2005).*
- *Pitt, Goyal & Sapri (2006)* emphasise that in recent years the strategic importance of facilities management and support services including the management of multiple contracts has become more widely recognised, leading to a greater understanding of the strategic dimension in, which these services operate.

CHAPTER 4

PERFORMANCE MEASUREMENT - Measuring FM Performance

4.0 Introduction

4.1 The need to measure performance

4.2 Performance Measurement - The Key Issue

4.3(a) Ways of Measuring Performance - The Balanced Scorecard

4.3(b) Benchmarking:

4.3(c) Statistical Quality Control

4.3(d) Post Occupancy Evaluation (POE)

4.3(e) Key Performance Indicators (KPI's):

4.3(f) Design Support Measurements

4.3(g) The management-by-variance tool

4.4 Role of performance measurement in FM

4.5 Summary

4.6 Chapter Highlights

Chapter 4

PERFORMANCE MEASUREMENT - Measuring FM Performance

4.0 Introduction:

Integration of performance measurement and generic management is becoming increasingly essential with the integration of operations in business strategies, justifying and supporting management practices within the facilities Management (FM) organisations. Traditionally there has been a tendency to record unit costs in many areas of facilities management, examples of these would be £/sq.m of rents, rates, cleaning, energy usage, etc. *(Tranfield et al,1995).*Usage of units of measurement that would stress more upon cost per employee of certain facilities services has now been regarded as necessary. This according to *Tranfield et al (1995)* would help in bridging a gap between building related measurements and employee cost related measures. Expenditure per employee or expenditure per square meter per employee of many facilities services, utilities and space can be taken as examples of this *(Tranfield et al, 1995).*Indeed the traditional use of profit-based performance measures by many organisations has been criticised on a variety of fundamental grounds (*Brown et al, 1995), (refer figure 4.1)*

"If you cannot measure it, how can you improve it?"

(Hayward, 1998)

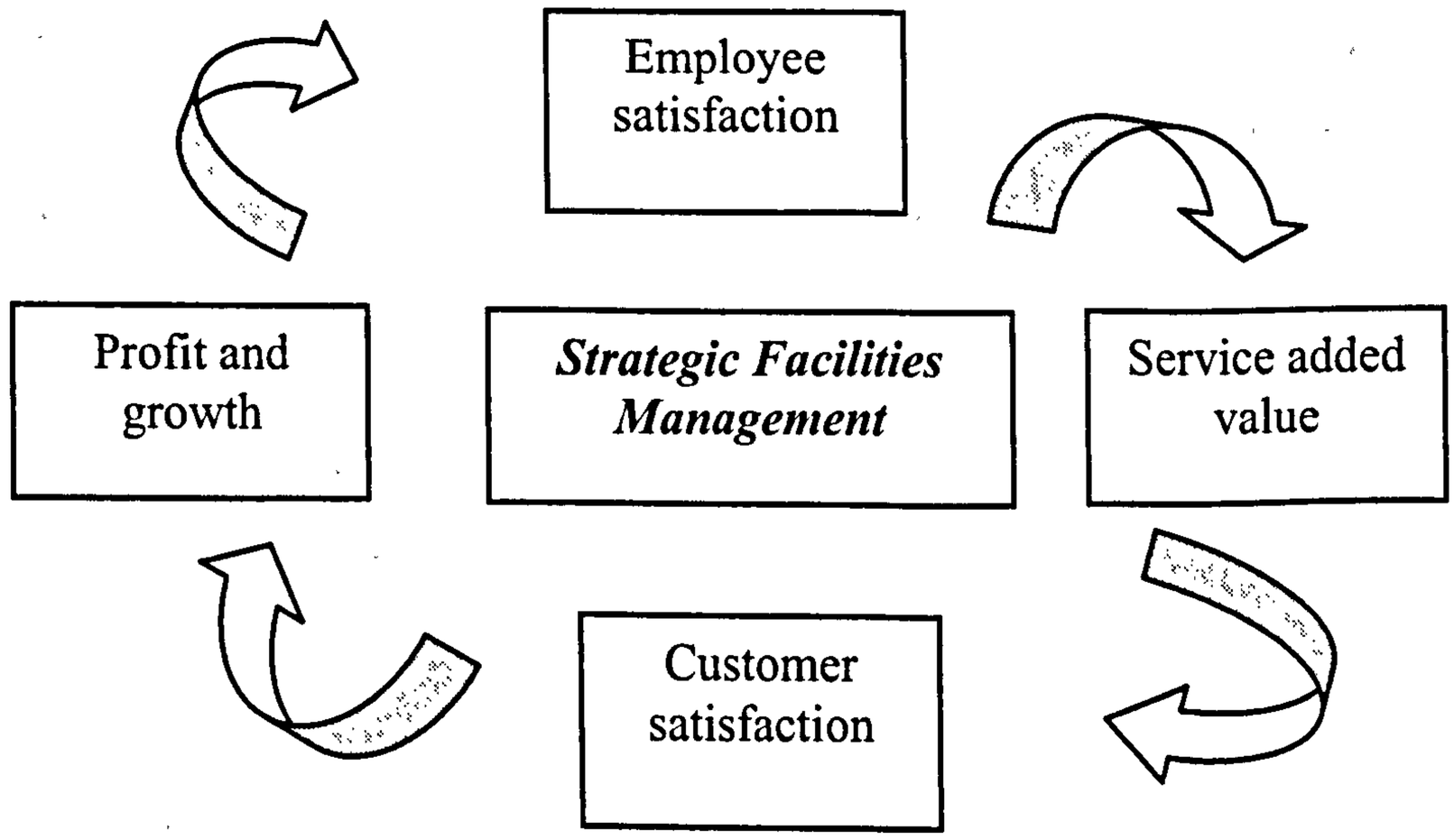

Figure 4.1: The Service Profit Chain
Source: Tranfield *et al* (1995).

Amaratunga et al (2000) stress that the discipline of Facilities Management works on the principle that the efficiency of any business enterprise is linked to the physical environment in, which it operates. The environment can be improved to increase its efficiency in, which the performance assessment of facilities management will have to shift in emphasis towards a measurement and management system. A wide range of organisational activities forms the work of a facilities manager, thereby ensuring effective management of built assets. *Amaratunga et al (2000)* explain the term facilities management by stating that it involves the total management of all services that support the core business function of any organisation and its active existence helps to identify potential problems with maintenance and running costs. Facilities management acts as an umbrella term under which a wide range of property and user related functions may be brought together for the benefit of the organisation and its employees as a whole, which is why the ***aim of all facilities managers should not just be to optimise the running cost of building, but also to raise the efficiency and suitability of the management of space and other related assets for people and processes, in order that the mission and goals of the organisation may be achieved at the best combination of efficiency, cost and quality(Amaratunga et al, 2000).***

The existence of performance measurement systems in an organisation within the field of facilities management reflects on good FM practices and also allows the organisation to maximise the performance of its facilities, balancing business needs with cost. Stating *Alexander (1996), Amaratunga et al (2001)* identify measurement of performance as one of the "three essential issues for the effective implementation of a facilities strategy" and highlight that there has been a growing interest in performance measurement throughout FM environment. There exists a wide range of choices in measuring facilities management performance reflecting the varied nature of the field. Benchmarking or post-occupancy evaluation are few known examples *(Kincaid, 1994 as cited in Amaratunga et al, 2000)*

4.1 The need to measure performance:

Becker (1990) puts forward the importance of relating measures to strategic objectives. He acknowledged that performance measures must be dynamic

and suggested that the use of a performance profile makes it easy to communicate quickly and graphically how well the facilities department is doing, and where it needs to improve. For *Varcoe (1996),* the need to measure performance is not just to ensure that the desired actions are indeed carried out as intended, its significance and potential impact can be far more fundamental than that. Applying the disciplines of performance measurement helps managers and operator alike to determine firstly those issues that are crucially important to the overall success, and second those issues that similarly are critical to the successful delivery of the specific function or operation concerned.

Chalmers (2005) emphasises that managing the performance of service delivery against service levels and understanding the value of service delivery is crucially important for today's facilities managers. But current methods, approaches and tools suggest that this understanding is unclear. The current measurement structures and systems are resource intensive and at the same time, make correlation and determining value more difficult than necessary. But recent advances in internet-based performance measurement technology could make things easier.

Facilities managers manage a wide range of services, frequently in geographically dispersed property portfolios. In performance measurement terms this means a range of key performance indicators (KPI's) for managing the performance of different services, ranging from cleaning and catering to M&E and building maintenance to project and space management, while at the same time needing to take into account the importance of the property and the service to the end user which often occurs within the same portfolio. Paramount in the performance measurement system employed by a facilities manager is its structure and data input along with the ability to share and communicate information rapidly while being in a position to correlate its different components to understand the value of the service delivery. The traditional approach is a spreadsheet based system where the facilities manager completes a spreadsheet to assess the performance of a service at a location with the information on the spreadsheet drawn from a variety of different information sources such as the helpdesk and computer aided facilities management (CAFM) applications *(Chalmers, 2005).*

This approach as explained by *(Chalmers, 2005)*, is fine until the introduction of a multi-location, multi-service, multi-supplier and geographically dispersed FM team. The two dimensional spreadsheet then becomes an administrative burden with the number of spreadsheets increasing meaning calculation, consolidation, verification and communication takes up more time and more paper work making it more difficult to carry out activities of trending, correlation and benchmarking. Measuring service performance in isolation is meaningless in value terms as the service delivery performance needs to be correlated to other components-customer, people and relationships-in order to understand the value in service delivery. The concept of measuring performance is not just for compliance but also to determine value and development in service delivery *(Chalmers, 2005)*.

Chalmers (2005) explains that there are often a number of different information sources such as surveys, helpdesks, audits, PPM programmes, asset management and customer complaints. If an organisation has to operate in multiple locations with multiple services and multiple suppliers and/or a team, bringing all this together shows that the traditional spreadsheet and database approach is no longer suitable to FM performance measurement. Technology can remove the administration burden and speed up the time taken to report, in effect reducing the wasted time and the risk in delayed communication. Internet-based technological advances can offer the solution to the multiple sites, multiple services and multiple suppliers environment problems. It also allows FM to structure performance measurement KPI's so that more than just service delivery measures are incorporated in the measurement regime. This enables the trend and benchmarking activity to be easily managed as well as being able to correlate components to determine value in service provision. At the same time the customer can be engaged permitting collaboration and a partnering relationship to evolve.

4.1.1 Performance measurement and monitoring:

Bond (1999) states that monitoring the performance at the lowest levels in an organisational hierarchy is mostly to encourage the operational staff to take responsibility for their own actions and activities such that it supports and compliments the strategic aims and objectives of the organisations. Teamwork

environment delivers productive innovative activities only when it is free from top management constraints. The main issues to be taken care of according to *Bond (1999)* are:

1. Management
2. Alignment between teams
3. Motivation
4. Control

Bond (1999) describes that performance measurement techniques are used in four phases, which are; process maintenance, improvement of process, process re-engineering and achieving stability for the process. This depends on the following key factors *(Bond, 1999):*

- Quality
- Delivery reliability
- Customer satisfaction
- Cost
- Safety and Morale

4.2 Performance Measurement - The Key Issue:

The question on improved performance has further fuelled the quest for facilities management performance measurements, benchmarking and finally relating these to main business performance indicators *(Tranfield et al, 1995).* Much has been written exploring holistic approaches to performance assessment. *Vorkurka et al (1995)* identified non-financial qualitative performance attributes that could support the holistic and strategically oriented modelling of critical success factors. *Becker's (1990)* approach to FM performance was identified as one of the most relevant existing approaches as the model encompassed some indicators that would be relevant to the business-oriented customer, and had also presented these graphically to support comparisons between desired and actual FM performance. The key issue for the future is the way in, which the role of facilities management is perceived and it performance evaluated to gauge the value added within the business.

4.2.1 From performance measurement to performance management:

Amaratunga and Baldry (2002) suggest that the stakeholders of an organisation will always judge the contributions made by FM over a wide range of performance criteria including both hard and soft metrics. Performance measurement as per *Amaratunga and Baldry (2002)* allows an organisation to assess its progress and performance with respect to its set objectives and strategies. Such an act helps it to identify areas of strengths and weaknesses and decide on future actions with the goal of improving performance. FM is seen to be able to contribute to performance of organisations in many ways, including:

1. Strategy
2. Culture
3. Control of resources
4. Service delivery
5. Supply chain management and
6. Management of change

"Measurement is not an end in itself, but a tool for more effective management".

(Amaratunga and Baldry, 2002)

"Performance management is the use of performance measurement information to effect positive change in al culture, systems and processes by helping to set agreed upon performance goals, allocating and prioritising resources, informing managers to either confirm or change the current policy or programme directions to meet goals and sharing results of performance in pursuing those goals."

(Procurement executives' Association, 1999)

4.2.1.1 Advantages of integrating Measurement with Management:

Organisations that do not integrate ongoing performance measurement and feedback into their management development programmes tend to experience lower than expected performance improvements and higher dissatisfaction and turnover. Therefore, it is imperative to pay attention to the effective maintenance of support systems and the culture of the organisation (*Amaratunga and Baldry, 2002).* Amongst the numerous advantages that measurement provides for an organisation to improve their performances are:

- Performance management provides organisations the opportunity to refine and improve their development activities.

- Performance management programmes provide feedback based on specifics rather than generalisations and are based on specific objectives derived from the desired outcome of performance measurement results.
- Successful accomplishment represents the foundation of good performance management.

Leading and successful organisations seek to create an efficient and effective performance management system to *(Procurement Executives' Association, 1999 and Amaratunga and Baldry, 2002):*

1. Translate organisational visions into clear measurable outcomes that define success, which are shared throughout the organisation and with customers and stakeholders.
2. Provide a tool for assessing, managing and improving the overall health and success of FM systems.
3. Continue to shift from perspective, audit and compliance based oversight to an ongoing, forward-looking strategic partnership.
4. Include measures of quality, cost, speed, customer service and employee alignment, motivation and skills to provide and in-depth, predictive performance management system; and
5. Replace existing assessment models with a consistent approach to performance management.

4.3(a) Ways of Measuring Performance - The Balanced Scorecard:

Balance scorecard provides a framework for mapping the development in performance assessment in FM, through which the future of FM assessment may be explored and tested.

(Amaratunga et al, 2000)

Stating on the benefits of the balance scorecard system, *Amaratunga et al (2000)* accentuate that BSC came into operation as a tool that not only motivates the employees of an organisation to work toward its visions and goals but also tries to capture the full complexity of an organisation's performance by focusing on the efforts of people, throughout the organisation and converting the organisational goals, objectives and strategies into a comprehensive set of performance and action measures, which provides the

foundation for a strategic measurement and management system. Following the above explanation of the Balance Scorecard System, the BSC performance indicators have been divided into the following four perspectives by *Amaratunga et al (2000), (refer figure 4.2):*

- Customers: This includes an organisation's perception of its customers.
- Internal processes: Identifying the internal processes that must be excelled at.
- Financial: The role of all shareholders.
- *Innovation*: Identifying ways through, which an organisation can learn and improve its deliverables and performance.

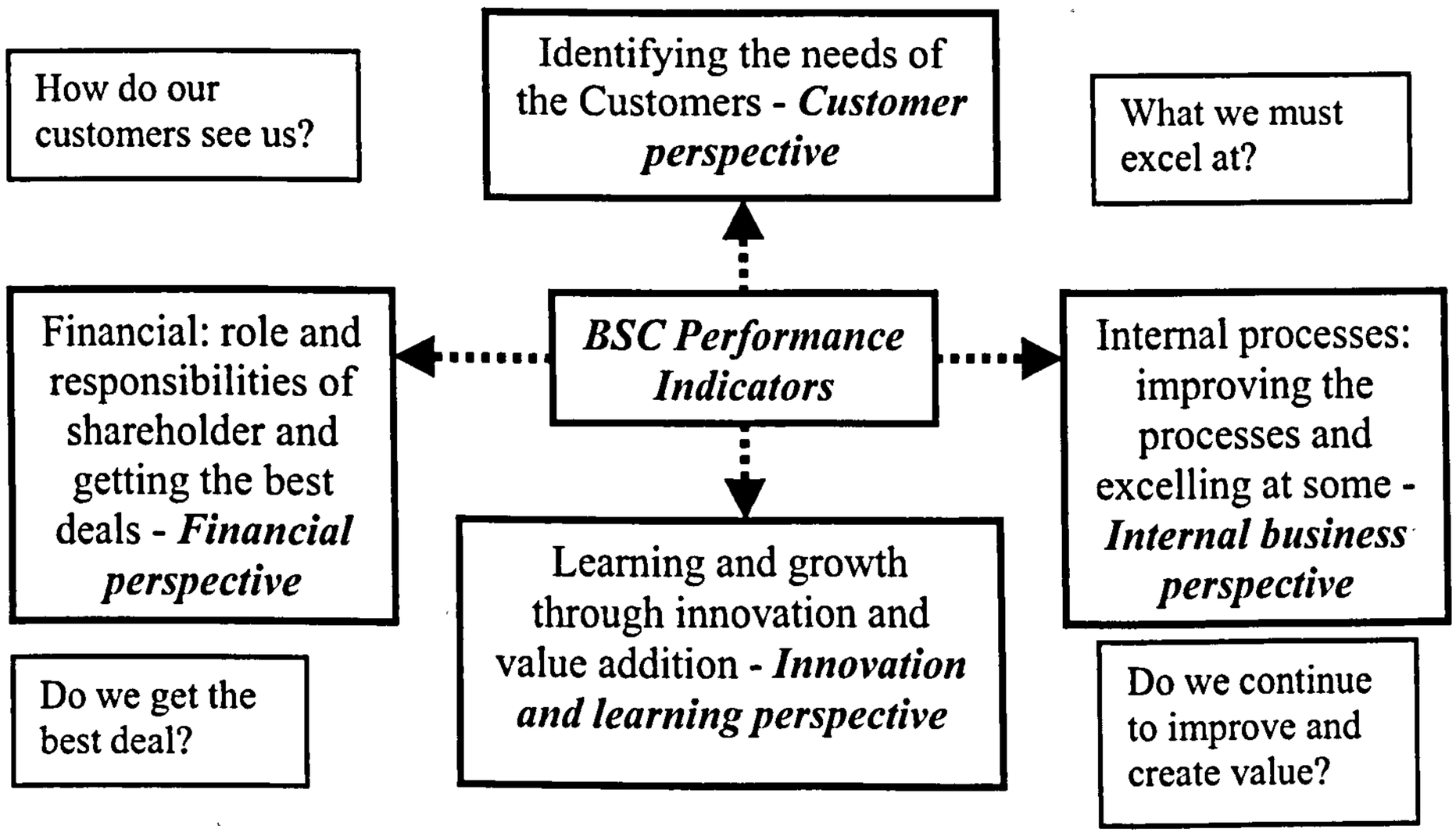

Figure 4.2: BSC Performance Indicators
Source: Adapted from Amaratunga et *al* (2000)

4.3(a).1 Deliverables of Balanced Scorecard (BSC):

Explaining the concept of BSC, *Amaratunga et al (2000)* stress that the BSC fills the gap existing in the management systems of many organisations today, including the lack of a systematic process to implement and obtain feedback about the organisation's strategy and provide with a strategic management system to accomplish critical management processes. In this way, the BSC forms the basis for managing the technology driven information age organisations and helps *(Amaratunga et al, 2000):*

- To clarify and gain consensus about an organisation's visions and strategies.
- To communicate strategic objectives, performance measures and drivers at all levels.
- To link strategic objectives with targets and annual budgets.
- To identify and launch strategic initiatives.
- To enhance periodic systematic strategic reviews; and
- To acquire feedback to learn about the improved strategy, thereby to test, gain feedback on, and update the organisational strategy.

As per *Amaratunga et al (2000),* the balanced scorecard system if once established for the FM business unit operations and deliverables, becomes the basis for all departments and functional units within the business unit. The managers within these business units can then create their own scorecards, which will be consistent with the business unit's scorecard and strategy ensuring the use of BSC all through and at all levels in an organisation *(refer figure 4.2).*

4.3(a).2 Balanced Card Approach:

Brown et al (1995) describes the concept of balanced scorecard by defining it as "one performance measurement method, which has been developed to overcome the defects inherent in the use by organisations of the more traditional performance measures, giving the managers a balance of information from a variety of different perspectives, and also minimising the potential of information overload by limiting the number of individual measures included" *(Brown et al, 1995).*

The process leads to the appraisement of facilities management performance and reflects the way in, which FM inter-relates with core organisational activities. Listed below are a number of important elements that need to be considered for the success of the balanced scorecard approach. These are:

- Complete utilisation/ consumption of the assets;
- Accomplishment of needs of the users;
- Management of cost; and
- Impact of the working environment on productivity.

FM services are critical to the success of every organisation, even though they may not necessarily be defined as part of the organisation's core competence, and to change the perception of FM sector a balanced scorecard approach can be taken, which allows for the evaluation of FM performance in its broadest business context and reflects the way that FM inter-relates with core organisational activities, *(BIFM, 2003), (refer fig.4.3).* A balanced scorecard approach will ensure alignment of the FM function and hence, all FM activities with the overall goals and strategies of the parent organisation. Crucially for the sector it will also have an effect, which impacts positively on the critical areas of economies, recruitment of talent and sector profile in years to come, all of which are vital to the recognition of FM as a strategic discipline *(BIFM, 2003), (refer figure 4.3). Amaratunga and Baldry (2004)* stress that the use of tools such as the balanced scorecards and its adoption, would be a major change initiative in most organisations, which would also enhance the FM departments' ability to plan, anticipate and initiate change within an organisation, giving it the much needed strategic position.

4.3a.3 Balanced Score Management - General Considerations:

The balanced scorecard approach aims to provide management with a set of measures which combine to give a "comprehensive but quick" view of the business. The four linking perspectives as described by *Kaplan et al (1992)* demonstrate this comprehensive nature.

4.3(a).4 Balanced Scorecard – Compared to the Traditional Method:

The management in all organisations with regards to the balanced scorecard approach should consider a number of significant assumptions. These according to *Brown et al (1995)* can be listed as below:

- The scorecard emphasises vision, strategy, competitive demands and the need to keep organisations both looking and moving forward-rather than the more traditional focus on control.
- A second implication is that a properly designed scorecard should help the management to understand the many important interrelationships within their business units, which more traditional measures generally mask or even ignore.

- To be fully effective the development and implementation of a balanced scorecard requires the involvement of a range of senior managers and not just the organisation's financial executives.

The balanced scorecard also acts as a management system that motivates the organisations to perform better and with increased efficiency.

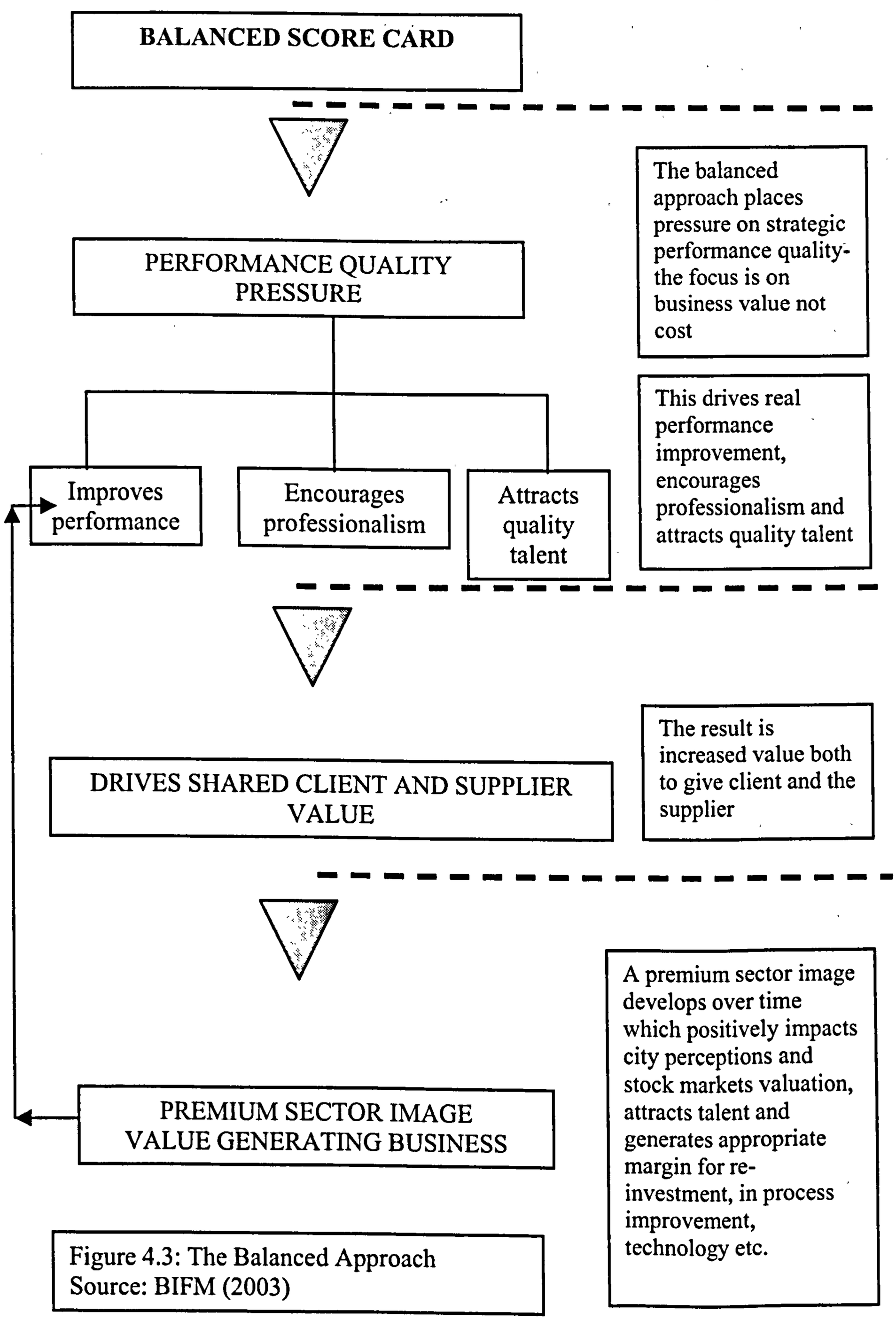

Figure 4.3: The Balanced Approach
Source: BIFM (2003)

4.3(b) Benchmarking:

Kennedy (2006) emphasises that benchmarking has proved to be an effective tool for assisting practices in achieving excellence. Whether the process is carried out internally or externally, it is a route to quick identification of cost effective improvements and provides a framework for ensuring that change is measured and monitored. Benchmarking along with the efforts of the people and senior management can provide impressive results. Few companies consider that accurately measuring and benchmarking performance leads to achieving important goals, such as controlling costs - an issue that cannot be overlooked today. The process of benchmarking is designed to evaluate the position of a company in a similar industry and helps in overall cost reduction through accurate benchmarking statistics.

Kincaid (1994) stresses that in considering operational performance in facilities management; a benchmark to measure its performance against should be the first and an important consideration. The word benchmark at many times is used to describe performance measurement itself. The Department of Trade and Industry states that the process of benchmarking allows an organisation to *(Department of Trade and Industry, 2005 & 2005a):*

- Find the best, whether within similar industry or outside;
- To judge what is relevant to customers; and
- To analyse actions that affect financial performance.

Marstensen & Dahlgaard (1999) define benchmarking as a tool for gathering and measuring information about different aspects in the innovation process and stress that benchmarking can be called as an excellent source for new business ideas, continuous improvements and ensuring that newness and learning are implemented on a regular basis. Valid and reliable benchmarking data will be of great value when developing the new product strategy and will help in setting the right course for the future. The search for innovation best practices will be a powerful driver for innovation excellence and organisational change *(Marstensen & Dahlgaard, 1999).*

4.3 (b). 1 How to benchmark?

To benchmark either by process or by product is taken as one of the most practical ways of doing so against competitors or the potential partner

companies. If one decides to benchmark using the process method, then it can be anything right from the way of outsourcing to the operation of management or administration or the maintenance function. However, if one decides to benchmark using the product then along with choosing all comparable companies, various other points also has to be kept in mind. These can be listed as below *(Rothery & Robertson, 1996):*

- All competitors;
- Companies in the same sector with a non-competing but comparative product range;
- Companies in different sector but with the same process; and
- In case of service companies, the key processes such as level of service and distribution mechanism such as delivery times etc. are easy to identify.

Pratt (1994) suggests that since there are a wide variety of benchmarks available for various sectors of the market, the start should hence be made by establishing the current position, judging what can be afforded and, which way to move on scale. This is further explained by *Pratt (1994)* through a number of steps that are:

- Agree scope, identify players and develop plan and timetable.
- Prepare documentation / instructions and brief players
- Train players and customers encouraging cross-brand input.
- Agree main service blocks

The most crucial steps being:

- Agree level of cost.
- Endorse new levels and costs.
- Identify mechanisms for change

Central to the process of achieving business excellence is the concept of benchmarking. As per *Kennedy (2006),* the process of benchmarking may follow the below mentioned procedures:

1. Appointment of an experienced and senior team leader to drive the process forward;
2. Recording of systems and processes of the practice;
3. Compare these to those best in the field (innovation and value addition through healthy competition, learning from others experiences);

4. Identification of processes and aspects of the practice that would benefit most from improvement;
5. Formulation of an action plan focussing on a few key improvements
6. Implementing the plan effectively and monitoring it;
7. Looking at the stages in detail, once the team leader is appointed the firm should be able to establish its current position for all aspects of the business and record all of these (firm's strategy, staffing policy, workflow management procedures and marketing) in a comprehensive manner. This will help the firm to record against, which best practice and future progress can be measured; and
8. Consideration of how the same systems and processes would look if they conformed to an excellent standard (ranking against a model of excellence) and ranking of results.

4.3(b).2 Different approaches to benchmarking:

Ahmed & Zairi (1999) illustrate that benchmarking has become an integral part of business for many successful and innovative companies. However, the growing popularity of benchmarking along with initiatives of quality improvements to drive better business results still remains a relatively under utilised tool in the field of innovation. *Ahmed & Zairi (1999)* insist that benchmarking often focuses on hard metrics, which may show short-term improvements but are only partially advantageous. For organisations to be fully innovative they must adopt soft approaches that will be more beneficial than purely technical and functional driven advantages derived from hard measures and investigations. The vast literature base that identifies the success or failure factors in product development does not explicitly incorporate benchmarking bests practice methodology. Benchmarking, which is not only abut quantitative (hard) measurements, should be perceived as an improvement methodology that operates by getting organisations to compare themselves with how other companies (within the same industrial sector or different) are carrying out their business and use this as a source of inspiration to improve their own functioning. This makes benchmarking learning and developmental process as it works on the principal of searching and identifying best practices, improving them, adapting them to the needs of the company and then implementing them. Benchmarking for organisations is

about general improvements based both on qualitative (soft) and quantitative (hard) *(refer appendix 5)* measurements allowing an objective assessment of what can be achieved, how it can be obtained and where does the organisation stand in this respect. The understanding of the others' practices provides the managers with inspiration and encouragement to move the company forward *(Ahmed and Zairi, 1999).*

There may be more than one benchmarks, however it is extremely important to consider various issues while selecting a benchmark, as there also can be certain legal issues. As *(Rothery and Robertson, 1996),* say that looking not so much at the whole company, but at its products and processes may be the most practical way to benchmark. Benchmarking hence, acts as a measurement and warning system whereby a company can determine the possibility of its existence in the sector.

Ahmed and Zairi (1999) explain that hard and soft measures complement each other to produce greater benefits and richer understanding within the organisations and put forward the four basic types of benchmarking approaches. These are:

Table 4.1: Various types of Benchmarking Techniques

TYPE	ADVANTAGES	DISADVANTAGES
Internal benchmarking	Based on conducting comparisons with other parts of the same organisation Possible in large organisations with numerous sub-parts to allow possibilities of learning from one another Approach is simple as access and depth of information is easily available. It is possible to monitor progress on a continuous basis	Limitation lies inbeing able to find examples of practice that yield significant improvement opportunities, since often practices in one part of the organisation will have spread into all corners of the organisation.
Competitor benchmarking	Requires examination of	One of the major problems in

	competitive companies and use of their indexes of performance and practice to build self-improvement models. Advantage lies in the comparisons that are much more direct as they are related to a specific industry sector. Learning is more specific and relevant and easily adaptable to the context of client organisation.	such kind of benchmarking practices lies in the nature of competition, as the information available will be sensitive in nature and the likelihood of disclosure limited. There may be possibilities of competitors misleading each other.
Functional benchmarking	Involves comparisons of similar functions but with non-competitor organisations. Easy access to information as there is no element of competition. Leads to development of partnerships. Easy adaptation and implementation by organisations as learning is on function-by-function basis. Functional leaders are easily identified.	Limits broad learning and a large proportion of holistic aspects, which cut across the functional areas are likely to be missed.
Generic benchmarking	Most complex form of benchmarking that cuts across the narrow functional boundaries, hence leading to comparisons of business processes across a wide	However the level of complexity involved creates limitations. Organisations would need to be highly experienced in benchmarking practices.

	variety of industries. This gives opportunities for radical improvements and potential to search for best practices.	Clear understanding of organisations' visions, goals and strategies would be required. Understanding of competencies and sensitivity to be able to recognize broad processes from different sectors that may be of relevance and importance. Integration of radical and novel concepts into the company may present challenges in adaptation and implementation.

Table 4.1: Various types of Benchmarking Techniques
Source: *Ahmed and Zairi (1999)*

There are often many hazards to the process of benchmarking. These according to *(Kincaid, 1994)* can be defined as:

1. The toughest may often be outside the club.
2. There may be difficulty in making like for like comparison, which may be truly affected by allocation of overheads.
3. Also there can be too much unwanted focus on costs, if the benchmarking is done against external organisations.

The author further explains that it is the analysis of results and not the results that should form the key part of the benchmarking process; these results should aim at identifying the reasons for any important differences between the benchmark operation and the operation being measured. This gap analysis then forms the basis for review and improvement of the processes involved in operation. Following are the key points that should be followed in any benchmarking process *(Kennedy, 2006):*

- Do not benchmark the best aspects of the business first;
- Do not attempt to improve all the aspects of the business simultaneously;

- Do not impose change from the top without communication and prior information;
- Do develop a firm wide positive attitude to change;
- Do identify all aspects of business that need to be benchmarked;
- Do appoint a champion for the process, who has the authority and skills to make the process effective;
- Do decide at an early stage whether the process will be carried out internally or outsourced;
- Do measure whatever is benchmarked; and
- Do set a reasonable time frame for achieving results

4.3(b).3 Key areas to be studied in a Benchmarking process:

Kennedy (2006) lists the key areas to be considered by organisations while carrying out the benchmarking process. These are:

1) *Strategy:*

Every practice requires a clearly defined strategy for success and should be practical, based on reliable facts and figures and consistent with operational goals. At the same time it is also imperative that everyone in the organisational hierarchy not only knows the missions and strategy but also understands how their performance is vital. This includes the suppliers, stakeholders and strategic partners. Further, every company should measure and rank its strategic planning against the best in the field.

2) *People:*

Success of every organisation ultimately depends on its people, which is why it is extremely essential to select the best people who have the required knowledge and skills to carry out the operations. An organisation's work doesn't end here, it also needs to make sure that its staff is getting the right kind of training regularly, access to the required and latest research and development facilities, motivation from leaders to deliver their best, platforms to express their ideas and views and most important that their efforts are recognised and appropriately rewarded.

3) *Resources:*

Poor equipment and work surroundings will hinder people from producing excellent results and also reduce staff morale. Unless the current

organisational position is not recorded and evaluated, any improvements and results from changes cannot be measured and recorded.

4) *Output:*

It is important to seek feedback forms from clients in order to judge whether the organisation's perception of excellence matches with those of the clients'. Such kind of information should be obtained from clients and customers in a focussed and targeted manner. Acting on the basis of these feedbacks can lead to considerable improvements and organisational success.

5) *Improvement:*

After recording of all the important aspects of the business it is important to focus on a few key areas of improvement. It is the process of benchmarking that points out those areas by determining where a practice is furthest from being ideal and where a relatively small amount of cost and effort to change can produce the most dramatic results and identifying those aspects that are critical to the business, where firm cannot afford to be the second best.

6) *Change Management:*

The process of benchmarking will inevitably lead to change. People are naturally resistant to change, which they feel is unnecessary and imposed. Change that is driven from the top may be met with indifference and scepticism. However, if the change is managed effectively through proper consultation and communication, people will be more inclined to welcome it, which is why the objectives of benchmarking process should be communicated at an early stage to all those likely to be affected by it, pointing out the advantages of the process and the fact that these are used by the best in the field.

7) *A continuous process:*

Benchmarking to achieve excellence is a continuous process. Firstly, as aspects of a business improve other areas become target for improvement and secondly the goalposts of excellence move continuously. What was excellent 5 years ago may now be average or unacceptable and not up to the standards of an organisation's customer group. Hence, every business unit should prepare itself to benchmark itself on regular basis with current industry best practices.

8) *A benchmarking partner:*

A benchmarking partner is an organisation whose processes are studied and its experiences learnt. The leaning process may go both ways. A partner need not necessarily be from the same industry, but should have processes, techniques and systems that have been documented and can be analysed. It is important to understand and analyse rather than copy the processes of the partner organisation. According to *Wauters (2005),* benchmarking is about comparison with a best practice peer group with the primary aim to emulate inputs, processes, etc. and with a view to increase output performance that ultimately adds value to the business.

9) *Outsourcing:*

Every organisation should decide before hand if the process of benchmarking would provide beneficial results if carried internally or outsourced. Though benchmarking internally by the partners or the senior staff of the organisation, who have a clear idea and knowledge about the firm's processes and current status always proves beneficial and more profitable, but an involvement of an external person gives an opportunity to bring new perspectives and rigour to the process of benchmarking.

4.3(c) Statistical Quality Control:

This can be defined as a statistical way of analysing performance measurement and determining the effectiveness on part of the Facilities Manager operating to provide a particular service. The benefits of the SQC (statistical quality control) method as listed by *(Kincaid, 1994)* are that they provide the Facilities Manager with the ability to make some sense of the results being achieved in virtually any repetitive procedure for, which he/she is responsible. These are further explained by as follows:

- The method permits the facilities manager to understand for a given process, even if it is under control and operating consistently;
- Allows staff participation and involvement in the measurement; and
- Provides with the basis for considering how to improve process and to measure how well a change is working.

4.3(d) Post Occupancy Evaluation (POE):

Kincaid (1994) defines another very crucial and important means of ensuring performance through the occupants of the premises. Typically done through post-occupancy evaluation (POE) wherein occupants are invited to express their level of satisfaction or dissatisfaction with the facilities provided. Methods like POE are extremely time consuming, expensive and difficult to analyse as it involves a large number of people with different expectations. Typical factors that are measured include the size shape and location of the workspace, including the quality of air conditioning, lighting noise level and the density of the people all-contributing to the total environment. *Baldry and Barrett (2003)* explain the POE process through a POE composite diagram *(refer figure 4.4)* and state that POEs can be used for various purposes and it depends on the facilities manager to identify the purpose of an evaluation before selecting a suitable method.

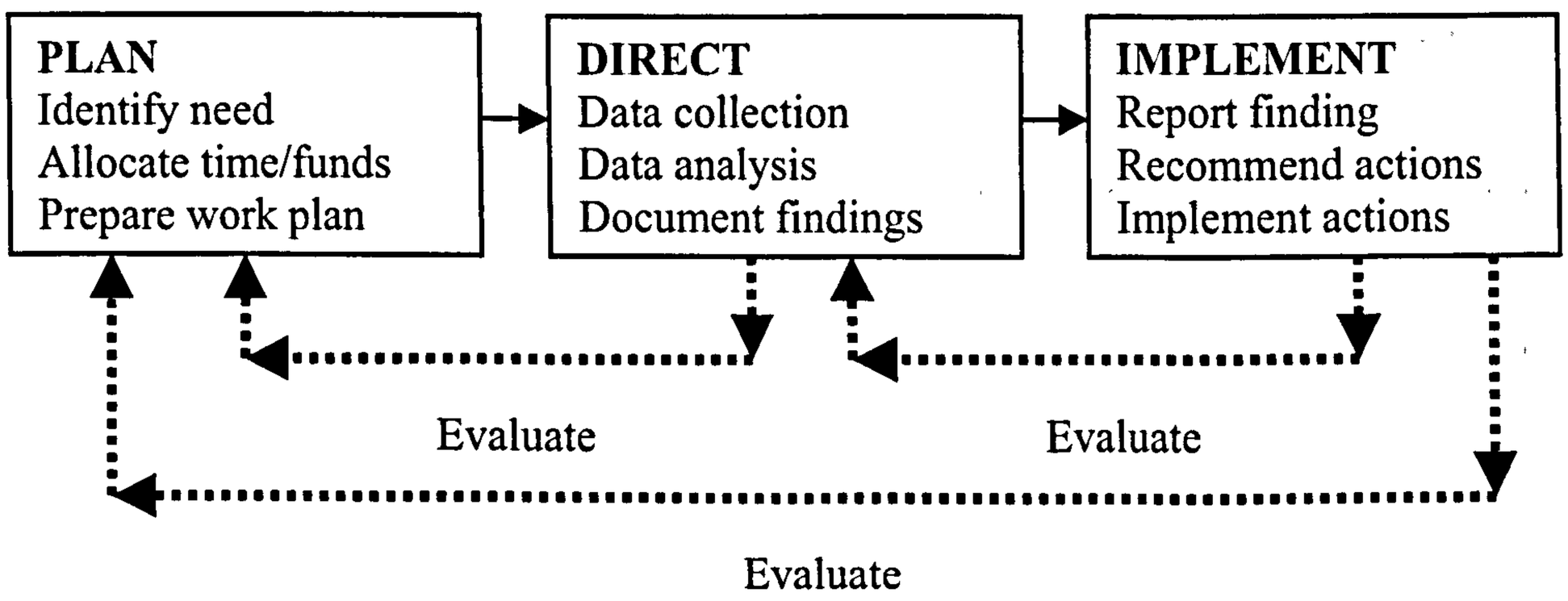

Figure 4.4: The POE process diagram
Source: Baldry and Barrett (2003)

According to *Baldry and Barrett (2003)*, not only should the facilities manager check the planning for all the stages in a POE process before conducting the a POE but also ensure that if after any stage, information is missing, then the facilities manager has the provision to go back to the last stage and collect the required necessary data and information *(refer figure 4.5)*.

4.3(e) Key Performance Indicators (KPI's):

A Key Performance Indicator (KPI) is the measure of performance of an activity that is critical to the success of an organisation. KPI graphs are used by organisations to benchmark their performance against the rest of the

industry or sector. The KPIs can form the basis of a more comprehensive set of performance measures. Regular measurement using appropriate KPIs enables an organisation to set and communicate its performance targets and to measure whether it is achieving them *(www.cbpp.org.uk)*.

CBP publishes KPI Wall charts each year for:

- All Construction
- Respect for People
- Environment
- Construction Consultants
- M&E Contractors
- Construction Products Industry

4.3(f) Design Support Measurements:

This is one of the various static performance measurements used to assess the capabilities and adequacies of a facility to an organisation. *Kincaid (1994)* explains it as a method that revolves around the principles of "Attract and Retain Staff". This organisational need is rated on a scale of 1 to 9 and is then compared with the rankings for different building types in different locational configurations to seek to find a match for as many factors as possible. This forms the economics of demand and supply factors for an organisation and also allows the decision-making process particularly where the range of variable factors is high.

4.3(g) The management-by-variance tool:

Hinks & McNay (1999) suggest that the concept behind the creation of the management-by-variance tool is to provide an "at a glance" picture of the level of performance in the key areas chosen by the organisation. A final list is created using this technique using, which the FM department or premises department can then define the sub-KPI's from which it can readily collate data. Application is based on the concept that the achievement of a correctly set strategic level of performance in the form of main KPI's will, through the measurement of sub-KPI's, contribute to the continuous improvement of the department *(Hinks and McNay, 1999)*

4.4 Role of performance measurement in FM:

According to *Procurement Executives' Association (1999)* and *Amaratunga & Baldry (2002)*, facilities management (FM) organisations need to be able to deploy a performance management programme, which includes the following attributes:

- Leadership involvement in designing and deploying effective performance measurement and management systems;
- Effective and open communication between employees, stakeholders and customers in order to share assessment results and any new initiatives to improve performance;
- Accountability of results which are clearly assigned and well understood;
- Compensation, rewards and recognition that are linked to performance measures;
- Targets that are linked to appraisals; and
- A performance measurement system that is positive.

According to *Wauters (2005),* FM performance management and specifically FM benchmarking techniques incorporates numerous aspects of benchmarking apart from simply comparing costs. For all performance management activities, the facilities managers need to apply a balanced approach when deciding where, when, what and how to benchmark that would help them to identify the areas of "best practice" and "Value for Money". Some of the FM aspects as mentioned by *Wauters (2005)* are:

- Space Use: Benchmarking the space use is important as this determines the cost for the premises. Floor arrears need to be known for the purpose of comparing costs of maintenance, cleaning etc.
- FM Management: This includes benchmarking the effectiveness and cost of the facilities management operation on a strategic/tactical level.
- Computer Aided Facilities Management (CAFM) Systems: This includes benchmarking of the costs and effectiveness of the IT help desk.

4.5 Summary:

The very existence of facilities management as a modern discipline is based on integration as it is clearly concerned with the overlap between people, processes and places in organisations. If the key business indicators that are studied, measured and monitored are the key integration indicators such as degree of team working, standardisation of inputs and co-ordination through shared purpose then they also need to be applied to facilities management both in terms of the role of integration with facilities management and with respect to its relationship with the organisation as a whole. Such an approach in improving performance management of facilities puts the facilities manager firmly on spot and gives him/her the centrality in the process. As pointed out by *Kincaid (2003),* the purpose of measurement is to enable the manager and the staff to understand what they are performing, by comparing themselves, determining their shortcomings and lastly identifying the areas which need to be improved and changed through careful decisions. However, the success criteria for evaluating operational performance are increasingly extending beyond compliance with technical standards to embrace some degree of social responsibility and ethical behaviour *(Baldry, 2000).*

In order for an organisation to succeed and raise profits, it must be able to make effective use of its performance measurement outcomes and integrate them with its predefined strategies and objectives, thereby making a transition from measurement to management. *Amaratunga & Baldry (2002)* suggest that an organisation must be able to anticipate the required changes in the strategies and have a preset methodology with identified strengths and weaknesses for carrying out any strategic changes that might arise as an outcome of performance measurement (Aligning measurement with management). The performance level attained by an organisation clearly depicts and quantifies the effectiveness and efficiency of the actions it undertakes. It is in this context that the application of the performance management concept could be identified as a major task facing FM organisations in their attempt to introduce performance measurement systems and how to use them to influence future performance *(Amaratunga & Baldry, 2002).* If a profitable and beneficial move from performance measurement to performance management has to be made then it is imperative for all FM

organisations to have a plan in place in alignment with the overall company goals and strategies.

4.6 Chapter Highlights:

Organisations today, seek to create an efficient and effective performance management system to *(Procurement Executives' Association, 1999)* and *(Amaratunga & Baldry, 2002):*

1. Translate organisational visions into clear measurable outcomes that define success, and are shared throughout the and with customers and stakeholders;
2. Provide a tool for assessing, managing and improving the overall health and success of FM systems;
3. Continue to shift from prescriptive, audit and compliance based oversight to an ongoing, forward looking strategic partnership;
4. Include measures of quality, cost, speed, customer service, employee alignment, motivation and skills to provide an in-dept, predictive performance management system; and
5. Replace existing assessment models with a consistent approach to performance management.

It is extremely important for all FM organisations to make the transition from 'measurement' to 'management' not only to make effective use of the performance measurement results but also to make a place for itself at the board room level. This integration of measurement with management with planned activities and ability to actually use the performance measurement results to bring changes in an organisation should be emphasised more within the FM environment for overall organisational success. In addition to strategic feedback and learning, facilities managers can also use performance management systems to build a strong business case that supports proposals for changes or requests for additional resources, as it integrates the link between strategies, measures and expected outcomes *(Amaratunga &Baldry, 2002).*

According to *Wauters (2005)* the need for benchmarking within organisations can be linked directly to the highly competitive and global environment, in which they operate making its essential for all business units to be extremely dynamic in order to achieve long term success in the ever changing business

environment fuelled by globalisation, advances in information technology and communication. *Wauters (2005)* further stresses that facilities managers are also responsible for adding value to the organisational value chain, if the process of benchmarking is applied correctly, it can lead to effective value management of facilities services provision. Benchmarking and performance management could provide the facilities managers with valuable management information to improve the overall facilities management service delivery. *Amaratunga et al (2001)* relate the balanced scorecard approach as proposed by *Kaplan & Norton (1996),* to the innovation and learning perspective and emphasise that processes will succeed only if they are driven by adequately skilled and motivated employees who are provided with accurate and timely information.

CHAPTER 5

IMPORTANCE OF INNOVATION IN MANAGEMENT

5.0 Introduction - The importance of Strategic Planning

5.1 Leadership and Team work

5.2 Human resource management

5.3 Knowledge Management, Human Resource and Innovation Management

5.4 Innovation and Total Quality Management

5.5 New product development and innovation strategy

5.6 Importance of management in innovation

5.7 Impact of innovation on socio economic growth

5.8 Effect of Globalisation on Innovation

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5.10 New developments in Business Innovation

5.11 Summary

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Chapter 5

IMPORTANCE OF INNOVATION IN MANAGEMENT

5.0 Introduction - The importance of Strategic Planning:

Strategy is the direction and scope of an organisation over the long term: ideally which matches its resources to its changing environment and in particular its markets, customers or clients so as to meet stakeholder expectations.

(Johnson & Scholes, 1993)

A carefully, well thought and developed strategy forms the essence of any successful business in a competitive world. Hence, it is imperative to form a strategy, which meets the ever-changing customer needs more effectively than the competitors. *Doyle & Bridgewater (1988)* explain that successful business starts with an appreciation of the environment, an understanding of the emerging needs of the customers and the corresponding possibilities for developing operative and dynamic solutions to these needs *(Refer figure 5.1).*

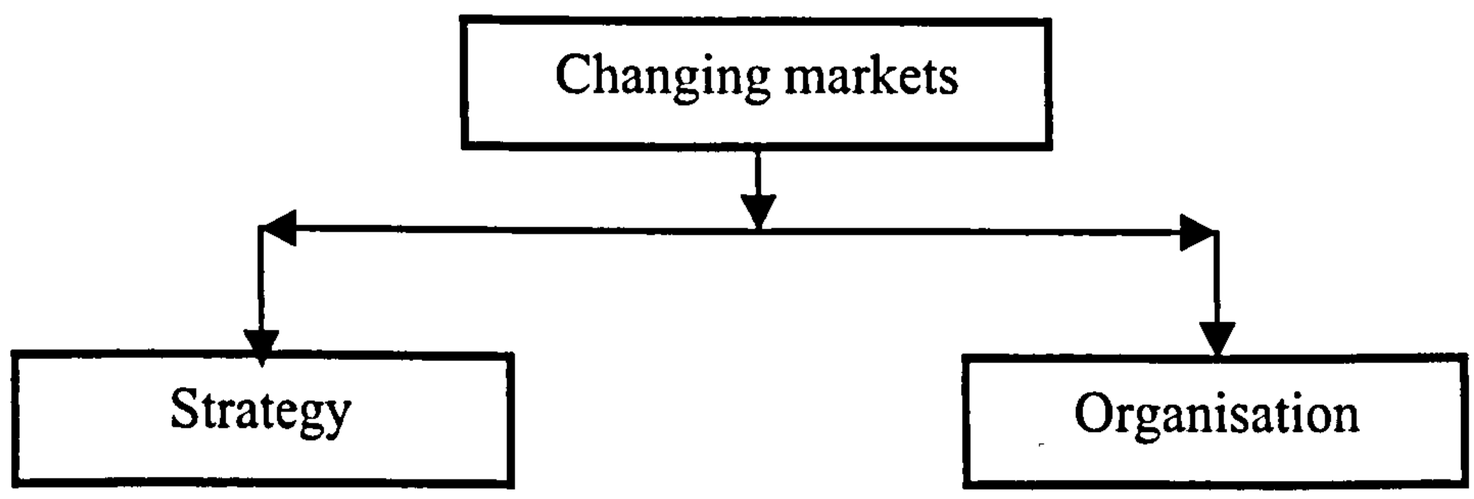

Figure 5.1: The Basic Challenge facing the Business World
Source: Adapted from Doyle and Bridgewater (1988)

Christiansen (2000) states that due to the existence of numerous industries and markets, managers now have a choice between several strategies and between different kinds of innovation systems. It is at this stage that the company strategy plays an important role. Managers can decide between innovative methods, which may be less efficient but are capable of developing new product, and new business ideas over a wider area or methods that are efficient in few narrow areas but are not capable of leading towards diversification and exploitation of new opportunities. *Thornhill et al (2000)* accentuate that even though concepts of organisational strategy are difficult to characterise and understand in an organisational context, alteration to the strategic direction and activity of an organisation may necessitate changes to its structures, systems, culture, managerial approach and technology. The

reasons given to support the above statement by *Thornhill et al (2000)* are as follows:

1 The practice of formulating and implementing strategy varies between organisations, for example deliberate versus emergent;
2 Understanding how strategy is determined depends not only on the environmental circumstances faced by the organisations but also on the cultural and political issues that operate within them; and
3 Strategy operates at a number of organisational levels and strategic decisions taken at higher level clearly affect strategy and change at a lower level including those related to human resources.

Nadler (2004) explains the different stages of strategy development by stating that:

For companies considering partnering as a mean towards innovation the initial stages of strategy development are the most important ones and should include discussions, which establish a framework for the process and create an agenda that will provide focus to all sides of the newly formed partnership. Apart from this the various other approaches, which the process demands as listed by *Nadler (2004)* are:

1. A collaborative approach from everyone concerned;
2. A culture of openness that supports healthy debate;
3. Strategy development being regarded as an ongoing process rather than a single event, regular contact, data analysis and continuous monitoring of processes; and
4. Accountability: A wider recognition of board room level contribution and an appropriate reward/incentive system that will help ensure self interest and motivation

5.1 Leadership and Team work:

Nemeth (2004) insists that some of the admired companies, which are reputed to have good management, financial success and innovation, are those that are supported by leaders who believe and work constantly towards innovation. Under these conditions, a strong corporate culture emphasising uniformity, loyalty and adherence to company expectations is always proven to be more advantageous *(Nemeth, 2004)*.

Katz (2004) examines the need of highly motivated professionals who would not only incur the innovation culture but also motivate the employees to make it as part of their schedule and insists that if organisations want motivated leaders/managers, then they must create the kind of work environment, job assignments, careers and work related conditions that allow professionals to satisfy their individual needs *(Refer table 5.1).*

Table 5.1: Multidimensional Framework for Work Motivation

Task dimensions	**Organisational orientation**	**Professional orientation**
Skill variety	To utilise one's skills and abilities	To learn and develop new skills and abilities
Task identity	To become a contributing member of the organisation	To become a contributing member of the profession
Task significance	To work on projects that are important to the organisation	To work on projects that are exciting within the profession
Autonomy	Strategic clarity	Operational autonomy
Feedback	Subjective data and information processes	Objective data and information processes

Table 5.1: Multidimensional Framework for Work Motivation
Source: Katz (2004)

Results from the *BCG (2006), (refer case study - chapter 8)* innovation survey reveals that a strong and structured leadership is imperative for innovation. The innovation leader is the primary driver and if not everyone in the organisation is aware of how important 'innovation' is to the leader, there will arise serious doubts on the success and sustainability of innovation processes and activities. The survey states that the chairman, CEO's or the innovation leaders need to do a better job of establishing their position and commitment towards innovation, which would also require consistent and effective communication and day to day activities that reflect commitment to innovation.

5.1.1 The importance of Commitment:

Nadler (2004) explains that market familiarity is not enough for the growth and development of an organisation. In addition to this, the executives and directors must know their organisation completely, which definitely requires both time and commitment. There should be clear recognition of the strengths and weaknesses and capabilities of the organisation. Paving the way for directors to become more involved in strategy development, requires determination, commitment and hard work *(Nadler, 2004)*.

5.1.2 Leadership in innovation:

Inspirational top leadership is critical to successful innovation

(Montes et al, 2004)

Montes et al (2004) highlight that successful innovation is positively and directly related to top management support, team work, incentives and the organisational set up (innovation climate within the organisation). Thus, innovation should begin with the support of top management, who should promote an organisational climate in, which workers are recognised for their efforts towards innovation and are rewarded adequately. *Montes et al (2004)* also state that there should be organisational cohesion amongst the people for higher degree of knowledge transactions and an intrinsic reward system should be used as a tool for individual motivation, to encourage innovation activities. The DTI report on innovation by *Beacham (2000)* clearly defines the importance of good leadership by stating that:

- Top leadership must develop and communicate a clear and simple vision and the strategy for achieving innovation objectives. It also needs to provide the people with necessary resources monitor the external environment and adjust the direction as necessary.
- Top leadership must realise that the organisation is less likely to adapt to changes if there is concentration of power. Therefore power distribution within the organisation is imperative to increase its acceptance towards change.
- An organisation, which is serious about innovation, connects with customers, users and makers. It creates successful new ideas and inspires its people to innovate as part of their daily activities.

- An organisation that promotes innovation as a key output must couple creativity, calculated risk and entrepreneurial spirit with business and project delivery disciplines. An innovative organisation is, therefore always a subtle and shifting balance between the two different cultures of creativity/freedom (inspiration) and control/delivery (perspiration).
- Innovation leaders are change agents and must be efficient in both producing and adopting innovations. Leaders must create the right innovation climate, recruit, manage and develop the delivery team, create goals, provide encouragement and help to overcome problems and difficulties.
- An innovative leader should seek to ensure that the following key motivators are satisfied:

  Achievement;

  Success;

  Personal development of skills and abilities; and

  Recognition by peers and awards.
- People cannot be given empowerment; they must be encouraged to actively take it.
- It is important to ensure that the creative and problem solving staff have meaningful interaction with customers in their environment, so that they can recognise potential needs and develop solutions.

The *DTI (2005a)* review on innovation and findings by *Beacham (2000)* conclude that businesses must be highly aware of the environment in, which they operate and the wider changes taking place within that environment. Innovation is an essential business strategy that adds value in the business in many forms and should be regarded as the only way to meet and stay ahead of the competition. Following are the recommendations given by *Beacham (2000)* for all enterprises wanting to achieve success and add value in this constantly changing business environment:

- An innovative organisation should have awareness of customer opportunities, be ambitious and have the ability to generate and develop new ideas and availability of necessary resources to achieve desired results.

- Innovation will not take place without effective, efficient and inspirational leadership.
- Innovation is essential for successful business processes and should be managed efficiently.
- Organisations should understand that innovation comes with risks, which must be evaluated and considered against the potential reward (risk identification, assessment and improvement). There are always ways to manage and reduce risks.
- New innovative companies require considerable additional effort to raise the risk finance through equity and provide an appropriate exit policy for all shareholders to realise the added value, resulting from successful exploitation.
- Capital is extremely important to all innovation start-up companies and care should be taken to make it available and provide new transfusions at critical stages.
- It is essential to ensure that the innovating company own the relevant intellectual property rights, has the freedom to operate and that any special resources required for development can be easily acquired.

5.1.3 Benefits of Increasing Top Management Access and Teamwork:

Nadler (2004) states that an agreement on the company's vision should be made clear in the initial stages of strategic development., also necessary at this stage is to establish clear aspirations that would assist in potential strategic options later and secondly, identification of tangible objectives in relation to its;

- Investors;
- Customers;
- Suppliers;
- Employees; and
- Other stake holders

Nadler (2004) explains that the company strategy should be mainly selected on the opportunities it may be exposed to in the future and not just present gains. It is imperative for management and board to put together their information in order to build a detailed knowledge of the business environment

in, which the company operates. This also allows the formation of more informed hypotheses about market development and increased awareness of risks involved. This includes *(Nadler, 2004):*

- Greater harmony between management and board and an end to the 'them' and 'us' perception that sometimes prevails;
- Using broader range of perspectives, hence significantly increasing the likelihood of quality decisions to be made;
- Future discussions more informed and more aligned with the chosen strategic decision;
- Directors feeling a greater sense of worth from knowing that the company has made productive use of their time and expertise;
- Stronger board commitment to the organisation's chosen direction; and
- A board, which is more supportive of its management – something that can be particularly valuable during turbulent periods.

Hamel & Prahalad (1994) stress that if an organisation wants long-term success and a profitable share in this rapidly changing business environment, then it is critical for it to think differently from the normal. It is in this respect that a company must learn to think differently and find alternatives in the following three key areas:

1 The meaning of competitiveness;
2 The meaning of strategy; and
3 And the meaning of organisations.

If the goal is industry leadership, restructuring and reengineering are not enough. To build leadership, a company must be capable of reinventing its industry; to rebuild leadership, a company must be able to regenerate its core strategies. In this sense, it is not enough to get smaller and better; a company must also strive to become different and have the capacity to change and innovate and to ultimately 'be' different, a company must first 'think' differently *(Hamel & Prahalad, 1994).*

Along with leadership it is also vital to have the appropriate environment and company policies, which according to *Johannessen (2001)* have a momentous impact on the newness, progressive nature and completeness of an innovation. For the new entrants adoption of innovation methods and

techniques becomes central and elemental to a successful start, therefore making it essential to have the right kind of leadership and guidance that positively supports and guides the innovation activity.

In addition to leadership, much emphasis is also given to the substance and value of teamwork as a tool to initiate successful and long-term innovation. *Oakland (2005)* states that the industry processes are extremely complex and elaborated and can be conducted better through organised teamwork rather than depending on an individual to tackle its multiplicity. Drawing attention to the importance of teamwork, *Oakland (2005)* elucidates that the only real efficient way to tackle process management, change management and improvement is through an effective and efficient teamwork, rather than allowing individuals to work separately.

1 A greater variety of complex processes and problems may be tackled those, which may be beyond the capability of any one individual or department by pooling the expertise and resources of many.
2 Processes and problems are exposed to a greater diversity of knowledge, skills, and experiences and are solved in a cost-effective and well-organised manner.
3 The approach is more satisfying to team members as it boosts morale and ownership through participation in process management, problem solving and decision making.
4 Processes and problems that are cross-departmental or functional boundaries can be dealt more easily and the potential/actual conflicts are more likely to be identified and solved
5 The recommendations are more likely to be implemented than individual suggestions as the quality of decision making in good teams is high.

Continuous progression and development can be carried out most successfully and efficiently only if teamwork is encouraged within the organisation, as it provides circumstances and conditions for people to grow learn and use all the available resources. This in turn has a positive affect on the innovative capabilities of members. *Oakland (2005)* accentuates that as individuals grow, the organisation grows, and employees will not be motivated towards continual improvement in the absence of *(Refer figure 5.2)*:

1 Commitment from top management;

2 The right organisational climate; and

3 A mechanism for enabling individual contributions to be effective

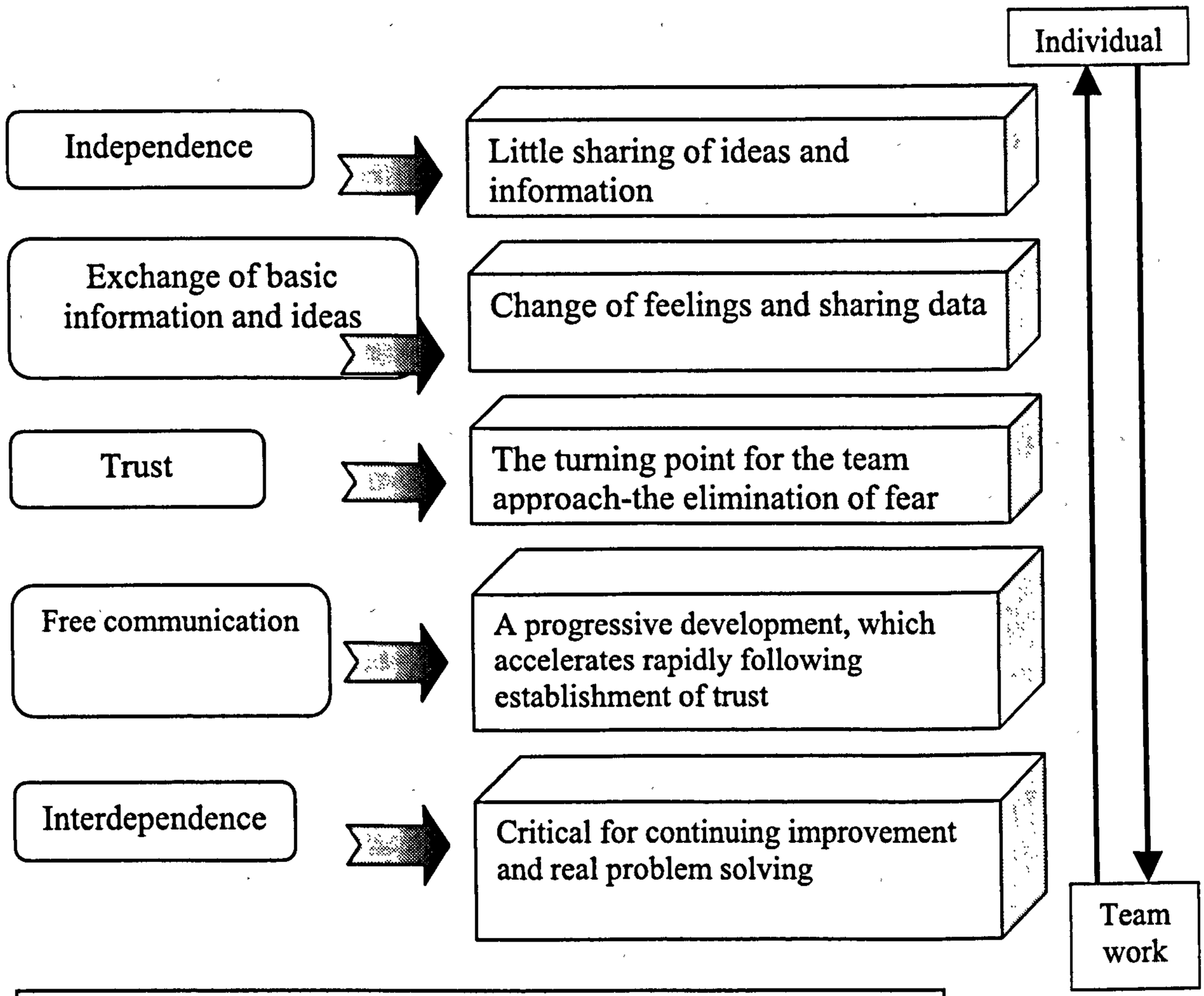

Figure 5.2: Independence to interdependence through teamwork
Source: Oakland (2005)

5.2 Human resource management:

It is important to realise the strategic qualities and benefits of Human Resource Management (HRM) practices. *Storey (2001)* rationalises that it is HRM that gives the competitive edge, which most companies require to gain long-term success. The aim should not be mere compliance with rules, but employee commitment, HR policies should be carefully and essentially integrated with all aspects of the business, whether it is innovation planning or business strategy and all HR policies and decisions should form an important part of the business hence, contributing towards the growth and development of the organisation. *Storey (2001)* emphasises that because HR practice is critical to the core activities of the business, it is important to be left to

personnel specialists alone, line managers need to be closely involved as both deliverers and drivers of the HR policies.

Thornhill et al (2000) describe that there exists a strong relationship between strategy change and human resource strategies. The need for strategic change arises from the formulation and implementation of the strategy that underpins the direction and activity of an organisation. *Thornhill et al (2000)* describe various components that are fundamental to strategic human resource management. These can be summarised as follows *(Refer figure 5.3)*:

1. The use of planning;
2. A coherent approach to the design and management of personnel systems based on an employment policy and (HR) strategy and often underpinned by a 'philosophy';
3. Matching HRM activities and policies to some explicit business strategy; and
4. Seeing the people of the organisation as a 'strategic Resource' for achieving 'competitive advantage'.

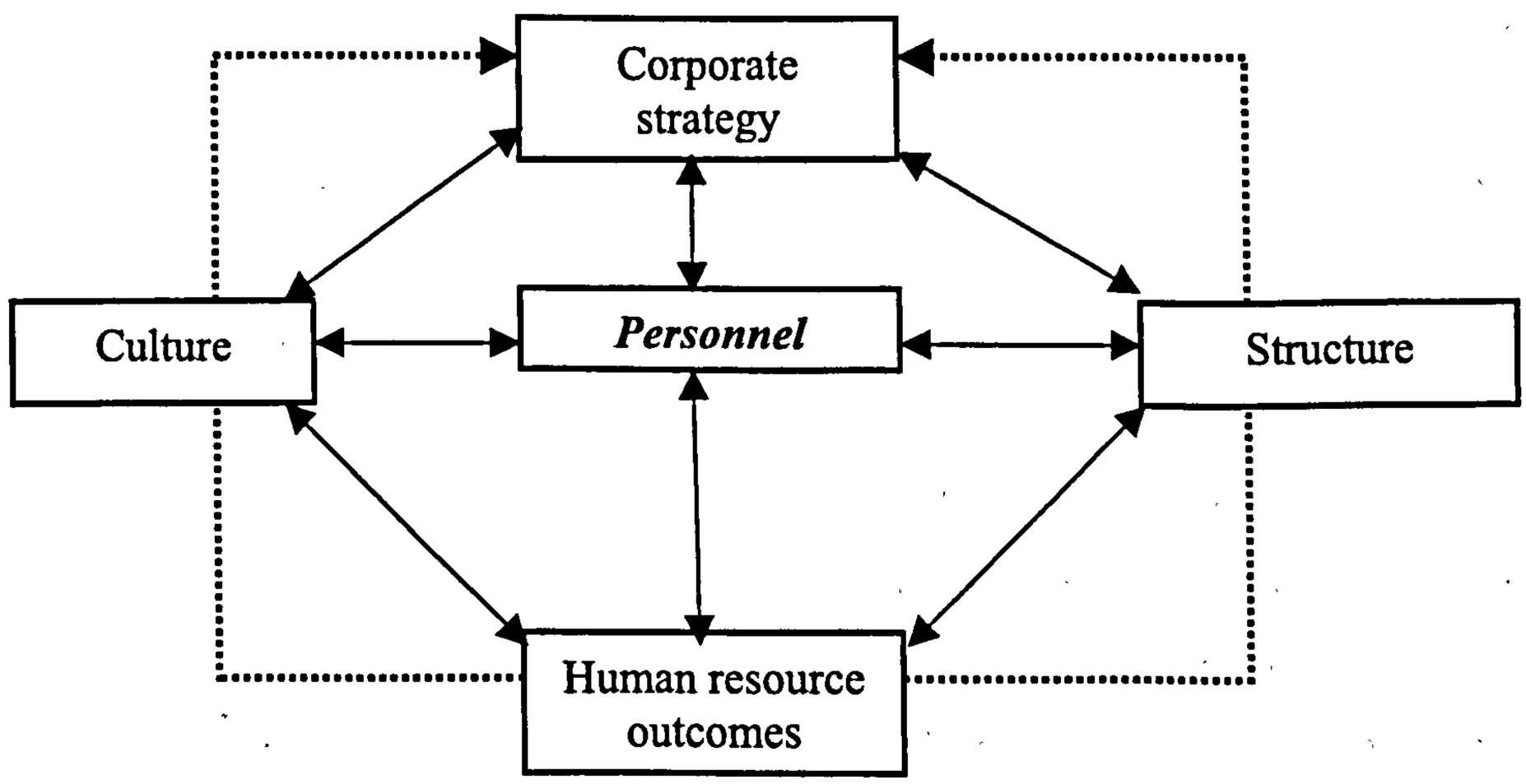

Figure 5.3: The 'Open' Approach to HR Strategies
Source: Thornhill et al (2000)

5.3 Knowledge Management, Human Resource and Innovation Management:

Desbarats (1999) vindicates that information technology helps in smooth and easy flow of information thereby, acting as a catalyst for changes in the innovation process. To a major extent the lessons for good management of

knowledge equate with good management of any workers, in some cases there may be no difference at all *(Storey, 2001)*. Issues and the concepts of knowledge management have been excessively related and studied together. *Storey (2001)* states that though knowledge management ultimately depends on people, it is precisely the people or the HR aspect which has been most neglected in majority of the studies conducted in the field of knowledge management. An international study, which examined the various issues and approaches to knowledge management found that three quarters of the managers actually responsible for implementing such strategies thought that it was people's issues that were the most important and fundamental, however organisations have been unable to understand the need of organisational strategies that draw out the human dimension *(Storey, 2001).*

Storey (2001) explains that innovation depends highly on the ability to manage a dynamic process, the generation or creation of new knowledge, as well as the application, transformation and integration of existing knowledge. Organisations that strive to be innovative need to realise that the creation of this new challenge may be more laborious than actually implementing it. The process of innovation involves the invention or production of new knowledge leading to the learning process of all those who were involved, collectively or individually. Here emphasis can also be given to trust, motivation and challenge, which are not very easy to achieve.

Any innovation can be successful only if it has the appropriate support and encouragement from the top management that motivates not only the employees of the organisation but also its clients and suppliers to formulate systems and processes for effective knowledge management, which would ultimately lead to a productive and dynamic innovation culture within the organisation and its entire supply chain. The level of communication and relationships formed through an effectual human resource management system would lead to proficient and competent knowledge management hence, resulting in beneficial innovation.

Storey (2001) also puts emphasis on the importance of accessing tacit and implicit knowledge stating that this issue is foremost because much of the important knowledge in contemporary post industrial conditions resides in workers' heads; it may be implicit knowledge of the kind that can be

expressed in the appropriate context, or tacit knowledge of the kind that it must remain inexpressible *(refer figure 5.4)*. The knowledge process in any organisation contains 5 processes; these are *(Storey, 2001)*;

1 Creating knowledge;
2 Sharing it;
3 Sourcing it;
4 Mapping it; and
5 Measuring it

Even though human resource management and the various issues concerning HR are said to form an important and fundamental part of the success and growth of knowledge management, there is still scope to understand the actual processes involved. There also exist a number of key problems that have a central bearing on human resource management. *Storey (2001)* identifies them as:

1. The challenge of developing and sustaining a culture that supports knowledge creation and innovation;
2. The problems organisations may have in accessing tacit and implicit knowledge;
3. The problem of securing trust and commitment;
4. The handling of 'atypical' contributors such as contract workers and consultants; and
5. Various vulnerabilities, which the organisation might face like heavy dependency on certain key workers.

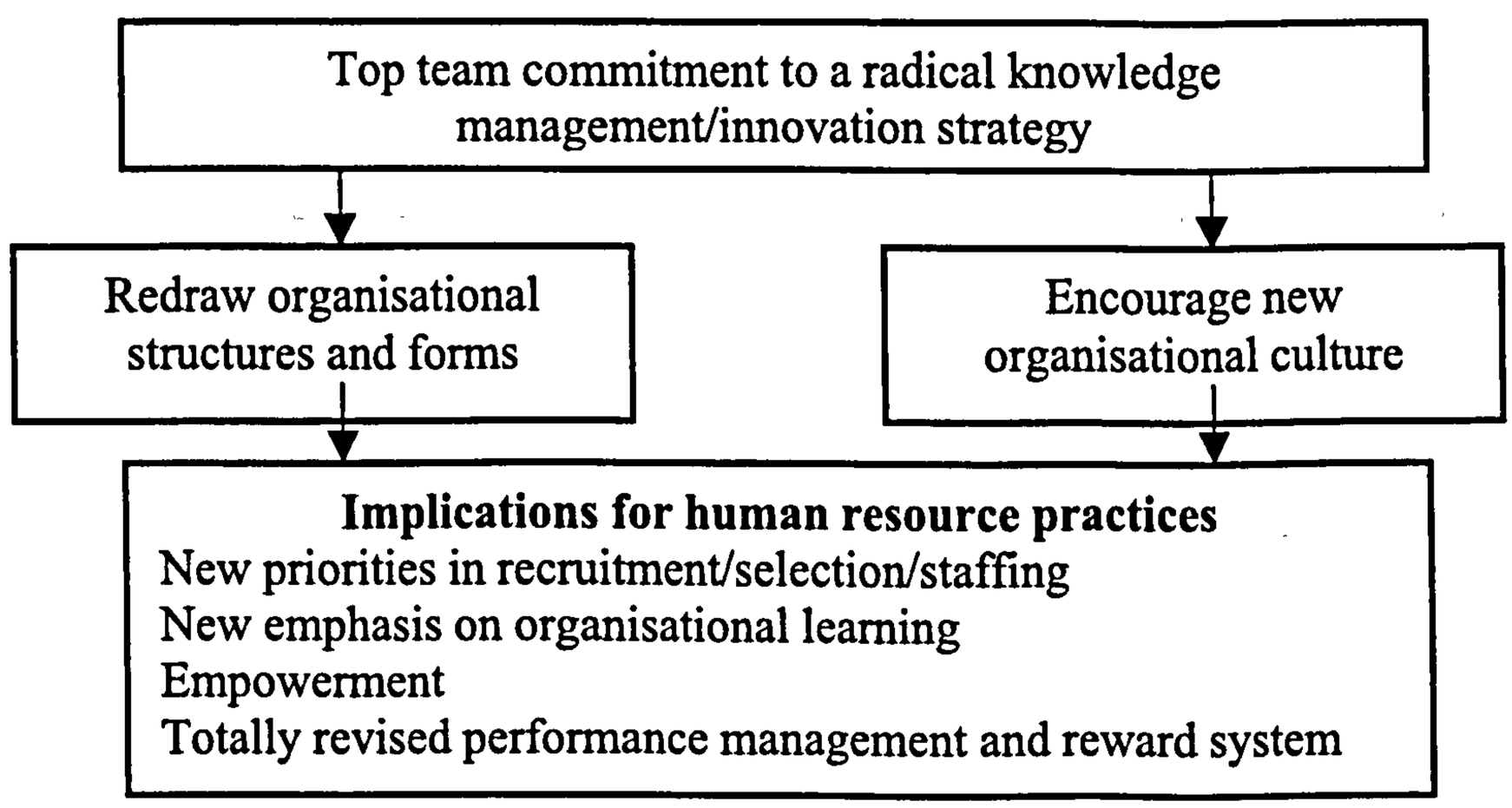

Figure 5.4: HR Strategy for innovation and knowledge management
Source: Storey (2001)

5.4 Innovation and Total Quality Management:

Table 5.2: Dimensions of Total Quality Management

Dimensions	Description
Top management support	Major determinant of TQM implementation. Top management has to be the first in applying and stimulating the TQM approach, and they have to accept the maximum responsibility for the product and service offering.
Customer relationship	It is necessary to keep the needs of customers and consumers and their satisfaction in mind.
Supplier relationship	Quality is more important factor than price in selecting suppliers. Long-term relationship with suppliers has to be established and the company has to collaborate with suppliers to help improve the quality of product/services.
Workforce management	This is guided by principles of training, empowerment of workers and teamwork. Workers need the necessary skills to participate in the improvement process
Employee attitudes and behaviour	Positive work attitudes need to be stimulated. This includes loyalty towards the organisation, pride in work, a focus on common organisational goals and the ability to work cross-functionally
Product design process	All departments have to participate in the design process and work together to achieve a design that satisfies the requirements of the customer, according to technical, technological and cost constraints of the company.
Process flow management	Process needs to be fool proof and needs to be maintained under statistical control
Quality data and reporting	Quality information should be part of the visible management system and should be readily available.
Role of the quality department	Quality department needs to access to top management and autonomy and also has to combine the work of other departments
Benchmarking	A benchmarking policy for key processes should be in place

Table 5.2: Dimensions of TQM
Source: Lorente et al (1999)

The concept of total quality management first appeared in mid 1980s and was considered as innovation in management thinking, but not necessarily as a facilitator of business innovation *(Crawford, 1998). Lorente et al (1999)* state that in many ways Total Quality Management can assist an organisation to be more innovative along with compatibility with reengineering, which is taken to be a form of business innovation. Total quality management therefore, is said to help the organisations in eliminating costs, improve productivity, gain a competitive edge in market place and also act as means of developing and facilitating business innovations *(Refer table 5.2).*

According to *Lorente et al (1999)* these dimensions of total quality management are useful in current environments in, which the companies operate. Total Quality Management (TQM) also has a significant impact on information technology that is regarded as one of the most important source of business innovation and it is the need of business innovation that makes companies embrace TQM. The emergence of the TQM concept in mid 1980s led many to think of it as an innovation in management thinking but according to *Lorente et al (1999)*, the concept of TQM, though revolutionary did not necessarily mean that it was a facilitator in business innovation. Total quality management allows innovation through continuous improvement and it is the need for business innovation because of, which many enterprises embrace the principles of total quality management (TQM).

In *(1999),* research on business innovation done by *Lorente et al* brings out the two most common ways in, which companies engage in innovation. These are:

- Copying innovations - Adopting what already has been tried in the market and proven to be successful. This is beneficial when organisations aim for competitive advantage such as low wages, easy access to raw materials, protected markets and monopoly in supply; and
- Developing personal innovations.

Dahlgaard et al (1995) accentuate that the development of strategies and plans should be supported by Total Quality Management (TQM) concepts, for instance by using the concepts as described in the TQM pyramid. These are:

- Management's commitment: Easy access to top management;
- Focus on the customer and the employee: Fulfilling the needs of the employees and giving high priority to customer demands;
- Continuous improvements: through innovations
- Focus on facts: Synergy between R&D, Technology, Marketing and Production
- Everybody's participation: Giving employees, customers, supply chain a platform to voice their opinion.

Marstensen and Dahlgaard (1999) explain that success is highly dependant on the organisational capability to formulate a long-term strategy where innovations are a major issue. Success is not only a question of achieving competencies or skills within a single strategy element, but a multidimensional concept where there should be interaction between each success criteria. A complete innovation strategy should stress more on facts and figures, supplemented with organisational learning and creativity to cope with the approach towards change and the ability to expand an organisation's innovative and ingenious abilities. As per *Marstensen and Dahlgaard (1999)* it is not sufficient in the long term to develop and introduce new products as a reaction to the market conditions as the synergy between research and development (R&D), marketing and production will not be achieved under these circumstances. Agreeing with *Cooper's (1993)* thoughts, *Marstensen and Dahlgaard (1999)* stress that an overall business strategy should involve a detailed plan for new products, link new products to the corporate goals, set up guidelines for choosing the necessary and required markets and technologies and also formulate a screening criteria to use.

5.5 New product development and innovation strategy:

As per *Marstensen and Dahlgaard (1999)* and *Kuczmarski (1993),* one of the best ways to ensure a strong and close relationship between a new product strategy and an overall business strategy, is to develop a new product blueprint, which should address the following key issues:

- Role of new products;
- Development expenditures and invest capital;
- Human resources required;

- Financial objectives;
- Other growth modes; and
- Top management expectations in terms of deliverables.

Explaining the role of a new product blueprint, *Marstensen & Dahlgaard (1999)* state that the blueprint will describe the role and target of all new product activities and also the relation of these activities with the overall business objectives. The new product strategy would then describe how the blueprint will be implemented. The new product blueprint must map out the required resources necessary to accomplish the roles set up for new products. This includes funds as well as key people. Care should be taken to realise the resources needed for a project's credibility, visibility and success. Innovations are often viewed as costs, rather than as long-term investments. It often results in projects short of time, people and money and is one of the several reasons for high failure rates. The important areas to address are *(Marstensen & Dahlgaard, 1999):*

1) An estimate of the financial resources of the company's R&D strategy;
   - Level of development expenditures and investment capital for the entire development work for the coming years.
   - Revenue target for all new products launched during the planned period.
2) A description of how the resources are prioritised and allocated to plans;
3) Future requirements and support of;
   - Human resources and competencies.
   - Technical resources and competencies.

5.6 Importance of management in innovation:

Graham and Christopher (2002) highlight the nature and composition along with quality of management, which is central to innovation and performance of any firm, big or small. These achievements are measured in terms of growth in sales, assets, profits, products and services, employment and even at various times with respect to survival *(Graham and Christopher, 2002).* Commenting on the relationship between managerial quality and business performance, *Graham & Christopher (2002)* state that such a relationship is likely to be more pronounced in small firms than in large enterprises. This is

mainly because the strategic and operational decisions made by the key players tend to be formulated and implemented more quickly and are less likely to be diluted or sabotaged by subordinates as compared to decisions made by senior management in large organisations *(Graham & Christopher, 2002).* However, *Beaver & Jennings (2000)* conclude that decisions made by the key players in smaller businesses will have more of an uncertain outcome in the marketplace, influenced by the lack of market power, limited resources and positional disadvantage as the entrepreneur and the key players in the enterprise require distinct and different management skills and abilities.

Beaver & Price (2002) state that firms with a clear determination and motivation to expand will need to pay as much attention to their management development and manpower strategy as any other branch of strategic thinking. The capacity to innovate can lead to substantial and profitable business development if that is the objective of the proprietor and the key players. *Beaver & Price (2002)* further explain that growth in an enterprise induces crises, which apply pressure on the existing management, hence facilitating further growth and expansion if such crises are satisfactorily managed. One of the most difficult problems for the innovative business is that of managing its relationships with larger firms. These may involve a variety of measures such as:

1. Licensing agreements;
2. Long-term contracts; and
3. Joint ventures

Or other arrangements that enable the enterprise to successfully develop, produce and sell its products *(Beaver & Price, 2002).*

5.6.1 Government support:

Beaver and Price (2002) establish that there exist many examples of entrepreneurs who have given up their struggle with innovation and R&D within the United Kingdom mainly due to the inhospitable environment and indifferent and confusing support infrastructure faced by the innovative entrepreneur. This is further exemplified by the overly complex taxation system by the government that does not help the situation at all making it more complex and difficult for the entrepreneurs. Source such as *KPMG (2001)* suggest that though government cannot make small and medium sized

organisations innovate and that the businesses and the entrepreneurs that drive them must want to innovate to pursue growth and development and exploit new market opportunities, it can help in creating the right economic, fiscal and regulatory framework within which innovation and entrepreneurship can amplify.

Government can also help raise the awareness of the benefits of:

1 Innovation
2 Adopting progressive strategic management practices
3 And provide sufficient financial resources for efficient business support services *(Beaver and Price, 2002).*

Beaver and Price (2002) conclude that in order to ensure successful innovation, government and the business support infrastructure that it has created must also be innovative, which can only be achieved through a radical change in policy commitment and an approach that embraces all aspects of the support network and promotes the innovative enterprise to the position and significance that it rightly deserves and requires.

5.7 Impact of innovation on socio economic growth:

Graham and Christopher (2002) emphasise that of many studies done on successful innovation, most have attempted to identify the key factors that have contributed towards success and longevity of modern high technology firms, which began as small entrepreneurial initiatives and grew rapidly into major corporations. *Graham and Christopher (2002)* explain the above by giving example of firms such as Intel, Microsoft, Apple, Hewlett-Packard and Xerox all of, which began as small and define the following as of crucial significance:

- The commitment and motivation of key individuals, including the centrality and determination of the entrepreneur responsible for initiating the innovation.
- Attention to key managerial activities and attitudes, such as development of a strong market orientation, good internal communications, a sound and innovative strategy, good stake holder management and the ability to predict and respond to environmental and industry changes.

The above also calls for easy access to top management and various managerial and policy implications. It is heightened by *Graham and Christopher (2002)* that for any successful innovation, the business support infrastructure must also be innovative and that the policy makers need to understand the motivations and requirements that shape and drive an innovative firm.

According to *Graham and Christopher (2002),* innovation is an essential condition of economic progress and a critical element in the competitive struggle of both enterprises and nation states. Studies have shown that sixty percent of all economic growth is due to technological advance rather than improvements in labour productivity *(Freeman & Soete, 1997).* a number of government reports, such as the White paper on Science and Technology *(refer HMSO, 1993)* have confirmed the potential from the encouragement of entrepreneurs engaged in innovation and technical advancement and need to successfully transfer the technology in order for commercial and economic benefits to be realised *(Graham & Christopher, 2002).* However, in contrast to the above observation, *Rothwell (1983, 1984 &1988)* concludes that smaller firms enjoy the advantages associated with lack of bureaucracy, efficient and often informal communications and that though fundamental inventions occurred within large firms, smaller organisations were disproportionately responsible for near-to-market developments and initial market diffusion. In his study of innovation in small and medium sized enterprises, *Rothwell (1983, 1984, 1988 as cited in (Graham & Christopher, 2002)* observed that though these firms have the advantage of flexibility and adaptability through nearness to markets, these also faced several constraints associated with lack of technically qualified labour, poor use of external information and expertise coupled with difficulties in attracting and securing finance and the high cost of regulatory compliance. This clearly explains that while the advantages enjoyed by small and medium sized organisations are behavioural, the constraints relate to resource issues (*Rothwell, 1983, 1984, 1988).*

5.8 Effect of Globalisation on Innovation:

Archibiugi & Iammarino (1999) explain that it is essential to understand the importance of global forces in social life as globalisation describes a wide

range of phenomenon and forces and its importance is still being realised and the focus of a vivid controversy. This requires:

- Identification of different types of globalisation;
- Value judgement attributable to globalisation; and
- Viability of policies that can regulate globalisation.

Pianta's (1999) research on innovation has focused on relationships between firms, their institutional aspect, universities and government agencies and on the science and technology aspect of innovation activities. However, less attention has been paid to the economic outcomes, in terms of growth and employment performances. The dominance of product or process innovations in the operation of firms is identified as a key discriminant for assessing the possible outcomes for growth and job creation.

According to *Pianta (1999),* the rapid international diffusion of innovations and the increasing competition on more open markets are changing the shape of innovation and production systems found within the national boundaries. The ability of firms and public organisations to benefit from the technological opportunities offered from globalisation is crucial for the upgrading of the capabilities of innovation systems. The figure below *(Refer table 5.3 and figure 5.5),* stresses the relationship between innovation, globalisation of technology that ultimately lead to specific growth and employment outcomes. Process innovations (introduced mainly through new investment) and product innovation (based on internal innovative activities as well as on new intermediate or capital goods) lead to the well known contrasting effects of increasing productivity and replacing labour, on one hand, and of creating new markets, demand and production on other. During the past few years, too many heterogeneous phenomena have been included in the term 'globalisation of innovation'. It includes within itself three main categories, which according to *Archibiugi and Iammarino (1999)* are not mutually exclusive but complementary to each other, both at firm and country level.

<u>Category 1: The international exploitation of technology produced on a national basis:</u>

This includes innovations developed both by individuals and firms that attempt to obtain economic advantages through the exploitation of their own

technological competence in the markets other than the domestic ones, which is why researches refer to it as 'international' rather than 'global'.

Category 2: Global technological collaborations:

This is an intermediate to the above two mentioned categories of innovation and has arisen mainly due to increasing number of agreements between firms, usually within the same country for the communal development of specific technological discoveries. *Archibiugi and Iammarino (1999)* point out that these forms of collaborations for technological advances promote a variety of mechanisms for the division of costs and the exploitation of results. The necessity to reduce innovation costs has created new industrial organisation forms and new ownership structures *(Refer table 5.3 and figure 5.5).*

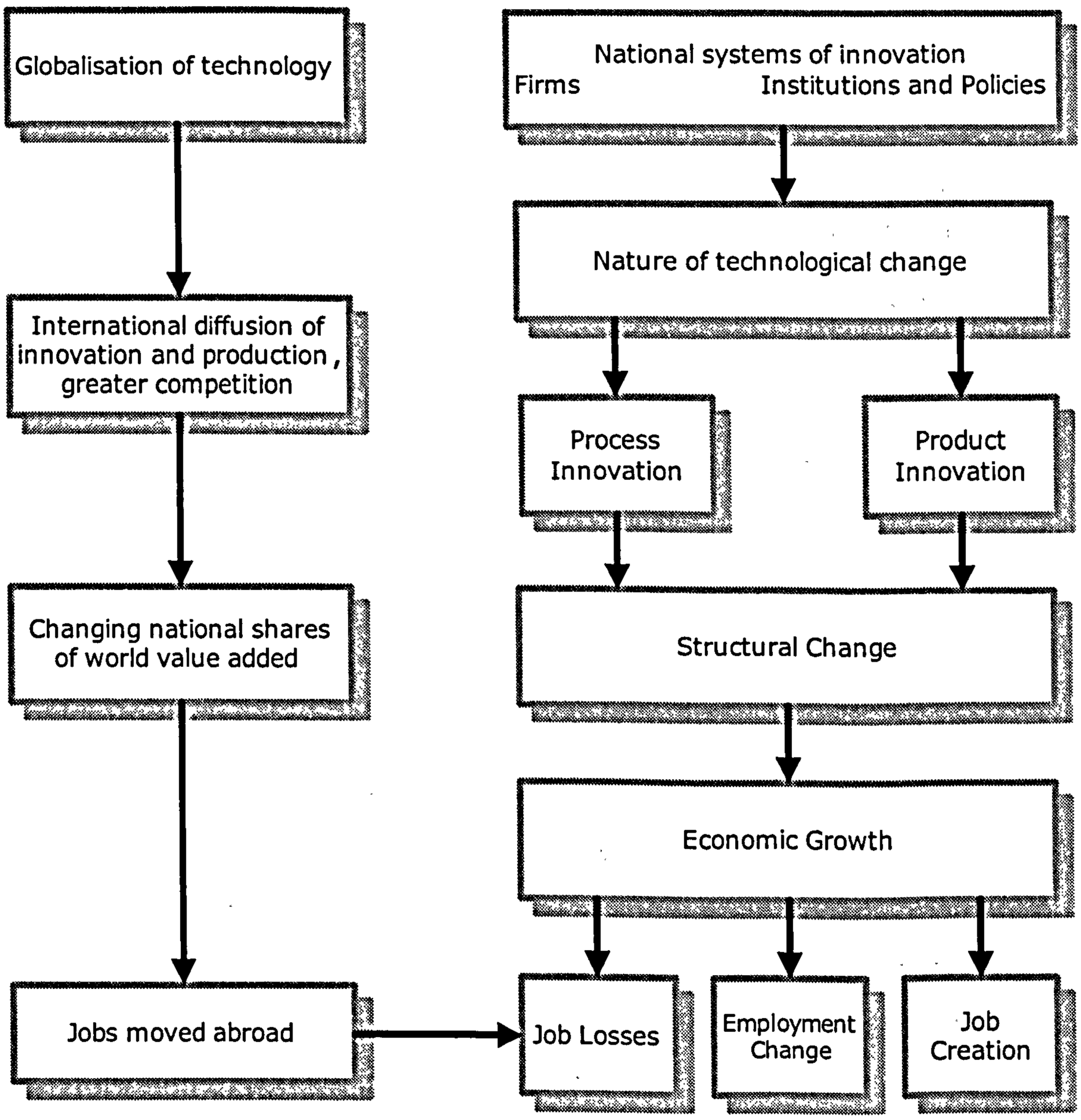

Figure 5.5: Innovation in Global Environment
Source: Archibiugi and Iammarino (1999)

Table 5.3: Taxonomy of the globalisation of innovation

CATEGORIES	ACTORS	FORMS
International exploitation of nationally produced innovations	Profit-seeking firms and individuals	Exports of innovative goods. Cession of licences and patents Foreign production of innovative goods internally generated
Global generation of innovations	Multinational firms	R&D and innovative activities both in the home and the host countries. Acquisitions of existing R&D laboratories or green-field R&D investment in host countries
Global techno-scientific collaborations	Universities and public research centres National and multinational firms	Joint scientific projects Scientific exchanges, sabbatical years. International flows of students Joint-ventures for specific projects Productive agreements with exchange of technical information and/or equipment.

Table 5.3: Taxonomy of the globalisation of innovation
Source: adapted from Archibugi and Michie (1995)

Category 3: The global generation of innovations:

This includes innovations conceived on a global scale from the moment they are initiated. However, only innovations by multinational companies are included within this category. This category is also referred by academicians as global generations of innovations and requires organisational and administrative skills that only firms with specific infrastructure and minimum

size can attain. Such firms, although limited in number play a crucial role in the generation of innovations.

5.9 Innovation in Small and Medium sized Enterprises:

Graham and Christopher (2002) state that small and medium sized organisations engaged in innovation process have different and special financial requirements. The process of research and development can take some time before the firm has a commercially viable product with, which to go to the market. Access to finance, resources and the presence of equity gaps are cited as some of the major barriers to innovation in small business enterprises. Innovation requires a diverse base of managerial ability and capacity that all too often is absent in smaller firms. *Moore (1995)* highlights the presence of poor management and marketing skills in the small and medium sized organisations. Studies by *Grieve-Smith & Fleck (1987)* also reflect on the difficulties experienced by small firms in developing or obtaining the appropriate management talent, since they cannot provide the salaries and accompanying benefits that managers expect.

5.10 New developments in Business Innovation:

Poolton & Ismail (2000) express that search for new methods and techniques to improve business processes has grown tremendously both internally and externally through introduction of new products, development processes and procedures and also through increased interaction between firms and their consumers. Increasingly, customers are coming to expect new products to be tailored to their unique needs resulting in organisations to shift towards more qualitative based methods as a means of fully understanding consumption experiences.

There exist numerous issues while managing the processes involved in innovation, for example, the issue of new products processes in product related innovation or providing the right environment for innovation. The innovation processes also requires continuous monitoring, effective communication with employees across the organisation and their interaction with the top management giving them the necessary required training (giving incentives to employees, carrying out employee satisfaction surveys and creating an environment that is not only conducive but also extremely comfortable) and also simultaneously ensuring that procedures are in place to

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encourage innovation. According to *Poolton and Ismail (2000)* one of the most important issues is making sure that the needs of the customers act as the prime driver for innovation activities. Information gathered through customer interactions can then be put back into the organisation by the managers and be used to compare developments in products, processes and changes in customer lifestyles and demands across generations and use the gathered information to be able to predict trends for the future. Thus, it can be said that the process of information and the development and commercialisation of successful innovation (products, processes, organisational etc) is not only one of the most important tasks but also a risky task facing the business enterprises today.

"Human beings have a "natural" tendency towards creativity as a means of developing and bolstering their self-esteem. Providing an environment technology whereby innovation becomes an emergent property of the organisation will become increasingly important as business pressures continue to intensify in the years ahead"

(Poolton & Ismail, 2000)

The central role of innovation both at macroeconomic and microeconomic level is now well established. Developing a steady stream of successful new products is probably the single most important issue facing managers today. Time compression and the intensification of global competition are now 'facts' of business life. The search for new methods and techniques improve business processes has subsequently grown by the introduction of new product development processes and procedures and via the interface between firms and their consumers. The three main issues that are now having a drastic impact on organisations are *(Poolton and Ismail, 2000)*:

1. Conventional planning models and their inadequacy in dealing with high levels of fast changes in business environment, which ultimately leads to the need of high levels of trust, teamwork and integration between business functions.
2. Insufficient attention is paid to those aspects of human behaviour that could increase the creative potential of organisations.

3. There is a growing inability of traditional marketing methods to deal with the shifts in emphasis from mass marketing to mass customisation.

New products developed by traditional methods run far too much risk of missing their margin targets. As a response to this challenge, many firms have turned to the new method known as concurrent engineering (CE), which can be described as a process that reduces the time between the recognition and the need.

5.10.1 Several ways of improving Business Performance:

Hammer and Champy (2001) state some common recurring themes that are commonly found in organisations going through a business re-engineering process. Reengineering as defined by *Hammer and Champy (2001)* means the capability to meet the contemporary demands of low cost, quality, flexibility through easy and simple processes that can have an enormous consequence on how the processes are designed and organisations shaped. The most common themes as illustrated by *Hammer and Champy (2001* are:

1. *Several jobs are combined into one* - This describes the absence of an assembly line in, which many formally distinct jobs or tasks are integrated and compressed into one. This provides with improved performance as there are fewer people to monitor and saves time effort and resources that go in monitoring performance as less supervision required hence, customer demands are met with less defects on time. The case team or the case manager finds innovative and creative ways to reduce time cycle and cost and clear demarcation of roles and responsibilities avoids confusion and overlapping, thereby reducing risk through people/employees
2. *Workers make decisions* - This describes decision-making of employees who are allowed to take their own decisions, and decision-making become part of the work.

- This gives benefits of fewer delays and low overhead costs;
- Better customer response;
- Greater empowerment of workers; and

- Giving them the flexibility to be more innovative and open in working, comfortable working environment.

3. *The steps in the process are performed in a natural order* - Processes are not tied up from the dictatorship and domination of a straight-line sequence; natural precedence in the work, rather than the artificial precedence introduced by the linearity emerge. Linear sequencing slows down the speed in, which work is performed. However, in this way jobs get done simultaneously and reduce the time that elapses between steps hence, reducing the chances of changes that might make the job obsolete.
4. *Processes have multiple versions* - This describes the end of standardisation and deals with meeting the demands of today's dynamic business environment and covers the necessity of multiple versions of the same process. Each one is tuned to the requirements of different markets, situations, or inputs. A single process might become complicated as it would have to handle a wide range of situations but a multi version process system is simple and easy to handle as it covers the situations for which it is appropriate. This requires moving away from the strict traditional business process system to accommodate the increasing customer/supplier demands in the fast changing business environment.
5. *Work is performed where it makes the most sense* - This describes shifting of work across organisational boundaries to improve overall performance by integrating related pieces performed by separate departments/units.
6. *Checks and controls are reduced* - This describes use of controls only to the extent that they make economic sense. Traditionally checks were made to ensure that people are not abusing the process but in certain situations the cost of checking may exceed cost of goods being purchased.
7. *Reconciliation is minimised* - This describes the minimisation of reconciliation by cutting back the number of external contact points that a process has, thereby reducing the chances that inconsistent data requiring reconciliation will be received.

8. *A case manager provides a single point of contact* - This describes the use of a "case manager", the mechanism which proves useful when the steps of a process either are so complex or are dispersed in such a way that integrating them for a single person or even a small team is impossible. The case manager acts as a 'buffer' between customers and processes and has access to all information customers might need. Important is to understand that the case managers need the help of customer services representatives to solve customer problems but are more empowered than them as they have access to all the information.
9. *Hybrid centralised/decentralised operations are prevalent* - This describes the ability of the process to combine the advantages of centralisation and decentralisation in the same process.

5.11 Summary:

Bond (1999) accentuates that survival in the longer term will depend mostly on customer service, which will be measured by factors such as quality, time cycle, employee skills and productivity. The strong competitive market pressure created due to globalisation, opening of new markets and easier world wide operations has provided grounds and motivation for innovation. Reduction in cost can be directly linked to elimination of waste, with process time and cost of waste being classified as determinants of productivity. Continuous improvement in enterprises is divided into two major groups by *Bond (1999)*, these are:

- Small incremental changes; and
- Innovative step change (business process re-engineering): Usually related to breakthroughs that are an outcome of wide ranging and radical changes of the whole, requiring large capital investment, sincere planning and sanctioning through rigorous budgetary process controlled by senior management. This is in contrast to process improvement, which is directed at improved services for customers by reducing the cost and time cycle and improving the quality.

These concepts also form the basis of *Deming's (1982)* PDCA virtuous cycle of improvement, which stresses on a close relationship between the

company's overall business goals and its innovation strategy, such that it can be converted into a tactical and operational level by the people working with new products *(refer figure 5.6)*.

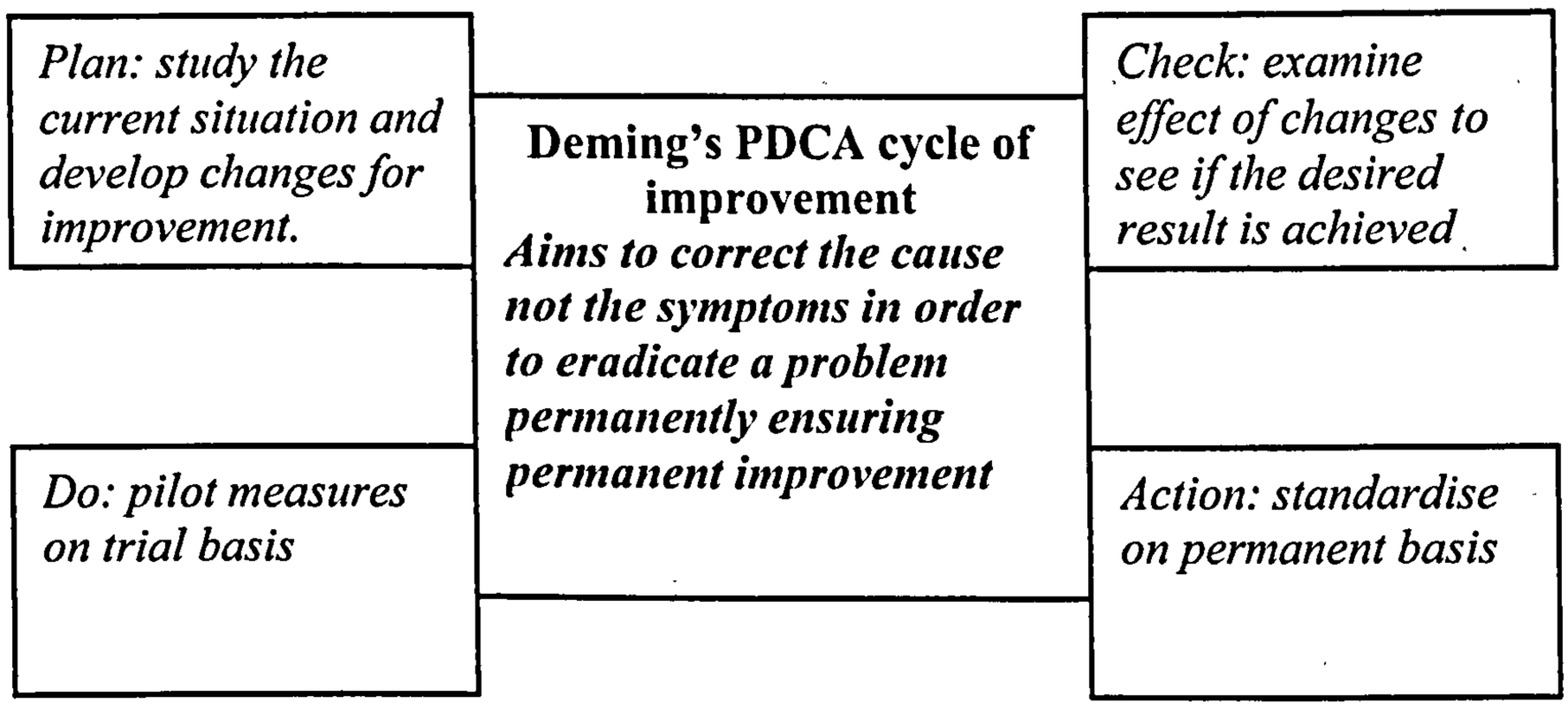

Figure 5.6: Deming's PDCA Cycle of Improvement
Source: Deming (1982)

5.11.1 Do: Communication and policy development:

Communication and clear planning for policy development is extremely important and inevitable for any organisation that wants to have *(Marstensen & Dahlgaard, 1999)*:

- Clear directions for their innovative activities;
- Employees who are committed to goals and strategies for innovation activities and participate actively in the planning, development and deployment of the innovation objectives
- Increased interdepartmental co-operation ;
- Plans, which are based upon facts and continuously improved throughout the implementation process – and hereby flexible in a disciplined way; and
- Enhanced capability to achieve and sustain breakthroughs.

5.11.2 Communication from top management:

Marstensen & Dahlgaard (1999) emphasise that effective communication is a must at all levels within an organisation, among different functional areas and at different stages in the innovation process. Successful innovation demands effective communication between people and functional departments and

failure in communication, particularly between different levels, different functional departments at different stages in the innovation process may lead to numerous problems and failures. There should be clear communication from top management to all employees involved in new product activities and related innovation activities, so a common understanding is ensured about *(Marstensen &Dahlgaard, 1999)*:

1. The company visions and missions: annual objectives that include a small number of focus points developed in harmony with long term planning;
2. The role of new products relative to the company's growth objective;
3. Deployment of goals for new products;
4. The strategic planning process for new products: clear disciplined and a robust action plans with directions of what is to be done, how it is to be analysed and measured, how the Plan, Do, Study, Action (PDSA) cycle is set up. Clear communication about each team member's role and responsibility in these plans - both at an individual level and within a team work environment;
5. Relevant screening criteria and established priorities: encourage team members to see failures and drawbacks as opportunities for improvements;
6. A relevant focus on the innovation process;
7. Top management's expectations for new products (three-five year objectives);
8. Top managers' intended level of support (resources, removal of barriers, encouragement of champions and of cross-functional teams, recognising employee's efforts, etc) and
9. The importance of having all employees, involved with new products, to participate fully in innovation improvement initiatives: co-ordinating activities between teams and departments.

5.11.3 Study: Analysis and Self-assessment:

Marstensen and Dahlgaard (1999) stress that it is indispensable for any organisation, which wants to improve its capacity and ability to deal with the future and also improve its performance in its field to attain competitive advantage over others in the market to have a firm understanding of its

internal strengths and weaknesses, external customer needs, external competitive situation, market potential and potential to explore new markets. This knowledge as per *Marstensen and Dahlgaard, (1999)* can be achieved by doing a self-assessment through a new product diagnostic audit, which should create the following outputs:

1. Screening criteria in order set priorities on market categories and product concepts; and
2. Assessing innovation:
    - Strength and weaknesses assessment
    - Historical new product performance
    - Bets-practice

5.11.4 Act - Implementation of Innovative activities:

According to the study done by *Marstensen and Dahlgaard (1999),* most organisations are resistant to changes as they often do not understand the purpose and consequences of these changes. Effective communication across the organisational hierarchy then becomes one of the most important means to achieve agreement and consensus from all stakeholders. After a self assessment has been conducted, the organisation must decide what activities should be set up and implemented in order to fulfil the identified gaps and drawbacks, this phase requires all involved employees to be committed to the results from self-assessment and also give their consensus on the activities to be carried out for closing the gaps. Continuous improvements (small incremental changes in an organisation normally deployed by employees themselves) and everyone's participation also help organisations to accept changes.

5.12 Chapter Highlights:

- *Tidd et al (1997)* assert that creative skills and the ability to solve problems are possessed by everyone and if the company understands how to release these skills among each employee, the resulting innovative potential will be momentous, the sum of each individual effort can have enormous impact.
- *Marstensen & Dahlgaard (1999)* emphasise on three key areas to form the focus of innovation assessment, these are:

1. Internal and external (competitor's) strengths and weaknesses;
2. Past new product performance; and
3. Best practices.

- *Dahlgaard et al (1995)* stress that an innovation strategy should be closely linked to the company's vision and overall business strategy and be based on comprehensive and relevant information – both from the inside of the company and from the market and external environment.
- Communication and planning form the 'backbone' of the strategy and planning process for innovation management. Only companies that react strategically to new market conditions and rising customer demands can achieve organisational success and excellence, which is why companies should also constantly search for creative and innovative solutions and continuous improvements of products and processes.

CHAPTER 6

INNOVATION IN MULTIPLE CONTRACT MANAGEMENT

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Chapter 6

INNOVATION IN MULTIPLE CONTRACTS MANAGEMENT

6.0 Introduction:

The supply chain management practices involve supplier development activities with an objective to better align operating practices between buyer and seller *(Emiliani, 2000)*. The execution of these practices allow both the buyer and the seller to share immense savings and enjoy improved quality and delivery performance as well as opportunities to expand the relationship into other products and value added services. However, *Laming (1996)* also explains that it takes time to re-orient business from traditional purchasing practices to an effective supply chain management. Such conditions favour the eventual failure of supply chain management initiatives and regression to traditional purchasing practices *(Handfield et al, 2000)*. According to *Emiliani (2000)*, the traditional purchasing process leaves much to be desired and that the process is neither efficient nor effective in many ways. This has led to many companies adopting the strategic supply chain management practices. The *Constructing Excellence (2004)* highlights that working in a positive and collaborative way with companies to, which an organisation 'supplies to' and 'buys from' is a good practice for success and long-term development. An effective supply chain management is a formalised process that gives structure to these arrangements, benefiting the companies and their clients.

6.1 Service innovation:

With the changing business environment and customer needs, services too are becoming more important within the innovation planning process. Services still suffer from and are bound by many historical and institutional legacies, which still shape and more particularly, constraint their development. Academics, industrialists and policymakers have been slow to realise and accept the way services have changed over the last few decades. Perceptions have been bound by old ways of thinking and even those academicians and policymakers who have realised that services do have a larger part to play in the economy still tend to view them as providing a supporting, infrastructural role, 'serving' rest of the economy as facilitators, mediators and repositories in the knowledge based economy. A number of key services, notably Knowledge

Intensive Business Services (KIBS) hold an increasingly dynamic and pivotal role in the new 'knowledge based economies' *(Howells, 2000).*

However, the role of Internet and web based services and the growth in high technology environmental services indicate that certain types of KIBS industries are taking more proactive, lead role in the economy. Those business service firms that have received the highest profile have been associated more strongly with information and communication technologies (ICTs) and being bound by new forms of transaction based on e-commerce and the Internet.

"Innovation in services is ... best seen as a form of collective or collaborative problem solving, in which networks of companies work together to meet a market need or opportunity".

(Tether, 2004)

Tether (2004) explains that though advanced economies are now dominated more by services and in terms of value added and employment, service activities, still very little is known about whether and how services innovate as the concentration is more on innovation in manufacturing or the production of technologically advanced products. According to *Tether (2004)*, services are not usually technologically advanced, which is why they are often considered to be non-innovative. However, on the contrary innovation in services brings out skill-based innovation and inter-organisational co-operation practices *(refer partnering and outsourcing – chapter 3).*

Tether (2004) emphasises on two perceptions of innovation in services. These are:

- Firstly, services are at best, less innovative than manufacturers, if not largely passive adopters of technology. As economies shift away from manufacturing to services, their capacities to 'truly innovate' (in contrast to their capacities to absorb technologies) would appear to be diminishing.
- Alternatively, there is a perception that services tend to innovate differently, stressing more on continuous changes that are based on skills of the available workforce and relationship with suppliers and customers *(soft innovation)* rather than taking the traditional approach of innovation based around products and processes *(hard innovation).*

This as explained by *Tether (2004),* also answers that services do have an orientation to innovation completely different from that of manufacturing. In particular, many service firms have an organisational change orientation to their innovation activities, which appears to be relatively uncommon amongst the manufacturing industry and there exist differences between manufacturing and service firms in terms of their sources of advanced technologies and their perceived strengths at innovation *(Tether, 2004), (refer figure 6.1).*

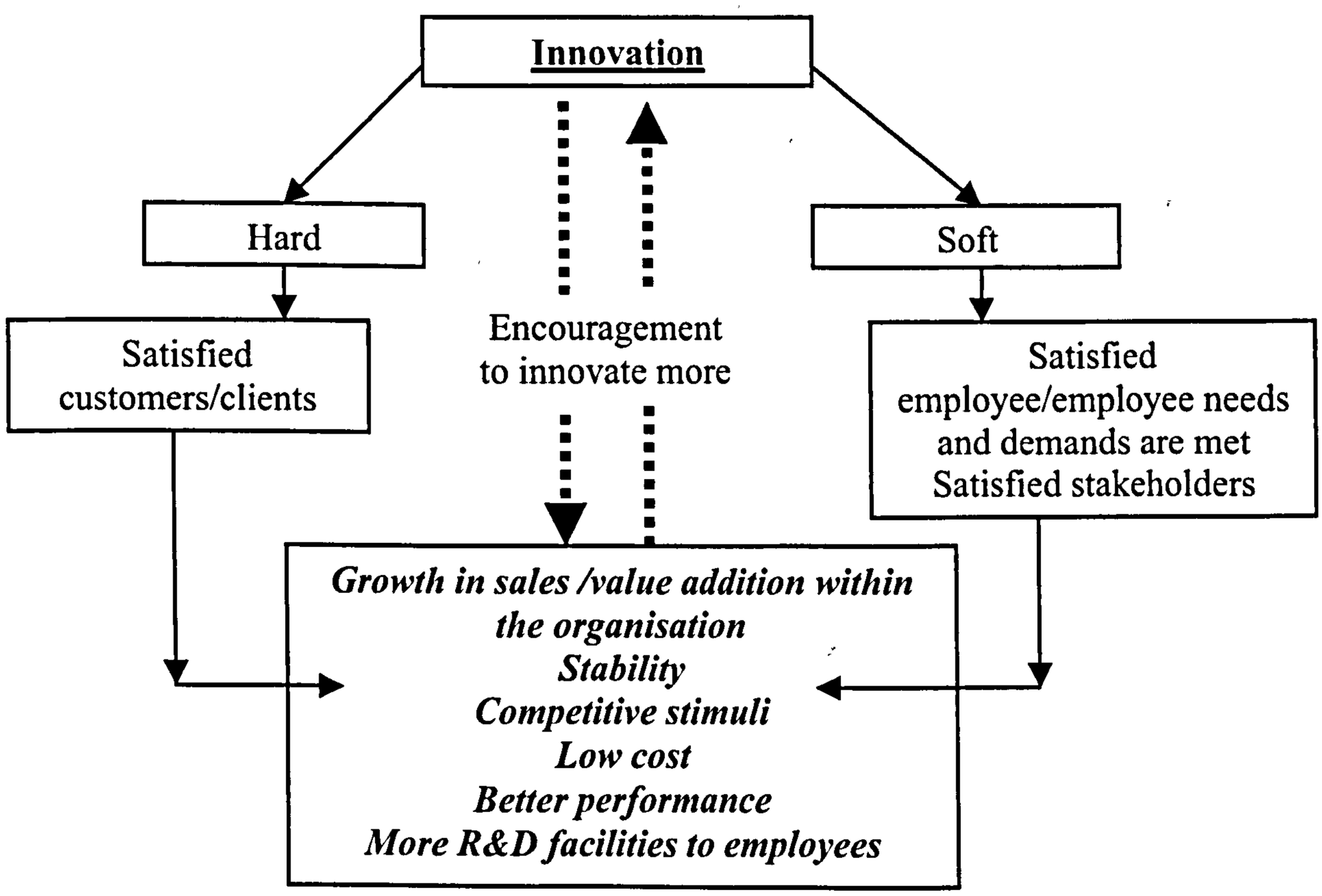


Figure 6.1: Hard and Soft Innovation
Source: Adapted from Tether (2004)

6.2 Innovation in supply chain:

Goyal (2006) explains that supply chain can be defined as the sequence of processes and activities that are involved or performed in an entire manufacturing cycle or in a complete distribution cycle, this was also earlier more commonly known as operations management and most of the components that form a supply chain were a part of operations management. The *Constructing Excellence (2004),* describes 'Supply chain' as a term used to describe the linkage of companies that turns a series of basic materials, products or services into a finished product for the client. All construction companies (including client, main contractor, designer, surveyor, sub-

contractor or supplier) are an integral part of the supply chain. Each company in the supply chain has a client (the organisation to, which the services are provided), but an integrated supply chain will have the objective of understanding and working wholly on the interests of the 'project client' *(Constructing Excellence, 2004)*. However, with the changes in the business environment along with variations in the entire manufacturing and distribution cycle operations management (now better known as supply chain management), *Frank (2000)* defines supply chain management as more of a new management definition that reflects the significant changes that have taken place due to changes in the business environment. Various other factors that have an affect on the changing business environment as per the findings of *Frank (2000)* are as follows:

1 Increase in globalisation, which has led to:

   Increase in dependency

   Money transfer

   Knowledge transfer

1 Savage price competition;

2 Increased customer demand of higher and better quality of final good and services;

3 Changes in technology – leading to:

   New forms of working and trading

   E-commerce

   Increased outsourcing

The *Constructing Excellence (2004)* enlists the various benefits for the individual companies in the supply chain. These are:

- Reduced real costs with margin maintenance
- Incentive to remove waste from the process;
- Greater certainty of out-turn costs;
- Delivery of better underlying value to the client;
- More repeat business with key clients;
- Greater confidence in long-term planning; and
- Other benefits of partnering.

All the parties involved in the supply chain work with a long-term aim to add value, not only to their own respective business but also deliver added value to the client and offer them 'Value for their money'. As per the findings of *Constructing Excellence (2004),* these long term relationships enable the power of supply chain management to be realised completely, also offering advantages for end-users and project clients (these benefits include a more responsive industry delivering facilities that meet the increasing needs of the users, delivered to time and cost with minimum defects).

6.2.1 Assessment of Potential Value Destroyers:

Increased outsourcing, sometimes also introduces risks, which if not quantified can be disadvantageous for the organisation. These related risks can be long term, non- cash, unrelated to the core business and related to daily operational challenges, making them difficult to calibrate and assess. According to *Frank (2000)* it becomes most important to quantify risks so as to:

1. Fully understand the economic value of a proposed outsourcing partnership;
2. Consider the various economic value drivers that are essential for outsourcing benefit analysis;
3. Quantify service provider performance through well documented baselines;
4. Identify additional opportunities for productivity enrichment after outsourcing decisions have been made;
5. Acquiring knowledge of operating strategies – essential to understand how sustainable cost savings will be achieved; and
6. Requires involvement of all individuals responsible for delivering innovation on day-to-day basis.

Supply chain management though mostly used in manufacturing and retail sector has now started gaining its due importance in the field of facilities management. Adopting a knowledge management view to the above, *Barret & Sexton (1998),* define supply chain management as *'the explicit creation and systematic management of vital knowledge into supply chain knowledge that can be shared with key members of the network and appropriately applied to add value.'* Competition here then becomes the main goal since such changes

according to *Frank (2000)* mean the manufacturing companies re-appraise each and every activity to remain in the increasing competitive environment and at the same time manage all aspects of supply chain.

Frank (2000) explains that supply chain includes everything from product design through to materials and component ordering, manufacturing and assembly, warehousing and distribution until the finished product is in the possession of the final owner or the end user. *Alexander et al (2004)* highlight that the mapping of supply chain includes not only the manufacturer but also goes back till the constituent materials and in terms of facilities management this would imply the integration of the FM supply chain with the construction supply chain to provide an integrated supply chain. *Frank (2000)* states that few examples of innovative approaches to parts of the supply chain include:

Online bidding: *Frank (2000) and Emiliani (2000),* define online bidding as to be a new model of procurement in, which the manufacturer sends a specification and drawing to a number of potential suppliers and then holds multiple bidding rounds until a mutually agreed price is reached within the parameters of bidding process *(refer figure 6.2).*

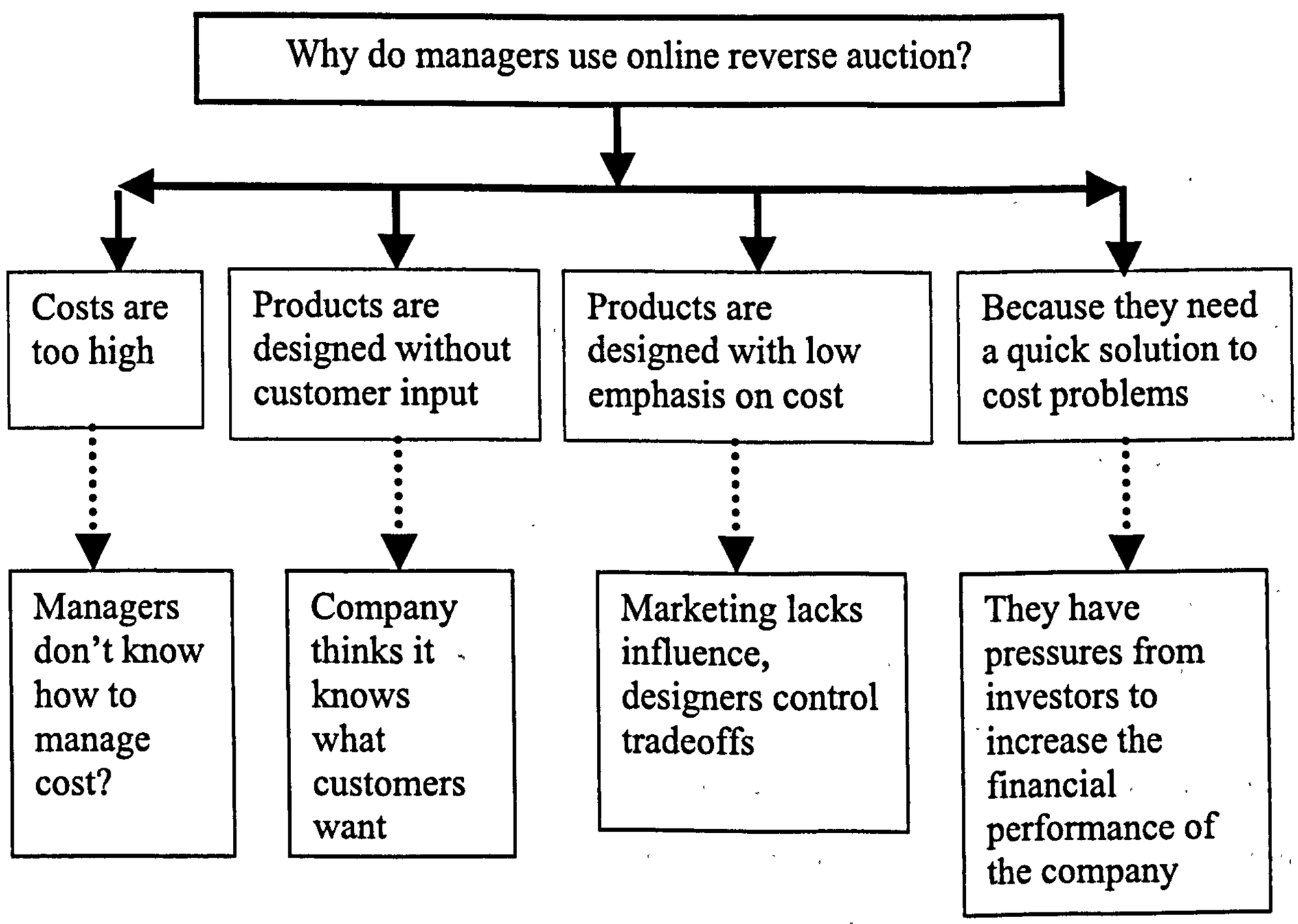


Figure 6.2: Why do managers use online auction?
Source: Adapted from Emiliani (2000)

Mass customisation: Where the buyer chooses his/her individual form of product like in the case of Dell Computers, where an individual places an order for a specific configuration of computer that is assembled in accordance with the specific order and shipped directly to the customer.

Shared distribution linked back to production: The use of a shared warehouse to supply a number of retailers is common but changes in technology now allow the data acquired at the warehouse (as shipments are made to retailers) to be quantified and used to generate automatic replenishment orders to the manufacturers. According to *Frank (2000)*, an efficient supply chain network provides:

1. An ability to source globally: access to more resources, knowledge, and innovative capabilities;
2. Online, real time information networked around the organisation giving full supply chain visibility: e-auctioning;
3. Information management across, rather than just within the organisational boundaries: knowledge sharing across the organisational boundaries;
4. An ability to offer 'local' products globally: increasing market share and awareness;
5. Improved customer response times;
6. Lower inventories; and
7. New products reach market in less time as compared to before.

According to *Desbarats (1999)*, by examining attitudes along the innovation supply chain, the required changes can be clearly figured. Also, it is easier to judge how each discipline helps collectively to deliver better consumer experiences, requiring deeper understanding of current attitudes. *Desbarats (1999)* summarises the changes in following attitudes:

Marketing: Having a core strategic responsibility towards customer supplier relationship, marketing personnel need to set clear goals for others to understand and follow willingly in order to achieve well-managed consumer experiences. This includes building direct knowledge of consumers and their immediate distributors. Service targets need to be understood and communicated through the innovation supply chain.

Industrial design: This includes specifications created by modern designer. *Frank (2000)* further suggests that innovation can take place at both design level or at the process level. Technology may offer opportunities for either or both to be addressed. Supply chains are changing as a result of new fast changing technology adoption and designers need to be proactive in understanding the potential barriers to implementation.

Engineering development: Engineers need to add more value and develop professional instincts in order to escape from becoming low value commodity professionals; this would also require closer collaboration with the designers.

Manufacturing: Manufacturing has become the easiest function to displace and outsource. Unless consumers see it as value adding commodity, it can easily be reduced to low commodity margins. To remain integrated with marketing, manufacturing needs to deliver strategic advantage that can be easily perceived by the consumers. High flexibility sometimes works better than high productivity.

Distribution channels: Retailers and distributors always have vast knowledge of what sells, as they are closest to the consumer. It becomes always difficult to create a balance between the retailers and the manufacturers.

Investors: Promotion of better strategic marketing is essential to manage risks. Business planning in new markets should focus on understanding where the consumer value will be. Investors need to recognise the value-adding potential of customer knowledge and perceived reputations or brands and need to invest in building knowledge equity in these areas.

To survive and achieve high margins, manufacturers need more than mere innovation, they need good innovation with a very high level of knowledge transfer. Like service industries they need to raise their game to focus on managing customer experiences. To achieve this, they need to involve every link in their innovation supply chain and encourage them to become active participants in the process. Everyone involved in the process needs to look beyond personal immediate short-term gains towards clear customer service goals and mutual benefits *(also refer partnering, chapter 3), (Desbarats, 1999).*

The *Constructing Excellence (2004)* summary on supply chain puts forward few important areas to be taken care of by all companies that want to succeed

through an effective and efficient supply chain management system. These are:

- To take time and care while establishing long-term relationships with suppliers and choose only those suppliers, which fulfil the preset organisational criteria and have similar interests in developing long-term relations to achieve mutual benefits. Organisations should start by establishing relationships with those suppliers and sub-contractors who are critical to market delivery and provide better services/products that are high in quality but low in cost.
- To plan an effective cost management approach for successful collaborative relationships. This will also allow the supply chain to focus on delivering value to the client rather than using its effort to protect margins. The cost management plan should include incentive schemes of sharing risks and rewards, which often ensure the continuous delivery of optimum value to the client.
- To involve the designer in the supply chain, which is extremely important to gain long-term success as the designer's role is central to delivering:
    1. Optional functionality
    2. Lowest cost of ownership through a value for money focus on lowest through-life cost
    3. Safe construction using least amount labour and minimum waste
- To ensure that all parties involved in the supply chain must be committed to working for the long-term on the basis of *continuous improvement* and *innovation.* The strengths and capabilities of potential strategic supply chain partners should be evaluated and compared in the following areas:
    1. The strength of the existing relationship;
    2. Technical capability and reputation;
    3. Design capability and innovation record;
    4. Size and market position; and
    5. Management style.
- To ensure that the relationship between strategic supply chain partners

is fair, firm and based on team approach, which involves regular contact, open book working system, mutual respect and commitment towards mutual gains and profits.

Stroeken (2001) insists that in today's fast changing business environment it is extremely essential for all organisations to understand the link between IT, innovation and supply chain structure. It is also important to analyse the role of IT in innovation processes, involving the total innovation of the supply chain, not merely logistic innovation. This also includes introduction of IT to process innovation (internal and external), followed by product innovation leading to products that are more cheap, diverse and fulfil the specific needs and requirements of customers. *Stroeken (2001)* concludes that the conditions for success in IT, innovation and supply chain structure concern the extent of vertical and horizontal integration, the comparative importance of information, the extent of (international) pressure and innovative regulations.

6.2.2 Use of Service Level Agreements:

Andresen (2006) states that the introduction of Service Level Agreements (SLAs), done during the boom of nineties made it easier to accurately describe contract elements, avoid disputes, enhance the quality of work during the contractual period, thereby improving the partnering relationships and attitude between the contract parties. The four main uses of SLAs as identified by *Andresen (2006)* are:

- SLA is a document stating legal agreement properties;
- SLA acts as a communication tool for benchmarking between different service providers (both internal and external);
- SLA acts as a communication tool for quality assurance, to ensure that buyer receives the right service level from the supplier;
- SLA helps an organisation in internal restructuring – clarifying internal roles responsibilities and aims.

With increasing need for facilities management to become more professional, strategic and commercially oriented and with the advent of outsourcing in recent years, the issue of service level agreements has been a major consideration in the facilities circle. Service level agreements are seen to be essential in governing customer/ supplier interfaces and are concerned with

respect to client/ contractor interfaces in the contracting out of services *(Tranfield et al, 1995)*. SLAs can be defined as a description of all the services, which the buyer is purchasing from the supplier and hence, it forms the most important and sensitive part of any outsourcing deal or in situations of multiple contracts. It also contains within it, a description of the penalty and bonus schemes to be used when there is deviation from the performance targets.

At the end of a contract the SLA should be therefore, used as a reference for understanding what the supplier is likely to return to the buyer- should the buyer choose not to renew the contract *(Law, 1999)*. Such clear description of roles and responsibilities and guiding principles are essential for all organisations using multiple contract agreements, as it allows smooth running of projects, avoids disputes between supplier and client and results in a healthy relationship that adds value to the business. Formation and application of organisation and/or project specific service level agreements is a change management task that requires top management focus, which according to *Andresen (2006)* acts as an important driver in the process adding important strategic issues. SLAs can act as valuable and efficient business tools, when applied in combination with strong management commitment, clear definition of core business and its strategies, adequate and appropriate metrics to measure targets and sufficient demand side competence *(Andresen, 2006)*.

6.3 The Business Aspect in Supply Chain Innovation:

Alexander et al (2004) accentuate that supply chain management involves long term strategic planning and is a method of managing the delivery of services effectively and efficiently. *Alexander et al (2004)* encapsulate the benefits of implementing supply chain management as following:

1) Better knowledge and understanding of market trends and key customers needs;
2) Better understanding of supplier capabilities;
3) Enhanced problem solving;
4) Faster response times;
5) Flexibility and a strategic capability to plan and innovate;
6) Improvement in forecast accuracy;

7) Improvement in inventory reduction;
8) Lower operating costs and reduction in real costs;
9) More efficient and effective use of technology;
10) Shared risk;
11) The development of environmentally sound service;
12) Waste reduction and more effective use of resources and skills;
13) Free up of working capital realised through supply chain management efficiencies;
14) Maximisation of asset return;
15) Increased capacity to innovate within the supply chain as knowledge is shared along the supply chain; and
16) Opportunity to refocus on the interface with users.

The above is explained more clearly by *Alexander et al (2004)* using the example of AMEC Facilities, who found real benefits in undertaking supply chain management, including the following *(O'Halloran, 2001 as cited in Alexander et al, 2004), (also refer figure 6.3):*

1) <u>15-20% cost reduction;</u>
2) <u>96% customer satisfaction;</u>
3) Reductions in lead times and fault levels;
4) Improved service at reduced costs;
5) Financial control;
6) Services linked to business drivers;
7) Payment linked to performance;
8) Full commitment to a service culture;
9) A forum for intellectual exchange;
10) <u>A common vision and goal (supporting the concept of partnering)</u>;
11) A virtual company concept;
12) Mentoring at company and individual level;
13) Rewarding success; and
14) Embracing change as a way of life

The above example was given by *Alexander et al (2004)* to firmly suggest that not only supply chain management is highly relevant to facilities management supply chains but it also adds value to client organisation and service provider. It does this by reducing costs whilst improving quality. At the same

time risks get shared and managed throughout the supply chain. *Goyal et al (2005)* support the above mentioned findings of *Alexander et al (2004)* by stating that in this era of new opportunities and regeneration, suppliers should be well prepared to face the market and client/customer pressures by combining speed, flexibility and innovation (forward focussed thinking) in their strategy.

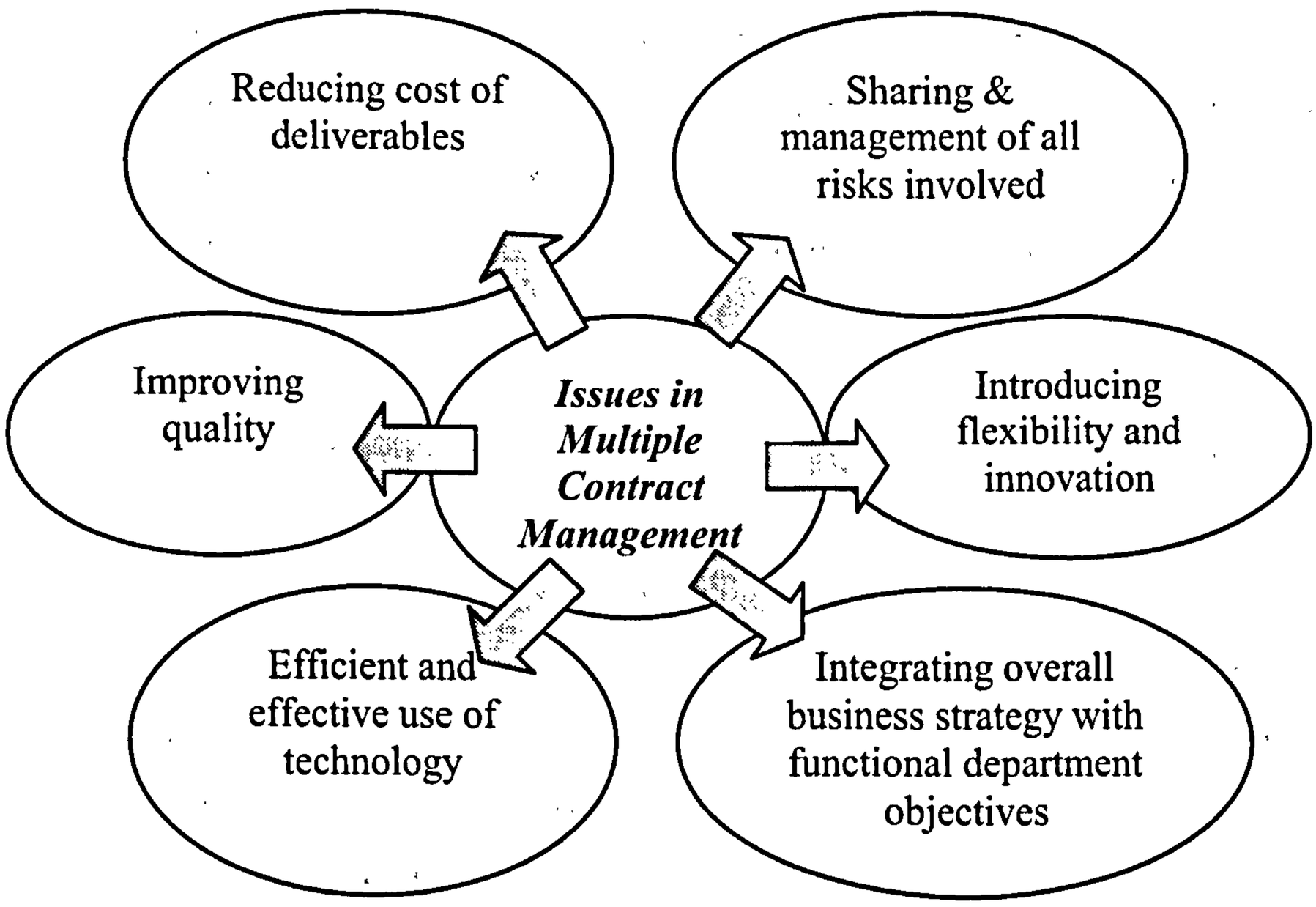


Figure 6.3: Issues in Multiple Contract Management
Source: Findings from *Alexander et al (2004) &O'Halloran (2001)*

6.4 Use of Innovation metrics:

Muller et al (2005) state that the rate at, which the business environment is changing, it is inescapable for all organisations to fully utilise their innovative capabilities in developing new businesses and exploring new market opportunities. This is even more essential if they want to successfully confront the damaging and unproductive effects of:

1 Emerging technologies;
2 Empowered customers;
3 New market entrants;
4 Shorter product lifecycles;
5 Geopolitical instability; and

6 Market globalisation

6.4.1 Measurement of Success:

(Burgelman, 1996) stresses that the determinants of success can be found both in the technology and the business context and enlists various factors that should be taken into account while assessing innovation success. These are:

1) This would include the success factors depending on the quality and significance of the innovative concept itself. Such an innovative concept alone does not assure the efficiency or capacity to succeed, but there must be an embodiment for the new device, product or system.
2) Consideration must be given to the operational consequences of the new technology or system on the manufacturing marketing or distribution.
3) The extremity of market dynamics is given high importance, which according to Burgelman (1996) are often highly complex in nature and extremely important too. Criteria with relation to market dynamics is based upon three questions which are;
   - Does the product incorporating new technology provide enhanced effectiveness in the market place serving the final user?
   - Does the operation reduce the cost of delivering the product or service?
   - Does latent demand expansion or price elasticity expansion determine the characteristics of new market?

6.5 DTI on Innovation:

The 2005 survey on innovation was the largest survey conducted so far. Organised by the Department of Trade and Industry (DTI), it complemented other indicators of innovation by providing a periodic snapshot of the spectrum of innovation inputs, outputs and the constraints faced by UK businesses in their innovation efforts. The survey also provided an additional benefit of providing the basis for some comparisons with other European countries. The survey was sent to 28000 UK enterprises with 10 or more employees, and

achieved a response rate of 58%, initial analysis of the survey resulted in the following conclusions *(Robson and Ortman, 2006)*:

1. In the three-year period 2002-04, 25% of enterprises with 10 or more employees were product (goods and services) innovators. 16% were process innovators, while 57% were active in developing or implementing innovations. Again it is clear from this result that none of the organisations actually mentioned holistic innovation, they either talk about product or process based innovation but do not regard it as an organisational learning process.
2. The most frequently reported impact of businesses' innovation activities was on the quality of goods and services produced or supplied.
3. Information to enable innovation came most often from sources within the business and from market partners. Technical and other formal standards were also important sources.
4. Compared with the 2001 UK innovation survey, the proportion of firms engaged in innovation activity increased by some 14% points.

Robson and Ortman (2006) insist that business innovation is a vital ingredient in raising growth potential and quality of life. Innovation takes place through a wide variety of business practices and a range of indicators can be used to measure its level within the enterprise or in the economy as a whole. These include the levels of effort employed (measure through resources allocated to innovation) and of achievement (the introduction of new or improved products and processes). Findings by *Robson and Ortman (2006)* describe innovation activity where enterprises are engaged in any of the following:

- Introduction of new or significantly improved products (goods or services) or processes.
- Engagement in innovation projects not yet complete or abandoned.
- Expenditure in internal R&D work, training, acquisition of external knowledge or machinery and equipment linked to innovation activities.

The DTI research as reviewed by *Robson and Ortman (2006)* indicated that large enterprises (more than 250 employees) were more likely to engage in any sort of innovation activity when compared to small enterprises. Also the level of product (goods and services) and process innovation was considerably greater in larger enterprises. *Robson and Ortman (2006)* insist that firms need to recognise the need to allocate resources to innovation with most common items of innovation expenditure being machinery and equipment for innovation and in-house research and development.

"The wealth created by a company is defined as Value Added (VA), which is:
Value added =Sales less costs of bought in goods and services".
For calculating Value Added from the company accounts the following formula is used:
Operating profit+ Employee cost+ Depreciation+ Amortisation

(www.dti.gov.uk, 2006)

6.5.1 The importance of value added:

According to the Department of Trade and Industry *(DTI, 2005)*, the importance of value added as a concept lies in its focus on the wealth created by a company rather than on its sales (which, could also reflect on the resale of expensive items the company has purchased) or on employment (which could be largely low skill, low value added jobs). This focus on the wealth created by the company facilitates questions about how much wealth is created, whether the company is increasing its wealth every year and how efficiently is the wealth created. By using the value added scoreboard, an organisation can compare itself in these respects with the best competitors in its sector. This also enables the investors to use such comparisons to select companies for their portfolios that have a track record of continuing to grow their wealth in an efficient and sustainable way. The value added scoreboard provides the key benchmarking tools for companies of all sizes to compare their wealth creating characteristics against their best competitors.

- In a constantly changing business environment of globally traded goods and services, a focus on wealth and Value Added is extremely essential for all organisations. Research done by the Department of Trade and Industry *(DTI, 2005)* insists that Value Added (VA) is

important for companies in U.K. and most other European companies, as competitors from developing countries have lower labour costs and can thus offer lower prices for standard products and simultaneously make sufficient VA to more than cover their major input costs of labour, material and equipment. Value added provides a different perspective on an organisation's operations to that provided by profit. Profit is a relatively small difference between two large quantities and VA is a much large sum representing the total wealth created. This, as per the investigations done by *DTI (2005)*, can be analysed to see how it has been used by the company to give returns to the providers of capital, to pay corporation tax, reward-operating employees, invest in research and development (R&D), provide goodwill and also retain a balance within the company.

6.5.2 Role of innovation in increasing Value Added:

Research done by *DTI (2005a),* stresses on the role of innovation objectives in the strategy of any company, business processes and investment by stating that integrating the overall business objectives with those of innovation, not only helps increase VA within an organisation but also increases the efficiency with, which VA is created. Most business leaders agree that in an increasingly competitive global economy, companies that fail to innovate will find it extremely hard to survive, but they also recognise that there exist various levels of innovation. Most companies will be making incremental changes to their products, services or processes on a regular basis but moving into new markets, adopting new technologies or changing business models requires significant investment and an understanding of how to mitigate risk. The *DTI (2005a)* brings together certain self-assessment tools, which helps companies to benchmark their innovation performance. These are:

The innovation self assessment:

Measures the company's potential for innovation and is useful as a tool only when people at various levels within the organisation complete the assessment.

The innovation challenge:

Measure the company's attitude to innovation and provides links to resources to help improve the business.

Measuring Leadership Qualities and skills:

Measures the Leadership quality as a personal assessment tool that helps managers achieve high levels of innovation and performance, as strong leaders are necessary for innovative businesses. High performance, innovative organisations require inspirational leaders. However, evidence reveals significant shortages in leadership skills that relate to:

- Creating a sense of vision in a fast changing environment;
- Motivating people and leading them through change; and
- Being innovative in products, services and ways of working.

DTI has a strong interest in skills specifically in the context of maximising potential in the workplace, strengthening regional economies, encouraging enterprise, business growth and investment, and knowledge transfer and innovation. It is emphatically stated that the key factor in the success of any business and especially the one that aspires to grow through innovation, is the quality of its management and leadership.

Value added Scoreboard and Calculator:

This measures the value added in an organisation, which is an important measure of the financial health of a company. Measurement and calculation of the value added, also makes it easier for the organisation to compare itself with industry best practices and other companies in the value added scoreboard for a healthy comparison. Increase in globalisation and flow of knowledge has led to intensive market competition, which according to many researchers, academicians and industry experts can be answered only through practice of organisational innovation – the successful exploitation of new ideas. This includes:

- Innovation in the products and/or services offered by the organisation;
- New or improved offerings, together with development of innovative brands and exploiting new markets
- Improvements in internal business processes and Customer – Supplier interactions, such that customers get 'Value for Money';
- New ways of doing business, such as utilising the power of the internet/ Information Technology, to cut the costs of sales, marketing and distribution costs;

- Entering new markets that would offer a higher price, which will also be tried to be emulated by competitors, so the sooner the organisation integrates its innovation objectives with its overall business strategy, the sooner it will outperform them and gain competitive advantage.
- Innovation also requires training employees, who may require new skills to carry out the innovative activities; giving employees, suppliers, customers a platform to put forward ideas, inputs and feedback as to how the organisation can become more productive.
- Organisation may also need to buy or lease new equipment or work with a university to acquire new technologies, develop new R&D techniques
- It is essential to realise that innovation also requires investment of money, time and knowledge to succeed in the markets of the future.

6.5.3 Organisational learning: investment in skills:

DTI is working to ensure that businesses have the skills they need for innovation and success and be ready to respond to the challenges of globalisation and changing customer and business demands. Improving the skills of workforce can improve the business in terms of productivity, competitiveness and profitability. Skills and innovation are mutually supporting because skills underpin the ability to innovate and, in turn, innovation drives the demand for better and higher skills. A well-trained and professional workforce is better equipped to:

- Work effectively with minimal supervision helping to raise productivity;
- Improve customer satisfaction by giving knowledgeable responses to enquiries;
- Be flexible so staff can be employed on related jobs and cope with work level fluctuations and absences;
- Take a creative approach to business problems and develop new products and services; and
- Appreciate the value of developing the personal skills of the workforce and motivating them.

6.5.4 Uses of value added:

There are six different ways listed by *DTI (2005)* in, which Value Added can be used by a company and the proportion of wealth created (VA created) that goes into each use varies between companies, even if they are in the same industry *(refer figure 6.4)*. Value Added is determined by an organisation's sales and the costs associated with bringing them to market and can be increased in various ways. The three most important ways that can help increase Value Addition in any business unit as stated by *DTI (2005)* and *Beacham (2000)* are as follows:

1. Increased sales can be achieved through developing new markets, capturing the competitive stimuli and increased globalisation creating new market opportunities.
2. Innovative products and services. Introducing innovation in services and products, and offering customers' products and services they are ready to pay more for.
3. Cutting the costs of buy in products and services to achieve higher sales.

If the products and services of an organisation are not profitable in the first place, driving up sales will worsen its financial health. Many companies face the dilemma of their products and services being undercut by cheaper offerings from competitors, not only in the UK but, increasingly, from abroad as well *(DTI, 2005)*.

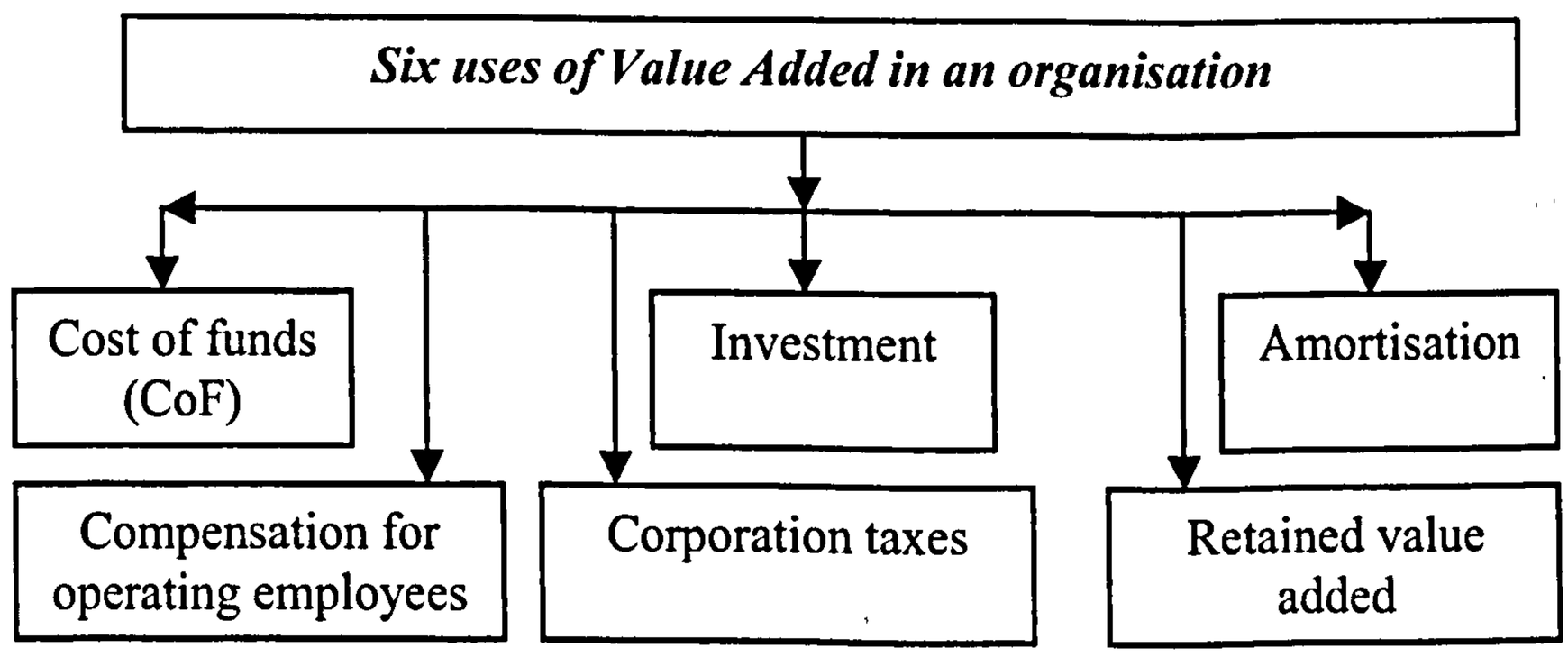


Figure 6.4: The six ways in which a company uses value.
Source: DTI (2005)

6.5.5 Measuring the financial health of business:

Beacham (2000) explains that the financial information and financial control provide the navigation tools for the business. In its simplest form these could be gross profit and cash flow. In addition, a manager might use some simple ratios such as return on equity, gearing, and average annual growth in pre-tax profit. However, some measures and ratios can be deceptive and lead the executive to think that the company is in better health than it is. For example, a business can make profits in the short term by letting its skills and equipment decline; or it might reduce its investment in innovation and marketing, putting at risk current and future success. The measures proposed here are based on value added; that is, sales minus the cost of bought-in goods and services. Using value added as a key component to financial health check is an excellent way to assess done through self - questioning *(DTI, 2005); (refer table 6.1):*

- Is value added increasing more than inflation year after year? This is essential because innovation activities will be rendered useless if they do not benefit the people financing them.
- How much 'value added' is the business is creating relative to its major costs of staff and depreciation, value added divided by costs (VA/C)? Taking the U.K. example, it takes an organisation one pound of these costs to generate 1.52 pounds of value. It usually is shown as a percentage that is 152%
- How much value added is created per employee? (Expressed as VA/E).

Also performance of the business may vary because of its size and sector.

Table 6.1: Indication to the financial health of the business

VA/C %	ROUGH GUIDE TO THE FINANCIAL HEALTH OF THE COMPANY
175+	Very strong performing company. Works for most sectors
150	The business is in a fairly healthy state, as long as it is investing enough to maintain its position and is close to the average for large companies
125	The business has its head above water but there is not much room for strategic investment
100	Company needs to pull its strings as they are not even covering their basic costs

Table 6.1: Indication to the financial health of the business
Source: DTI (2005)

6.5.6 Effects of VA/C on company performance:

Research done by *DTI (2005)* and *Beecham (2000)* reveal that Value Added divided by Costs (VA/C) states two most important things about the business efficiency and effectiveness of an organisation. These are:

1. If the VA/C is low then the company needs to invest more in order to improve. This would mean that over a short period of time the company might decide to cut back on certain expenditures but at the same time need to assess how the costs will impact on present and future value.
2. If VA/C is rising, then that is a good signal for the company. However, a rising VA/C may not give the exact picture as the investment might have been reduced to achieve higher figures. Investing for the future, which leads to an improved performance later can be a cause of reduced VA/C in short term. Therefore, most importantly it is necessary to make a strategic decision on investment and the measurement techniques to measure them.

6.5.7 Innovation statistics:

The DTI has a science and innovation analysis office based in London and formerly known as IESE. Within the new OSI (Office of Science and Innovation) of the DTI, is the analysis committee, which is made of two groups, namely the assessment unit, economists and statisticians. Together they form an interdisciplinary unit of Economists, Statisticians, Scientists and engineers.

Assessment unit: Responsible for ex-post evaluation of Innovation and Technology support programmes and also provides advice on the formulation of new programmes.

Economists and statisticians: provide professional advice on science, technology and innovation (including Office of Science and Innovation, OSI) and provide a professional input to the work of assessment unit.

3. The DTI explains innovation as the key to business processes that allows businesses within the United Kingdom to make a strong standing in an increasingly and rapidly changing global business environment. With globalisation as key driver, the DTI is working to stimulate a significant increase in innovation throughout the economy also looking into the transfer of knowledge between the science and

business communities and support for small businesses as key sources of innovation. The DTI knowledge transfer networks are designed to increase the speed at, which leading –edge science is turned into market ready products, processes and services.

6.6 Sources of information supporting innovation activities:

Robson and Ortman (2006) bring out the importance of knowing how enterprises relate to external sources of technology and other innovation related knowledge and information. This is critical as innovation is a vast subject and increasingly complex, requiring co-ordination of multiple inputs. Firms can gain guidance, advice or even inspiration for their prospective innovation projects from a variety of both public and private sources *(Robson and Ortman, 2006), (refer figure 6.5).*

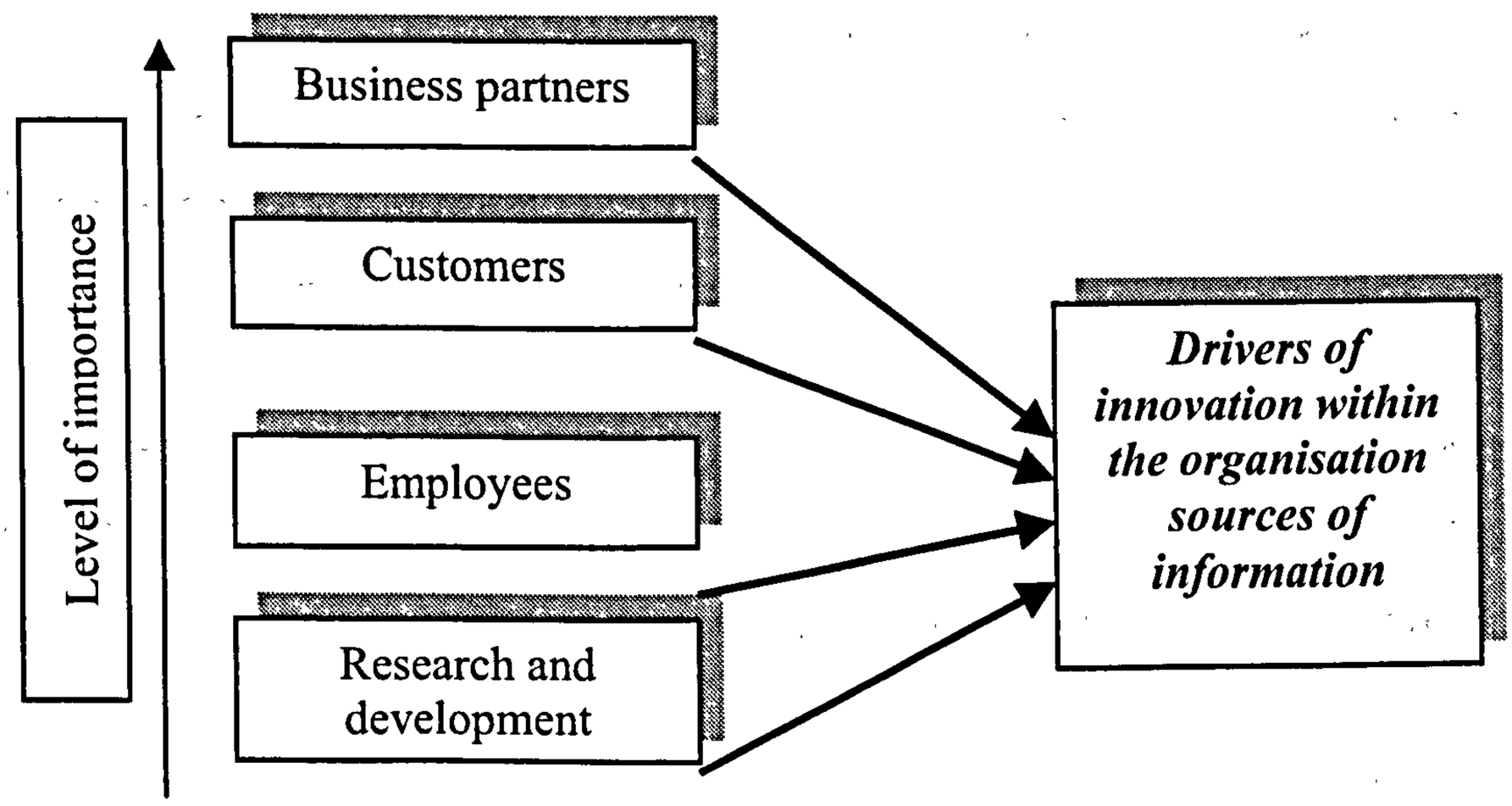


Figure 6.5: Sources of information that drive innovation
Source: Adapted from DTI (2005)

The *DTI (2005)* survey brings out 3 most important sources of information, rated as high importance by the respondents of the survey. These are:

Internal: from within the enterprise itself or other enterprises itself or other enterprises within the enterprise group.

Market: from suppliers, customers, clients, consultants, competitors, commercial laboratories or research and development enterprises

Institutional: from the public sector such as government research organisations and universities or private research institutes.

Other: From conferences, trade fairs and exhibitions; scientific journals, trade/technical publications; professional and industry associations; technical, industry or service standards.

6.7 Protecting the intellectual property - Value of Innovation:

Protection of intellectual property generated as a result of innovation activity is of utmost importance to businesses engaged in innovation. This, according to *Robson and Ortman (2006)*, can be done in numerous ways depending upon the knowledge generated, business ethics and style and market context. However, it may or may not involve attempts to exercise intellectual property rights. The *DTI (2005)* survey brings out various ways and means adopted by businesses to protect innovation; these include formal intellectual property rights as well as strategic mechanisms such as being first to market. The survey also concludes that larger enterprises attached greater importance to protecting intellectual property rights as compared to smaller enterprises, however it was not determined if this was because larger enterprises had more knowledge about intellectual property rights or it was just because they had more knowledge and intellectual property to protect.

6.8 Summary:

Due to global, demographic and technological changes it is increasingly important for UK business to better utilise the skills and talent of its existing workforce. DTI believes that UK businesses needs managers and leaders who can understand the value of and need for skills, and can deploy and use skills in support of innovation and respond to globalisation. They need to compete on the basis of unique value and innovation in order to survive in the fast changing business world and also at the same time improve the skills of the workforce. Innovation becomes the most important factor if the companies want to remain in the fast changing and challenging business environment full of competitive stimuli. Manufacturing companies need to introduce supply chain innovation in order to improve customer service levels and / or reduce costs as supply chain innovation is now more of a major competitive weapon for all companies working in the fast moving and changing business environment. Sometimes, opportunities for supply chain innovation emerge from changes in the external environment *(Frank, 2000)*.

The concept of Value Added offers a new and complementary approach, which measures and analyses the operations in an organisation with focus on *(DTI, 2005)*:

- The total wealth created by providing value that customers are prepared to pay for, the growth of that wealth (Value Added) and the ways in which it can be increased.
- The wealth creation efficiency (Value added compared to the major input costs), the uses to, which created wealth is put and the importance of investing a sufficient proportion of that wealth to enable continued growth and to maintain a high wealth creating efficiency.

To further understand the concept of supply chain management and managing multiple contracts, the author summarises the findings from the survey conducted by DTI *(DTI, 2005)* and Constructing Excellence *(www.constructingexcellence.org.uk, 2004)* as below:

1) How get Suppliers to Engage in Innovation?

Organisations should stress on providing a new management outlook that stresses more on service providers and service provider innovation. This can be achieved through:

- Identifying service provider innovative methods/techniques and their business ethics;
- By comparing internal costs versus external costs - Quantification of internal capabilities to ensure long term cost savings;
- Identification & elimination of hidden organisational costs associated with service provider integration efforts; and
- Building a Relationship/ Strategic Alliance Partnerships/ Strategic Trading Agreements, for achieving long-term success, through designing cost-efficient integrated service platforms.

2) Outsourcing:

Outsourcing enables the company to access the best resources available. It is a decision taken with optimistic intensions and expectations with desired qualities of innovation, new thinking, extraordinary responsiveness etc. No organisation acting on its own in all spheres of work can out-innovate the world or gain competitive advantage over its competitors and hence should

stick to their core competencies as far as possible *(refer figure 6.6), (Malhotra, 2003).*

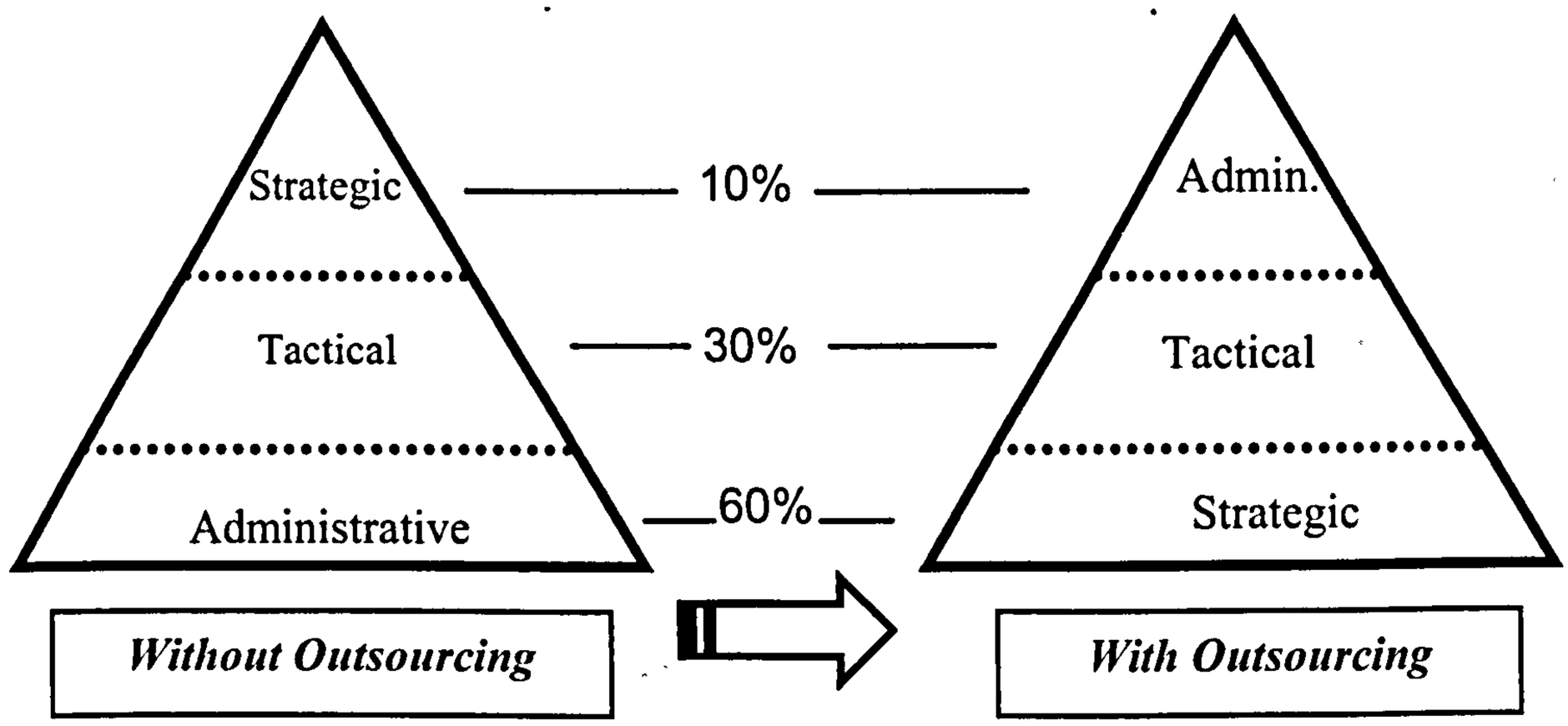


Figure 6.6: Outsourcing Facility Management Services
Source: Malhotra (2003)

3) Avoiding service provider captivity: This can be achieved through:

- Controlling Standards
- Failing of outsourcing partnerships
- High dependency on single provider's IT and processes.

Hence, there should always be an option to change service provider or in-source the activity.

4) Defining Roles and Responsibilities: This involves clear demarcation of roles and responsibilities of both in - house employees and those of the service provider. Demarcating roles and responsibilities is necessary as many roles that were initially done in-house will now be done by the service provider. Understanding mutual goals and strategies and working towards mutual benefits is fundamental for all partnerships, which helps all the prties involved in the partnering agreement in terms of:

- Making profits
- Innovation
- More competitive

6.9 Chapter highlights:

- Measuring Innovation and Performance – This involves:
  Constructing various KPI's and Metrics, which are both business and strategy specific to measure the value added in the business;
  Aligning corporate goals and strategy with multiple Service Provider work stream;
  Align multiple service providers across shared service responsibilities
  Ensuring Service Provider constancy and dedication to standardized processes; and
  Assessing the cross functional relationships within the decided matrix.
- Mudrak et al (2005) accentuate that main contractor organisations are found to innovate more than in-house FM organisations. This is because, the main contractor is appointed externally by the client organisation based on free market selection, whereas the in-house FM department is usually appointed internally and perceived as an integral part of the client organisation.
- Innovation is a vast subject and increasingly complex, requiring co-ordination of multiple inputs. The various ways in, which an organisation can demonstrate innovation as per (Robson and Ortman, 2006) are:
- Innovation in the products and/or services offered by the organisation;
- New or improved offerings, together with development of brands and markets
- Improvement of organisation's internal business processes and customer- supplier interaction;
- New ways of doing business, such as utilizing the power of the internet/information technology, sharing of knowledge across the organisation to cut the costs of sales, marketing and distribution costs;
- Entering new markets that offer more customers and higher prices, which the competitors will also be trying to do, so the sooner the organisation puts innovation at the heart of its business strategy, the sooner it will outperform them.

- An effective supply chain management system adds value to the business, gives customers value for their money and provides with long-term profits and higher returns on investment. According to *Alexander et al (2004),* the benefits of implementing a supply chain management system are:
- Better knowledge and understanding of market trends and key customers needs;
- Better understanding of supplier capabilities and Opportunity to refocus on the interface with users;
- Enhanced problem solving, shared risk;
- Faster response times;
- *Flexibility and a strategic capability to plan and innovate;*
- Improvement in forecast accuracy;
- Improvement in inventory reduction;
- *Lower operating costs and reduction in real costs;*
- More efficient and effective use of technology;
- The development of environmentally sound service;
- Waste reduction and more effective use of resources and skills;
- Free up of working capital realised through supply chain management efficiencies;
- Increased capacity to innovate within the supply chain as knowledge is shared along the supply chain

In FM, the complexities of the management of the interaction between the services provided is as essential as the provision of service itself, if it is to deliver maximum added value to the organisation and this streamlined core focused approach to service management tends to naturally produce its own innovative solutions as it is a dynamic operation that changes with the business, requiring management and co-operation between all parties *(Goyal &Pitt, 2007).*

CHAPTER 7

CASE STUDIES – UNDERSTANDING INNOVATION IN INDUSTRY

7.0 Introduction

7.1 Research strategy

7.2 Case study analysis

7.3 Questionnaire Findings

Case Studies:

Primary Case Studies:

Taylor Woodrow

AMEC

Wates Group

2020 Liverpool

Computer Sciences Corporation, India

Secondary Case Studies:

IBM

Boston consulting Group

Chapter 7

UNDERSTANDING INNOVATION IN INDUSTRY

7.0 Introduction

In order to identify best practices and successful examples of innovation, a mixed sample of large to medium size firms were contacted from different industries. The facilities managers and the executives contacted in all companies were given a summarised brief of the project and informed that the information collected would be used to build organisational case studies of innovation for the purpose of research only. Similar pattern of study was imparted during the case study done in India, which allowed the understanding of how innovation is perceived and followed in other countries and its impact on the organisational working environment. In all cases complete confidentiality was assured. Figure 7.1 broadly describes the pattern followed for the case studies *(refer figure 7.1).*

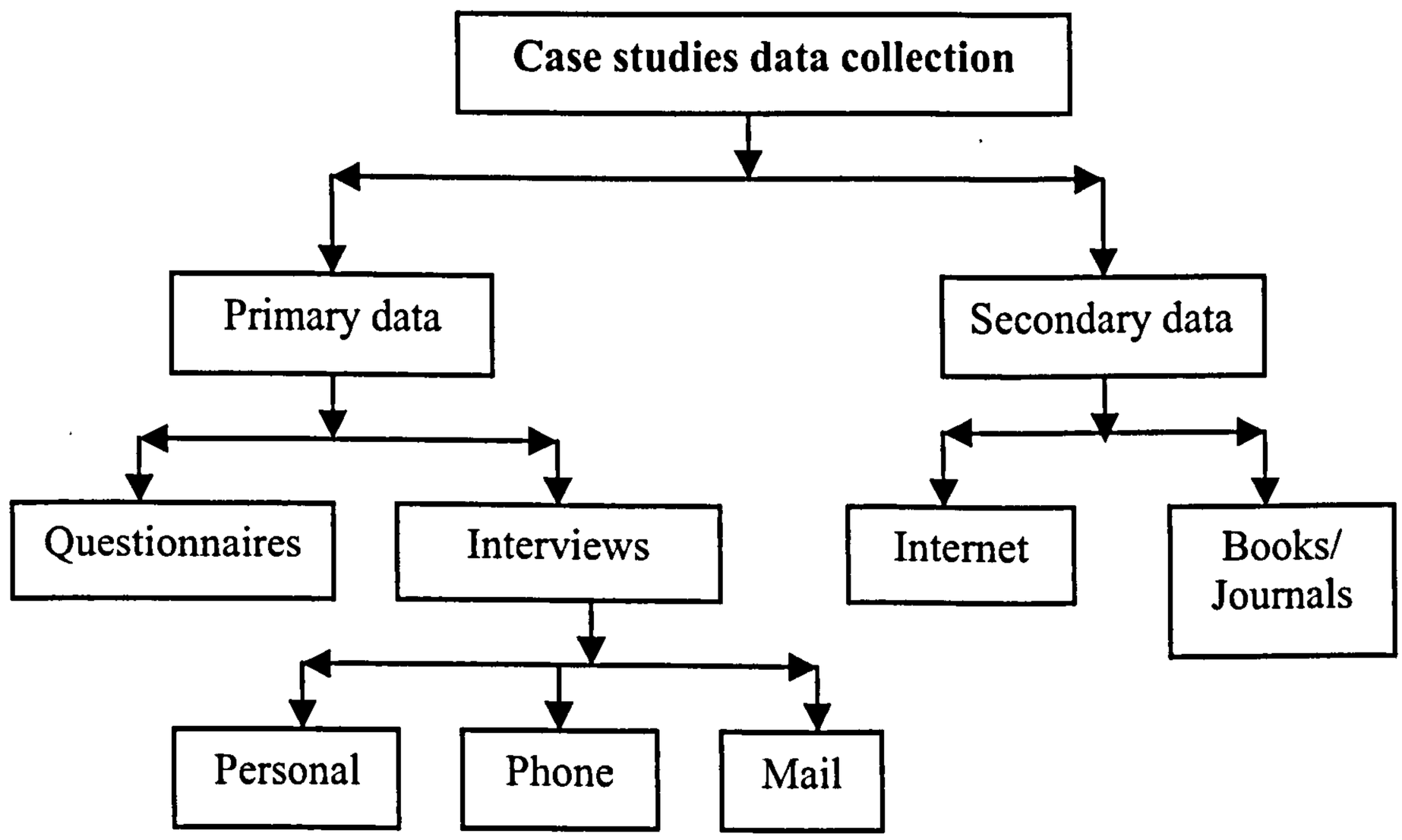


Figure 7.1: Pattern followed during case studies
Source: Self study

7.1 Research strategy:

Can be broadly characterised into the following planned stages:

Phase one: Internet search, conference analysis, library searches, literature review with the aim to provide a broad and indicative account of the FM Innovation field.

Phase 2: Questionnaire

Phase 3: Questionnaire analysis

Phase 4: Expert interviews, attending conferences, Meetings group discussions

Phase 5: Case studies in the United Kingdom and in India

Phase 6: Analysis and Conclusions

7.2 Case study analysis:

The methodology deployed in this study was to identify companies from different industries, who believed in making efforts towards innovation, and then compare and analyse the innovation activities carried out by each one of them to achieve best practice in innovation within their own respective industries and add value in the organisation. Successful innovation is based on the capability to not only realise the difference between the hard and soft innovation but also to strike an efficient balance between the two. Hard innovation requires the company formalising structures for innovation, methodologies, suggestion scheme, reward schemes, quantitative goals, organisational schemes, interaction procedures, physical infrastructures and resources to enhance co-operation and collaboration *(Ahmed, 1998)*. However, it is essential to realise that long term benefits of hard innovation can be reaped only when they are integrated with the softer aspect of innovation (proper and effective management of the hard aspects of innovation). The soft aspects of innovation, *(including managing the culture and organisational climate that fosters and encourages innovation, sensitive leadership that sets and reinforces the innovation agenda in the day to day activities of all employees)* not only complements the hard actions but also ensures constant innovation in an organisation.

7.3 Questionnaire Findings:

The following questionnaire was prepared and distributed amongst various personnel belonging to the business industry as well as the Facilities Management field. This was done in order to test the academic study with management experiences, thereby gaining more knowledge about the innovation management field and its continuous expansions within facilities management. The responses received were thoroughly studied and analysed after which the following conclusions and diagrammatic representations were

drawn. The histograms reflect the responses received. Out of 100 questionnaires given out, 66 responses were received thereby giving a response rate of 66 %.

1) Which best describes your level of responsibility?

Out of the 66 responses, maximum number came from those involved in the management team, making a total of 25.75 %. A large number of responses also came from those who belonged to the senior management level constituting to about 22.72 % of the total figure. The figure shows that not many people at the board room level (board of directors) and at the position of Director are involved in the process of formalising innovation objectives and strategies. The purpose of this question was to determine the key personnel involved in the innovation management and planning process. The results highlighted the fact that the top management (Director and Board), in general remains away from the initial process making and decisions *(Refer figure 7.2).*

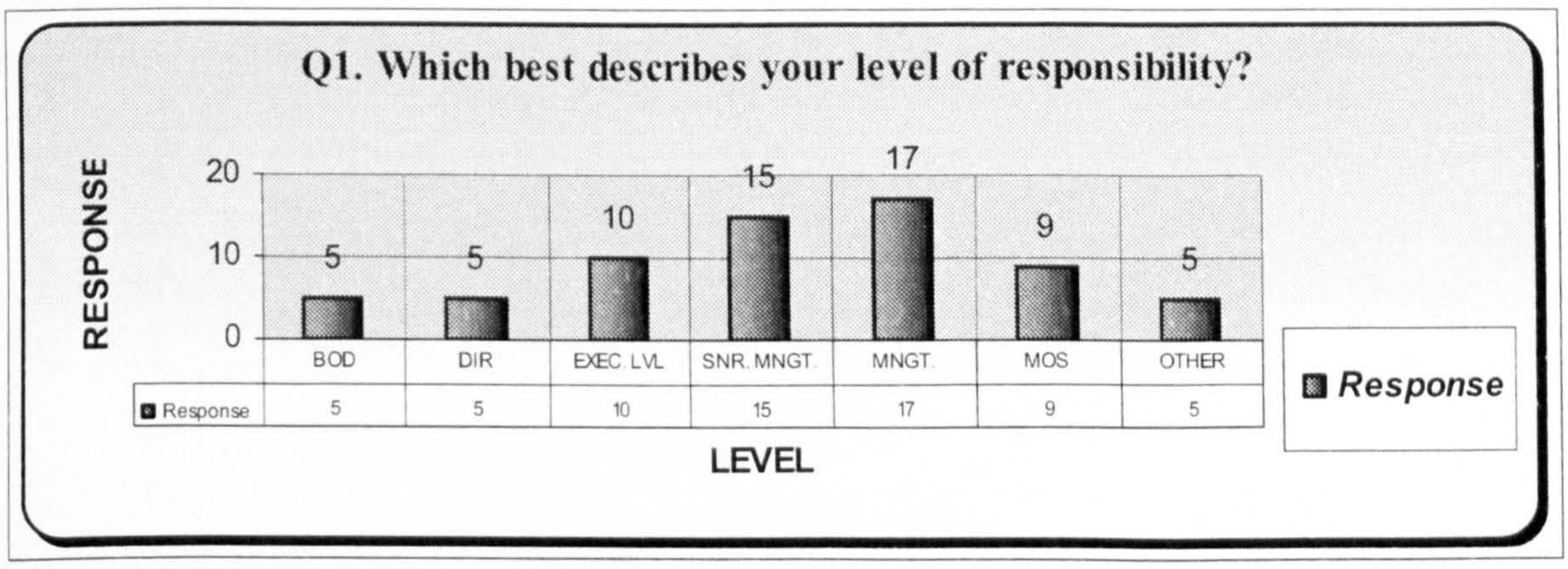


Figure 7.2: Level of responsibility
Source: Self Survey

2) To whom do you report?

After analysing the 66 responses received for this question, it was evident, that the reporting still needs to be done at the Executive or Senior Management level with very little access to the top management (Director and Board). Respondents who provided 'other' reasons commented that, there should be certain guiding principles for the senior management involvement in the development stages of the plan, enabling it easier for the management team to put across their ideas, last minute reporting always causes communication differences *(Refer figure 7.3).*

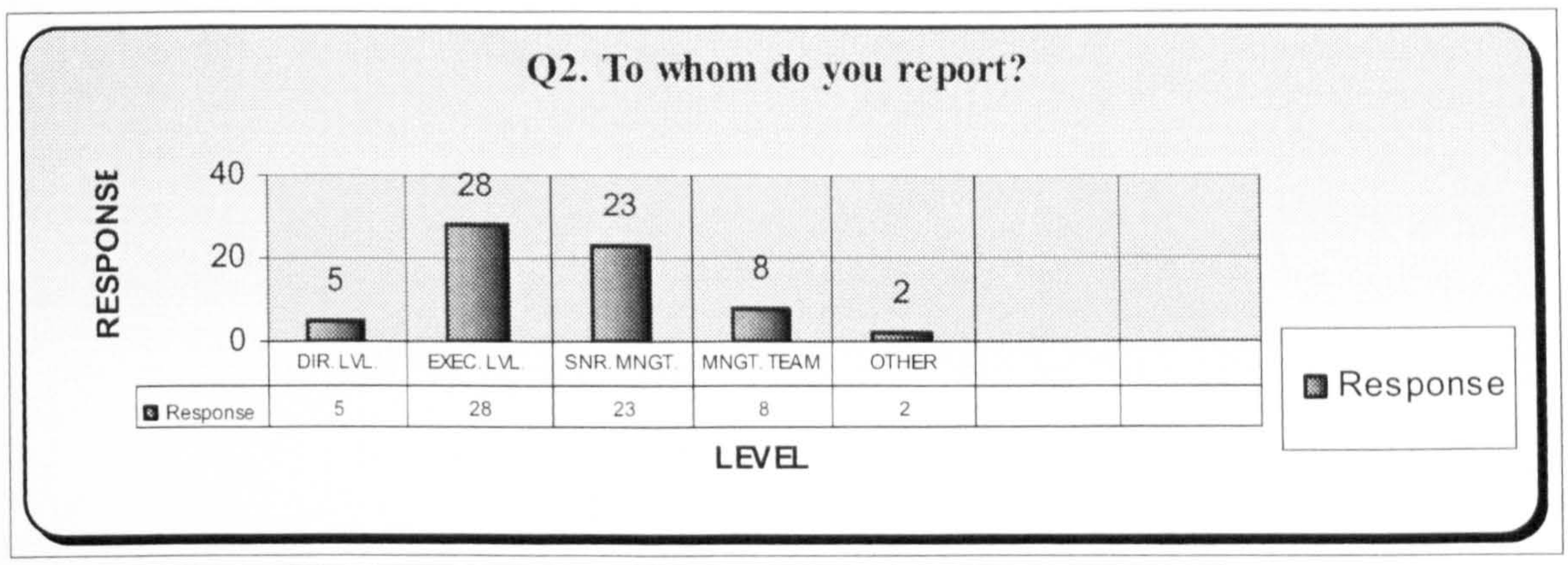


Figure 7.3: Reporting Line
Source: Self Survey

3) How many people does your organisation employ?

The principle aim to ask this question was to analyse the strength within, which the FM sector operates. *Figure 7.4* clearly indicates that maximum responses came from medium sized organisations employing between 200-500 people in total, followed by organisations employing approximately 500-1000 people. These added up to 38 responses from a sample size of 66, giving a return rate of 57.57 % *(Refer figure 7.4).*

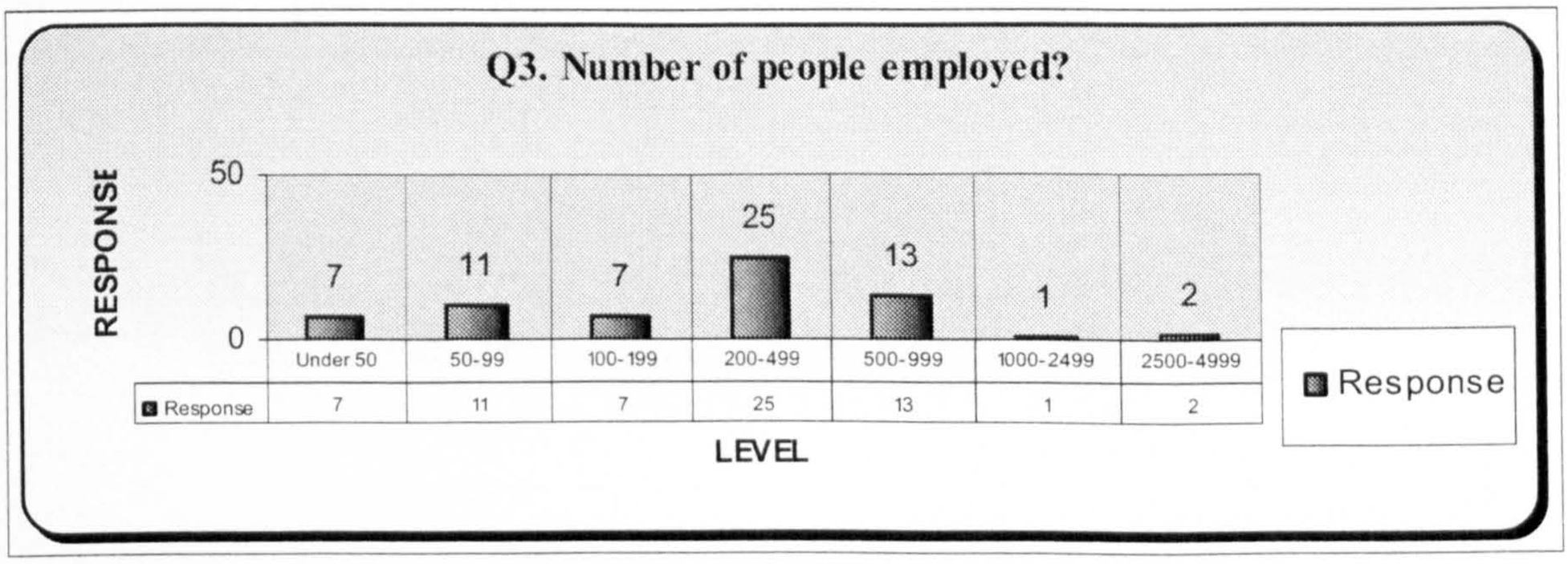


Figure 7.4: Number of people employed by an organisation
Source: Self Survey

4) Which market sector best describes your organisation's FM structure?

The consequences of the research lead to Figure 7.5, which indicates that from a sample size of 66, 23 responses were received from the In-House Service providers, giving a 34.84% response rate. This was significantly higher when compared to responses received from those in total Facilities Management, where only 19 returns from a sample size of 66 were received,

equating to a return rate of 28.78%. The purpose of the question was to determine the structure within which most organisations work and operate *(Refer figure 7.5).*

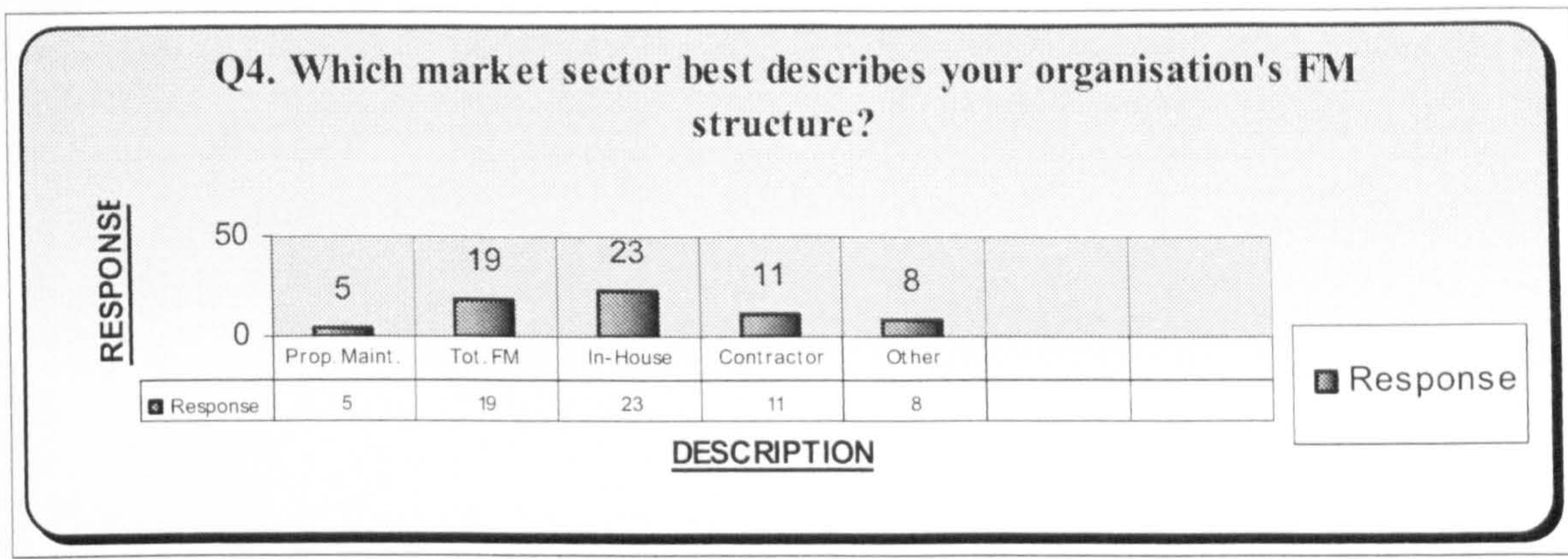


Figure 7.5: FM Structure of the Organisation
Source: Self Survey

5) In your organisation does the core business think that innovation management is the responsibility of the FM?

The involvement of FM in the formulation of an innovation management process and the amount of responsibility FM should undertake has been a topic large enough to debate on. This is very clear from the response received. Two options of 'Yes' or 'No' were given this question, in addition to which respondents were also given the option to define any other department which they think should have the responsibility of the formulation of a comprehensive and an integrated innovation management Plan. Where 37 out of 66 respondents concluded that innovation is the responsibility of FM (response rate of 56.06%), 16 respondents out of the total of 66 stated that innovation management is not the responsibility of FM (response rate of 24.24%) and almost a same number of respondents (13 respondents) chose to give different answers implying that innovation is more to do with the company strategy as a whole and should be dealt by the senior management while deciding company policies and strategies (response rate of 19.69%), *(refer figure 7.6).*

The purpose was to determine the increasing strategic relation between innovation management planning and Facilities Management. During the course of literature survey, the author concluded that Facilities management is first and foremost about organisational effectiveness. The decisions taken

about facilities are business decisions. However, from the results it is evident that where 56.06% of the respondents feel that the process of innovation planning should be the FM's remit, approximately 44% conclude the opposite, making the debate further complicated. Out of those respondents who said 'No' or 'Other' as their answers also specified that Facilities Management must be involved in a joint ownership with business areas of the organisation *(Refer Figure 7.6)*

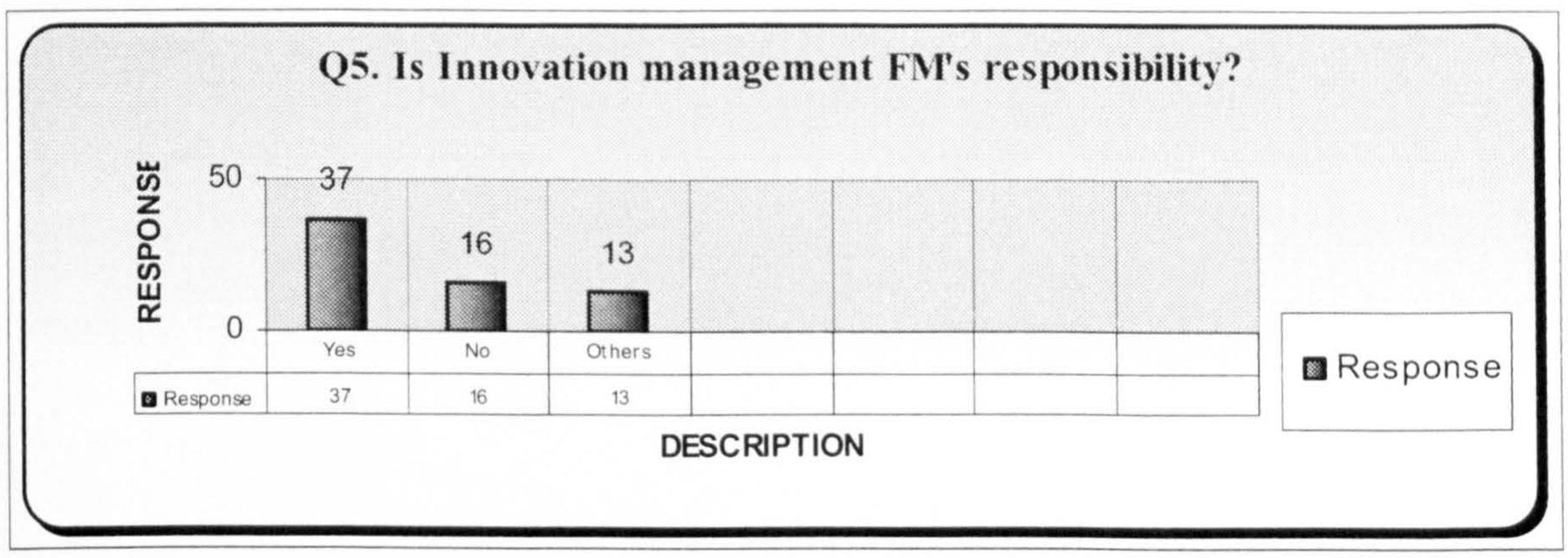


Figure 7.6: Is Innovation Management FM's responsibility?
Source: Self Survey

6) Does your organisation have a specific Innovation Management policy that applies to Facilities Management?

The histogram presented in *figure 7.7 shows* that 59.09%, that is 39 out of 66 respondents answered 'Yes' to this question implying that most of the organisations are realising the significance and momentousness, of implementing an innovation management plan for uninterrupted continued gains and preservation of their Business. Out of those respondents who answered a 'No' or 'Other', constituting the rest 41% (27 out of the total of 66), few confirmed that though no specific innovation management plan has been implemented, however in some cases there were outline rather than detailing of the plan. This question was considered to be appropriate, as it would provide with data, which could reflect on the growth and progress of innovation planning within Facilities management and also its implementation in the business environment *(refer figure 7.7 & 7.8).*

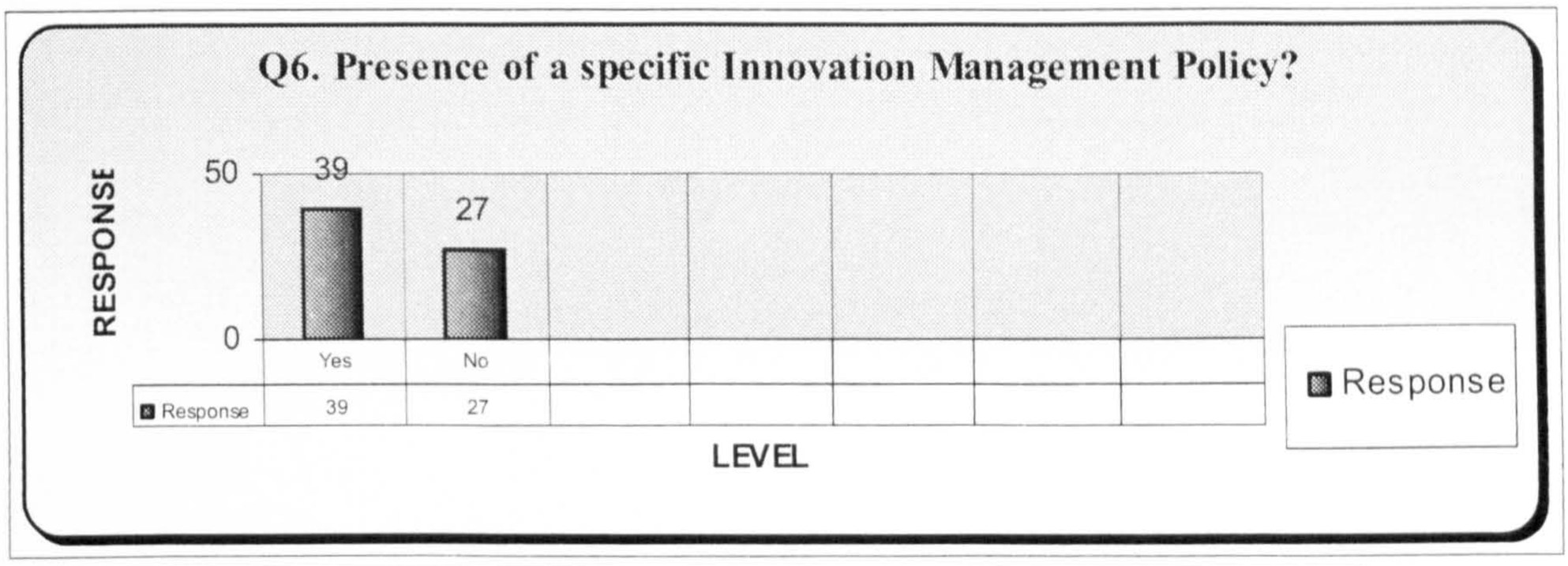


Figure 7.7: Presence of specific Innovation Management policy
Source: Self Survey

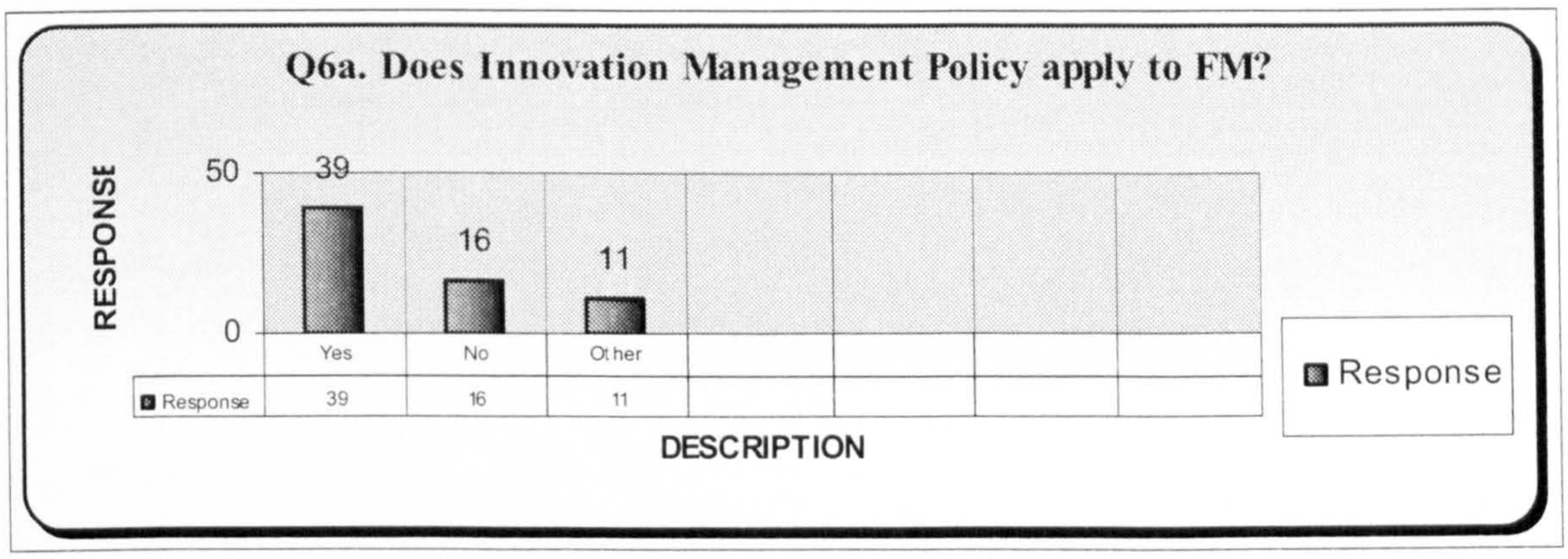


Figure 7.8: Applying the organisation's Innovation policy within FM
Source: Self Survey

7) Do you think that the primary objective should be innovation in vital business functions?

This question sole forms part conclusion of the research. As stated earlier, the meaning of innovation planning is continuity and gains (value addition) within the core business functions of all stakeholders. This is further confirmed by 68.18% of respondents (45 out of the total number of 66) who agreed that innovation is imperative in the fast changing business environment of today, governed by globalisation, incessant flow of knowledge and technology advancements that have produced better skilled workforce and demanding customers. Respondents who said 'Yes' also commented that innovation management should be made a part of all business discussions and should be top most priority in decision/strategy formation. The main purpose of this question was to establish the current state of innovation planning in terms of what the organisations understand it to be, and also highlight the importance

of innovation management as a means to ensure the continuity of core business functions *(Refer Figure 7.9)*.

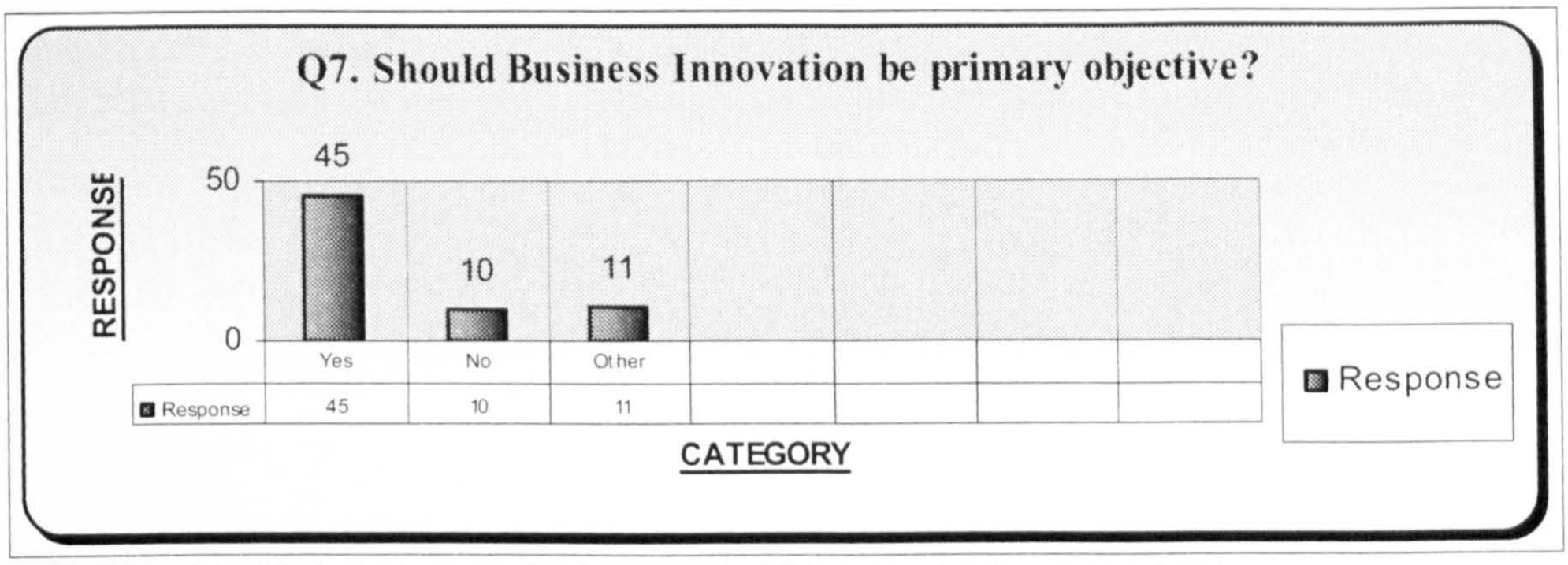


Figure 7.9: Should Business Innovation be primary objective
Source: Self Survey

8) Do you agree that communication and awareness forms an important part of the innovation management process?

Communication and Awareness are two factors, which have been neglected and not regarded as factors relevant to successful planning and management of Innovation. Effective communication across the organisation and at all levels is paramount to the formation of an innovation management plan, and forms an essential part of the whole planning process. This includes communication with employees at all levels within the organisational hierarchy, strategic suppliers/contractors and sub-contractors (detailed contact information), clients, customers (for notification procedures) and partners. Communication also includes access to emergency personnel, directors, regulators and the media (designated media spokesman), *(refer figure 7.10)*.

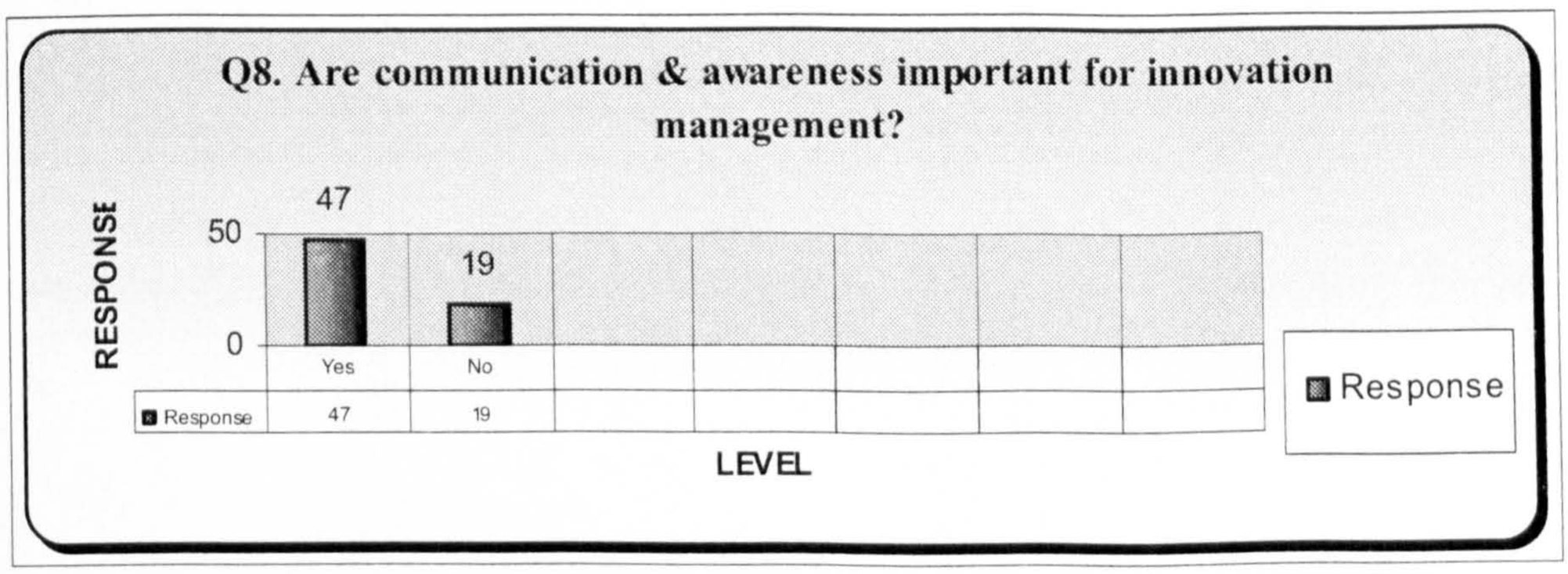


Figure 7.10: Importance of communication & awareness for innovation
Source: Self Survey

In a situation where there exist multiple organisations the need of effective and well-planned communication increases further. This argument is strengthened by the response rate of 71.21%, 47 out of 66 respondents do believe that communication and awareness are essential for the growth, development and long-term success of an innovation management plan *(Refer Figure 7.10 above).*

9) Do you agree that it is the functional department managers and supervisors who should be the architects of the innovation management plan?

40 out of 66 respondents (about 60.6%), feel that it is the functional department managers and supervisors who should be given the responsibility to formulate and word the objectives and goals of the organisation's innovation management plan. Those who have opted for 'No' as an answer, also stated that planning for the management and application of innovation objectives within an organisation, though in the hands of functional department managers, still needs FM to provide technical direction with other departments *(Refer figure 7.11).*

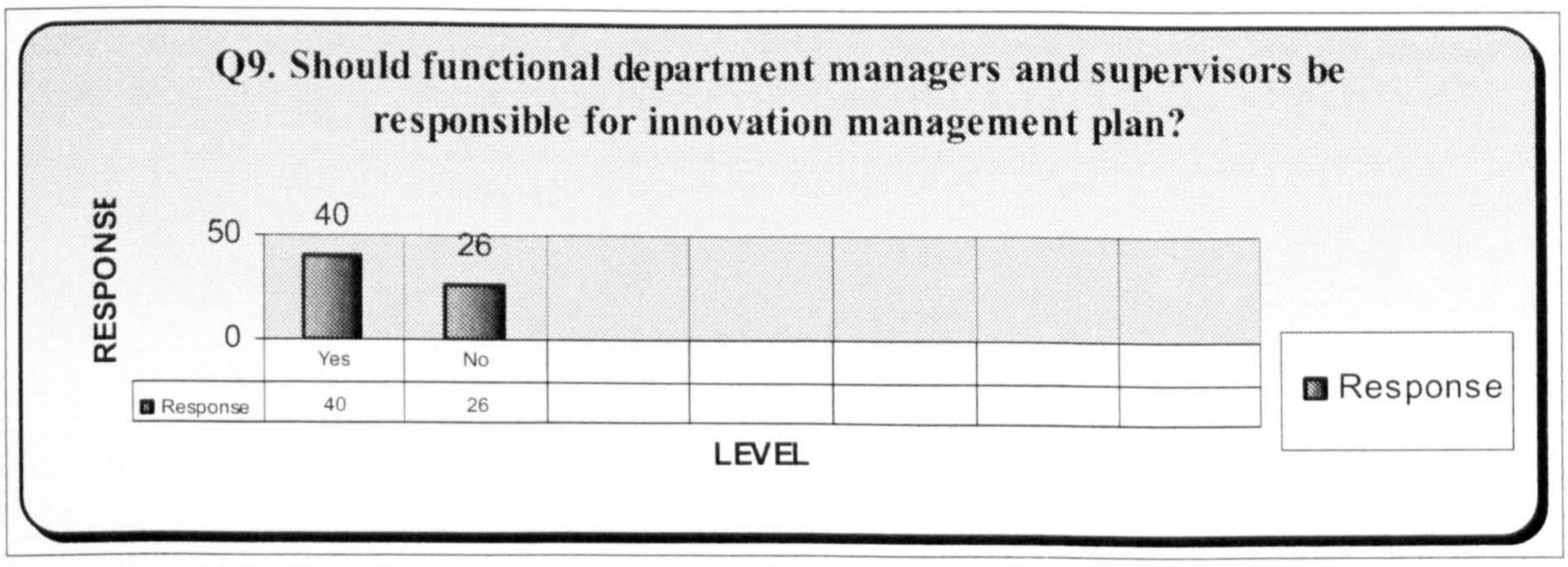


Figure 7.11: Responsibility for planning for Innovation
Source: Self Survey

10) Do you review Suppliers / Partners/ Sub-Contractors innovative processes as part of the pre-qualification tenders?

11) Are suppliers / Partnerships/ Subcontractors chosen for their ability to demonstrate an innovative approach?

The purpose was to determine the role-played by contractors and sub contractors in the formulation and implementation of an innovation management plan especially during multiple contracts and to understand the

way in which multiple contracts are handled. 42 out of a sample size of 66 replied 'Yes', to above (63.63% response rate); highlighting that to formulate a comprehensive innovation plan it is imperative that each member of the business holds a critical position. Of the 36.36% who chose 'No' or 'Other' as their answer, also stated that there are a few instances in which the contractors or the partnerships are chosen for their ability to demonstrate innovative approach, but should be at least critical suppliers *(Refer Figure 7.12 & 7.13).* As regards reviewing the innovation processes of the partners and sub contractors as part of the pre-qualification process, 18 out of a total of 66 respondents, that is 27.27% replied that this is done only when such kind of services are required as part of the tender, but majority supported the increasing need to integrate the business ethics and management style of all suppliers with that of the core business to achieve long-term and mutual benefits *(refer figure 7.13).*

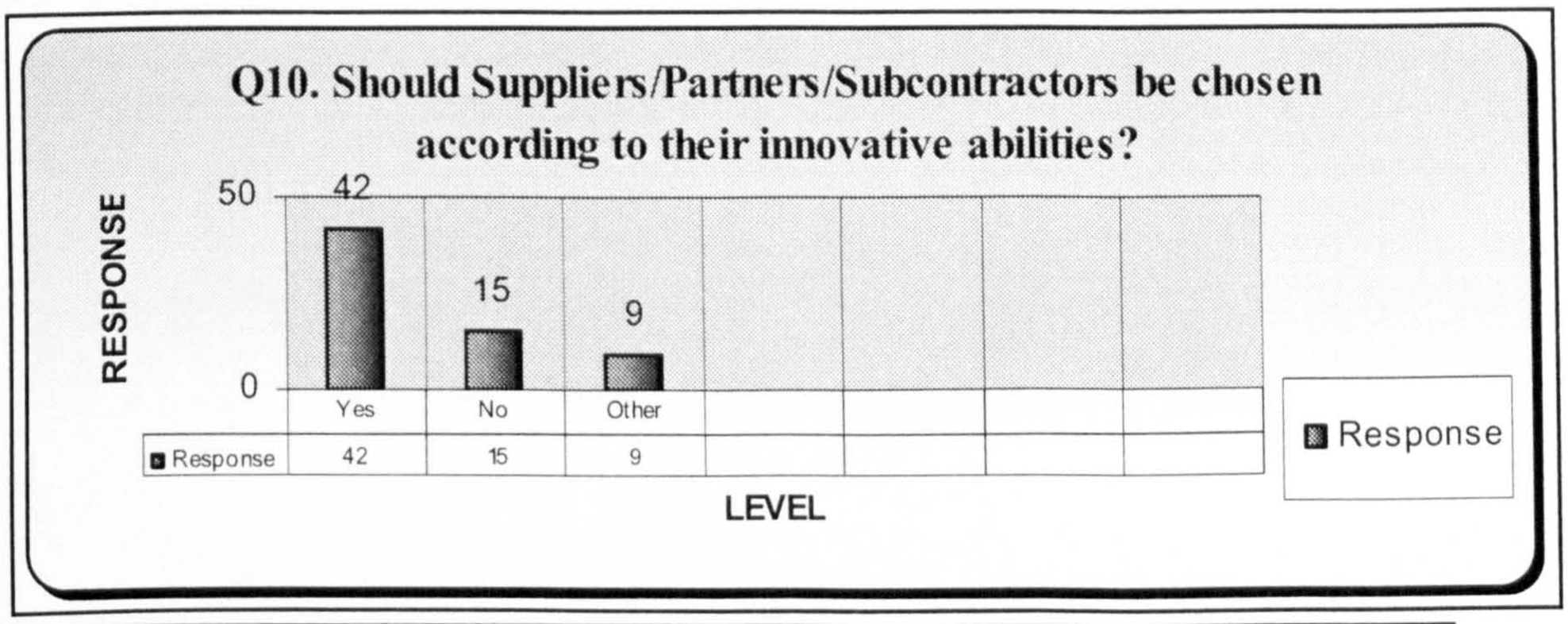


Figure 7.12: Choosing suppliers according to their innovative capabilities
Source: Self Survey

Christiansen (2000) explains that it is essential for the established supplier companies to prepare themselves for a future that brings with it immense competition. They should respond by adopting a new approach to strategy, the one that combines speed, openness, flexibility, and forward-focused thinking. It is an era of new opportunities and regeneration especially for executives who realise the importance of change and innovation, for mature companies, which acknowledge that the time for slow change is over and it is important to accept changes in their own best interest. To survive it is essential that companies must be able to adapt and evolve. Businesses

operate with the knowledge that their competitors will inevitably come to the market with a product that changes the basis of competition, the ability to change and adapt is fundamental to survival *(Trott, 2005). Christiansen (2000)* also states that specific innovation management systems such as idea generation methods, funding systems and project management methods also have a profound impact on the performance of innovation and innovative ideas and not to forget the final intervention of the senior management in specific projects. Required are flexible companies and mindsets, which can accept failures before they look out for results and a clear definition for innovation. To innovate is a mindset, as earlier stated it is not a one-time event; innovation should be incorporated in the day to day activities of each and every employee and suppliers.

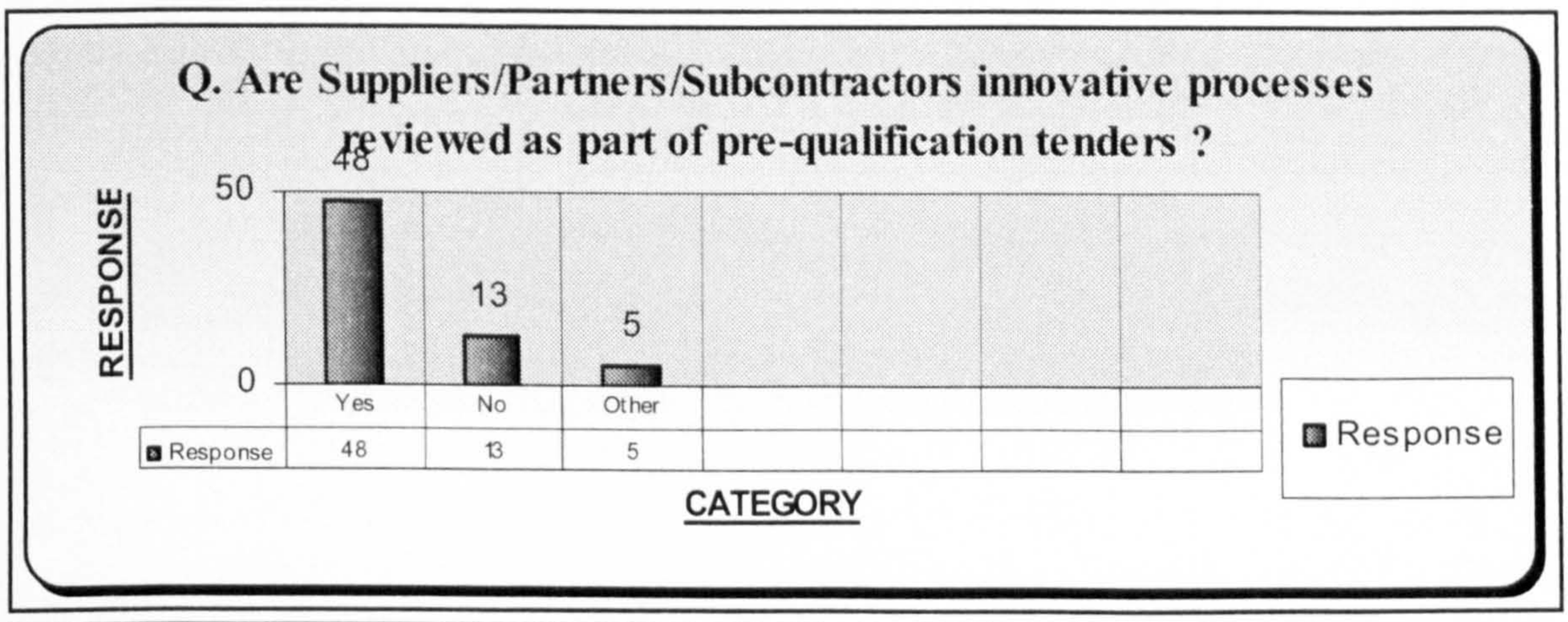


Figure 7.13: Reviewing Innovative process as part of tendering
Source: Self Survey

12) Do you think that the future of innovation and multiple contract management with suppliers rests in the hands/control of facilities managers of today and tomorrow?

It is evident from *figure 7.14* that many business units are now recognising the strategic role played by the Facilities Management department in improving the overall performance of the organisation and its marketability. During the course of research, the author came across vast amount of literature that highlighted the need for service industry to be strategic in its approach. The literature studied also indicated that the real service performance measure for all successful organisations is not only the measurement of the returns on their investments (ROI) but also customer satisfaction. Facilities management

adds value to the organisation, as it merges and incorporates itself with the core needs of the organisation and changes in management structure and operational procedures across all its core and non-core activities. *Amartunga et al (2000)* accentuate that a continually changing facilities environment has created the need to pursue new ways to meet future demands for organisations and if, FM is to successfully contribute to the rapidly changing business environment (which is greatly influenced by employee expectations and behaviour and value addition) and be indispensable to business in future, then it must focus strongly on understanding and supporting core work processes in an organisation as well as continuing efficiency in supporting people and activities in buildings.

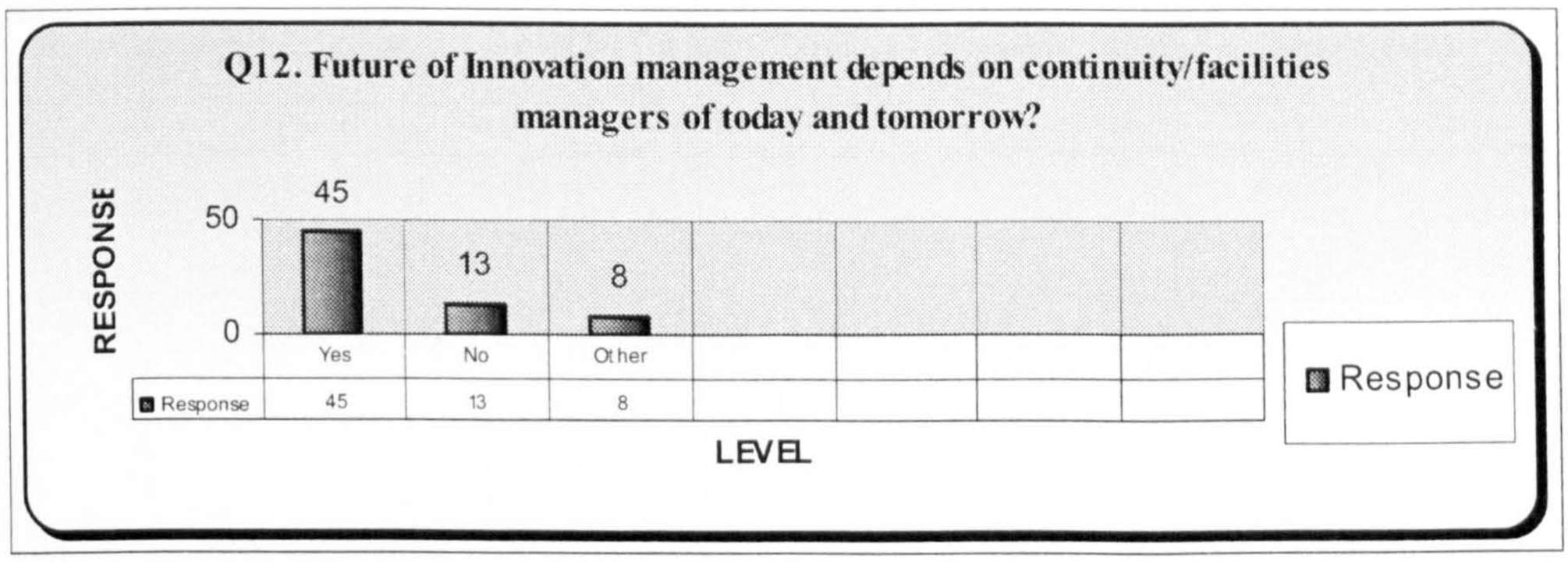


Figure 7.14: Future of Innovation Management
Source: Self Survey

13) How important do you think is commitment, for effective innovation?

23 respondents out of a sample size of 66 believe that if there is a good strategy / plan in place then commitment from individuals or from the top management is not extremely essential and need not be 100%. However, 65.15% of the respondents state that commitment towards incorporating innovation as an attitude and as part of day-today work in indispensable for long-term organisational success and profitable relationships with stakeholders. Commitment both on the part of senior management as well as team members is essential *(Refer Figure 7.15).* This is further supported by *Nadler (2004,* who states that growth and development of an organisation requires much more than just market familiarity, it is a combination of appropriate processes, techniques and requires both time and commitment on part of all stakeholders who must know the organisation completely.

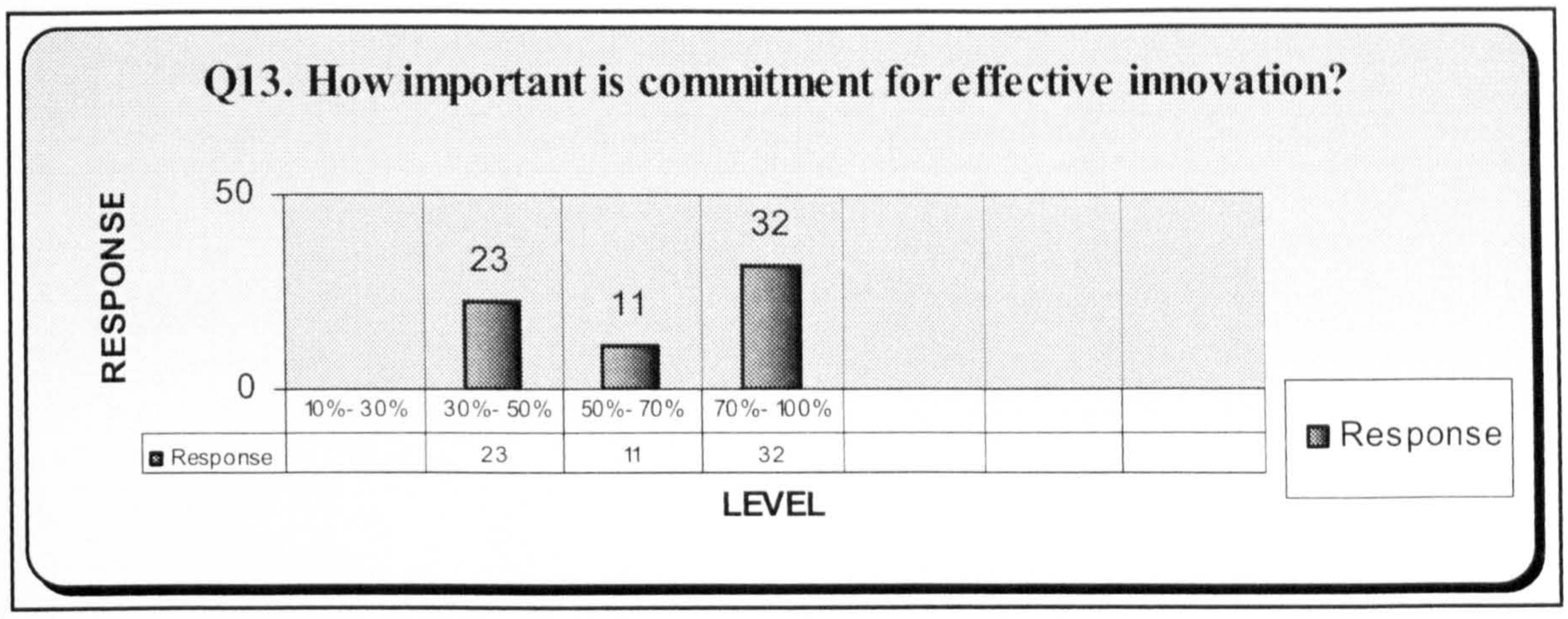


Figure 7.15: Importance commitment for successful organisational innovation
Source: Self Survey

14) Do you agree that access to senior managers forms an important part of the innovation management process?

49 out of the total of 66 respondents (74.24%) feel that employees (at all levels), customers, clients, suppliers and all other stakeholders in an organisation should be able to have easy access to top management or the board room level. This according to the respondents is necessary for an organisation wanting to achieve long-term success and a profitable share in this rapidly changing business environment *(refer figure 7.16).* it is stressed by *Montes et al (2004*), that successful innovation is positively and directly related to top management support, team work, incentives and the organisational set up (innovation climate within, which the organisation works), thus innovation should begin with the support of top management, who should promote an organisational climate in which workers are recognized for their efforts towards innovation and are rewarded adequately.

Of the 25.75% (17 out 66 respondents) who stated 'No' or 'Other' as their answer, also mentioned that innovation activities are mostly limited to functional department levels, making it more important to have access and an healthy relationship with functional department leaders or directors, more than it is with the top management, who would approve of the innovative activity if it already has been validated by the functional department manager or director.

Along with leadership it is also imperative to have the appropriate environment and company policies, which according to *Johannessen (2001)* have a significant impact on the newness, progressive nature and completeness of

an innovation. For the new entrants adoption of innovation methods and techniques becomes most important and fundamental to successful start, therefore, making it essential to have the right kind of leadership and guidance.

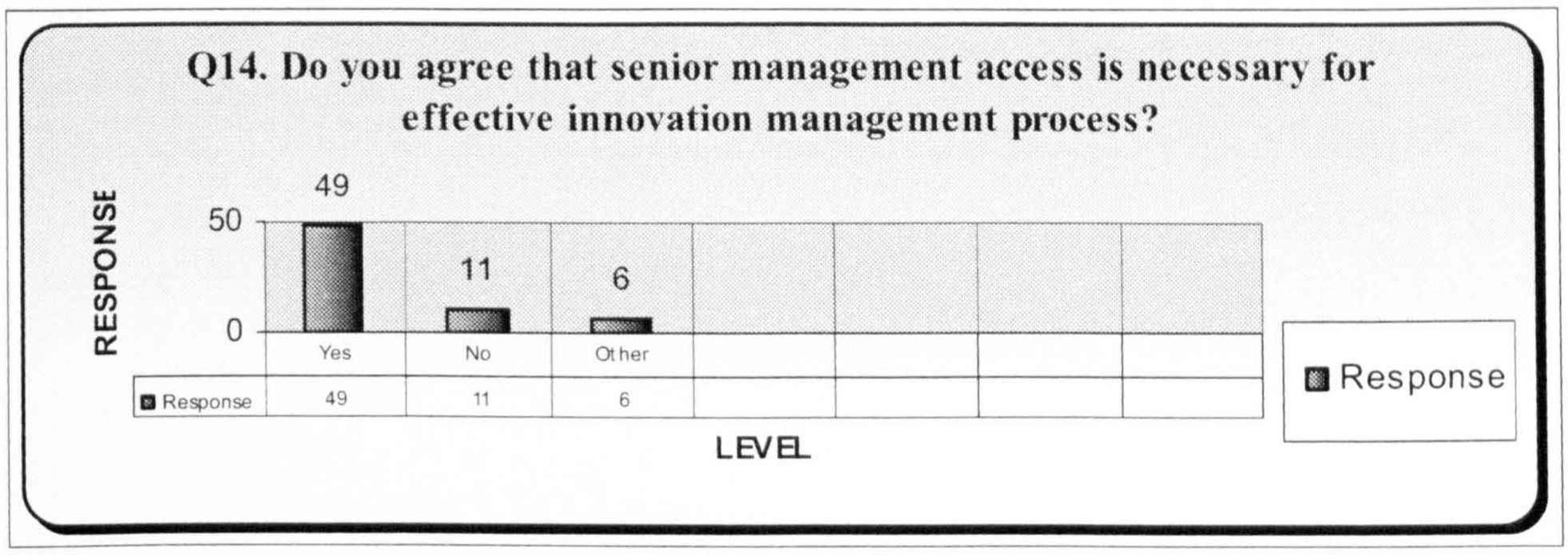


Figure 7.16: Access to senior management for successful Innovation
Source: Self Survey

15) Do you agree that changes in Technology, Regulations, Society, Customer Expectations, Organisation's reputation and Business Processes have a significant impact on planning for innovation?

With the increasing effect of globalisation on business functions, delivery and performance it can be said that change will continue in terms of technology, society, regulation and customer expectation and the role of an innovation or a continuity manager is here to stay for organisational success. Effective continuity requires commitment, access to senior echelons within an organisation but perhaps most importantly, a mindset in, which organisational learning, growth and development are seen as a means to an end.

However, it is extremely important for managers wanting to add value to their business through improvements in innovation performance, to not just blindly apply the first technique that they encounter or think to be as a change/innovation or adopt methods that have proven to be beneficial for their competitors. Important is to determine whether those innovative techniques or methods are appropriate for their own company or organisation or not.

Changes are imperative and happen with time, it is in the hands of an aware manager to incorporate these progressions in the business functions and plan ahead of time *(Refer Figure 7.17 a, b, c, d & e).*

The questionnaire results show that, majority believe in the fact that fast changes within the business technological environment has a tremendous effect on the innovation activities carried out by an organisation (almost 77.27% of employees agreed to the above), *(refer figure 7.17a).* This according to them also leads to changing customers' needs and demands as they become knowledgeable and have access to a wider market with more opportunities. Respondents also sated that organisations would experience long term benefits only when the innovative activities that are an outcome of these changes are integrated within the overall business goals and objectives, and are also carried out within the regulatory boundaries in, which the business operates *(refer figure 7.17a, b, c and d).*

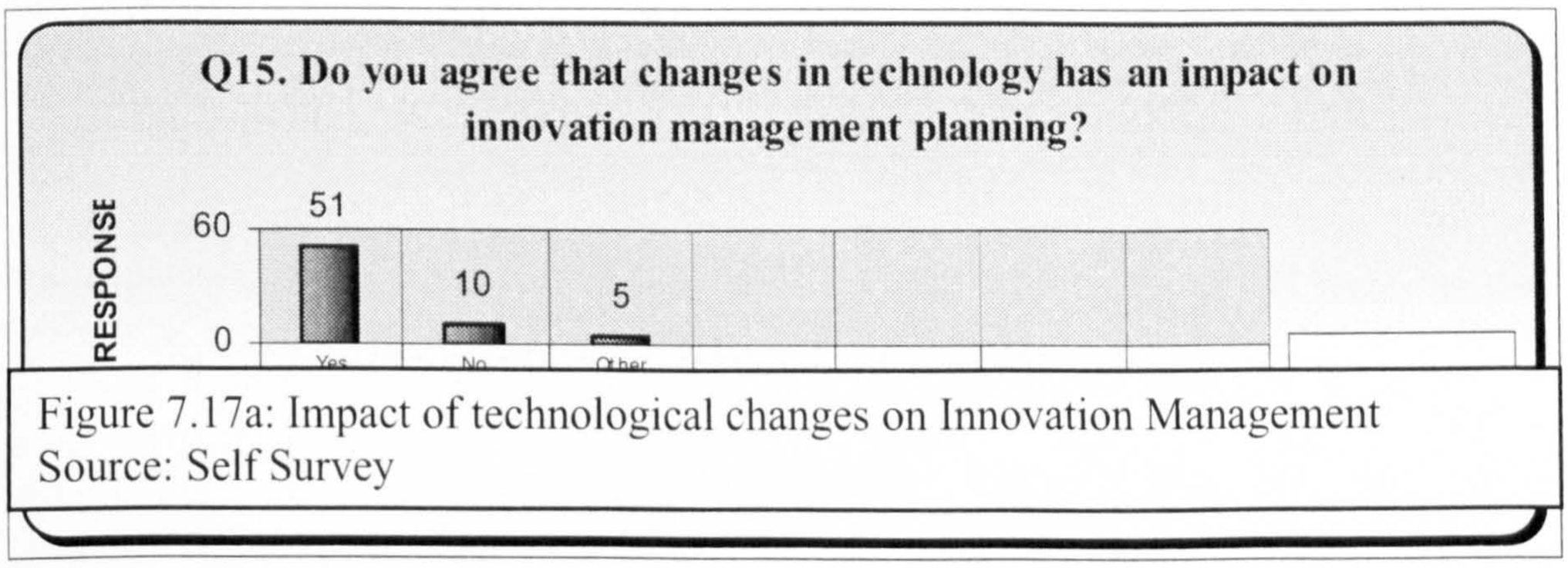
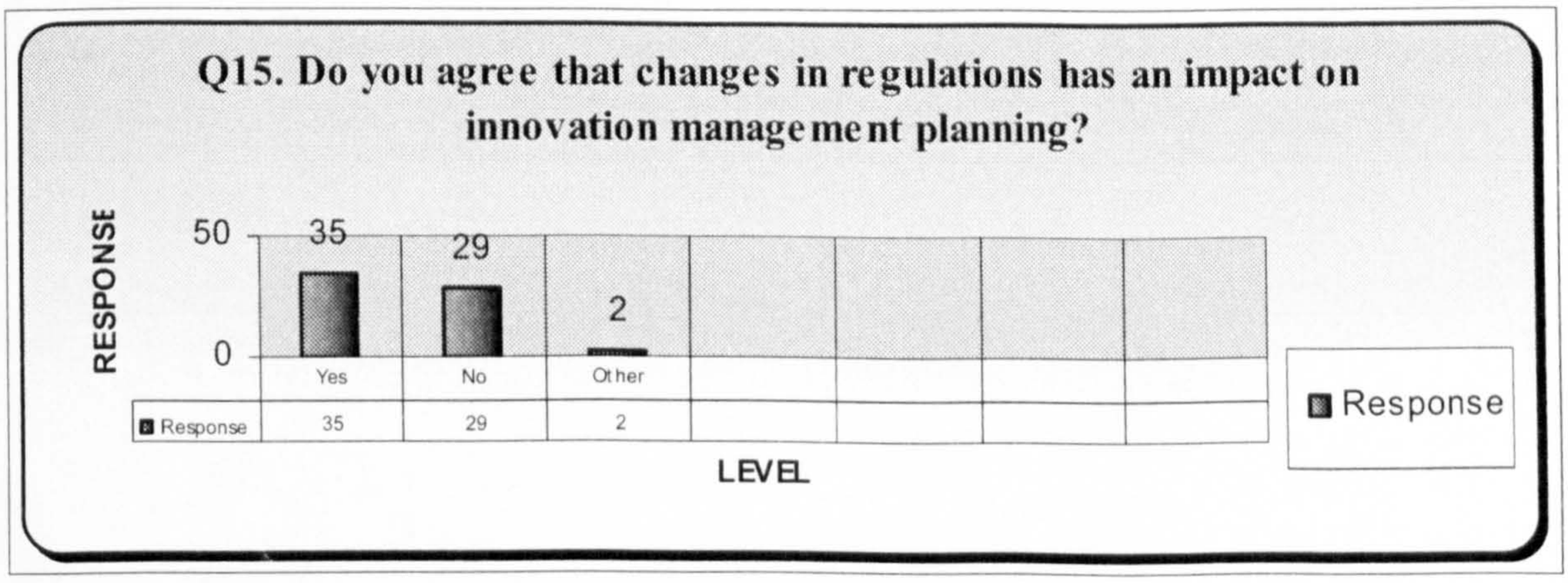


Figure 7.17a: Impact of technological changes on Innovation Management
Source: Self Survey

Figure 7.17b: Impact of regulatory changes on Innovation Management
Source: Self Survey



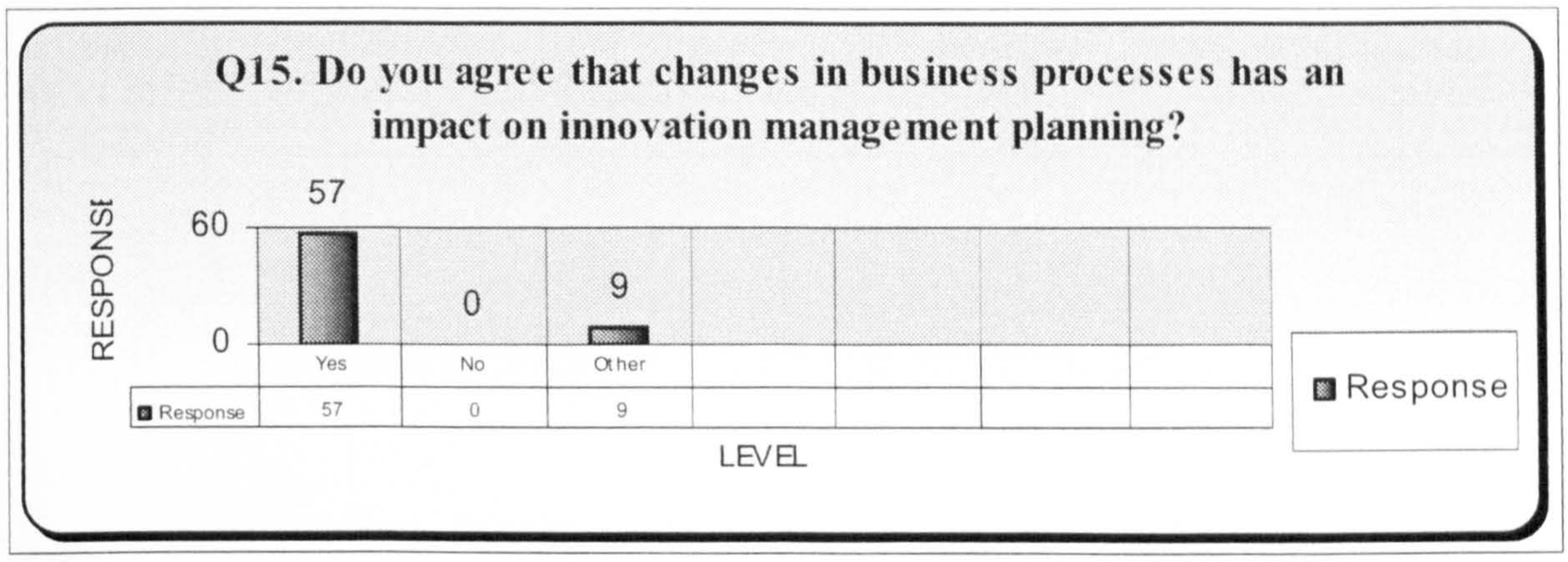


Figure 7.17c: Impact of changes in business processes on innovation management
Source: Self Survey

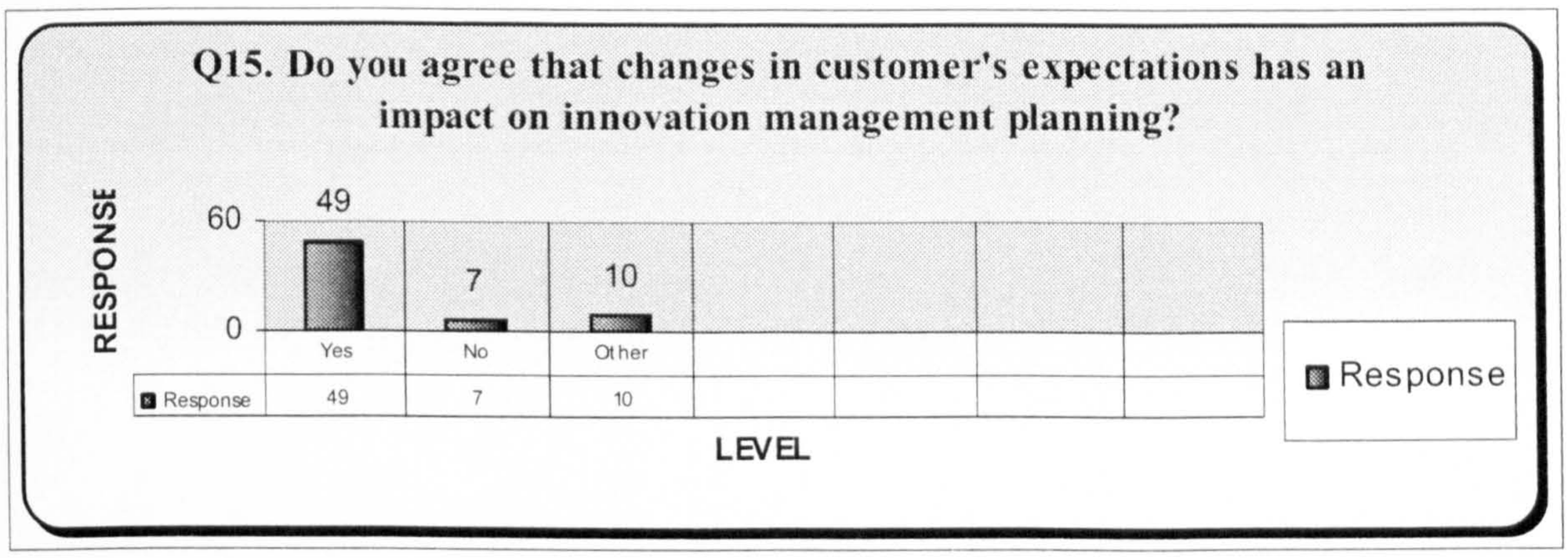


Figure 7.17d: Impact of changes in Customers' expectations on Innovation Management
Source: Self Survey

From the histogram given below *(refer figure 7.17e),* it was apparent and understandable that not many executives, facilities managers etc. considered changes in society and in the reputation of an organisation as factors that affect the management of innovation activities within an organisation. 38 out of the 66 responses received strongly indicated that any variation or diversification related to the reputation of an organisation, in no way affects the innovation activities or objectives that were carried. Those respondents who agreed that changes in organisational reputation does have an influence on the process of innovation, also mentioned that it may not hamper the innovation activities carried out internally but do have a tremendous impact on the innovations demonstrated through external partnering or with strategic supply chain partners etc. as these external collaborations are mainly formed

keeping in mind the each other's reputation, marketability and service delivery *(refer figure 7.17e and f).*

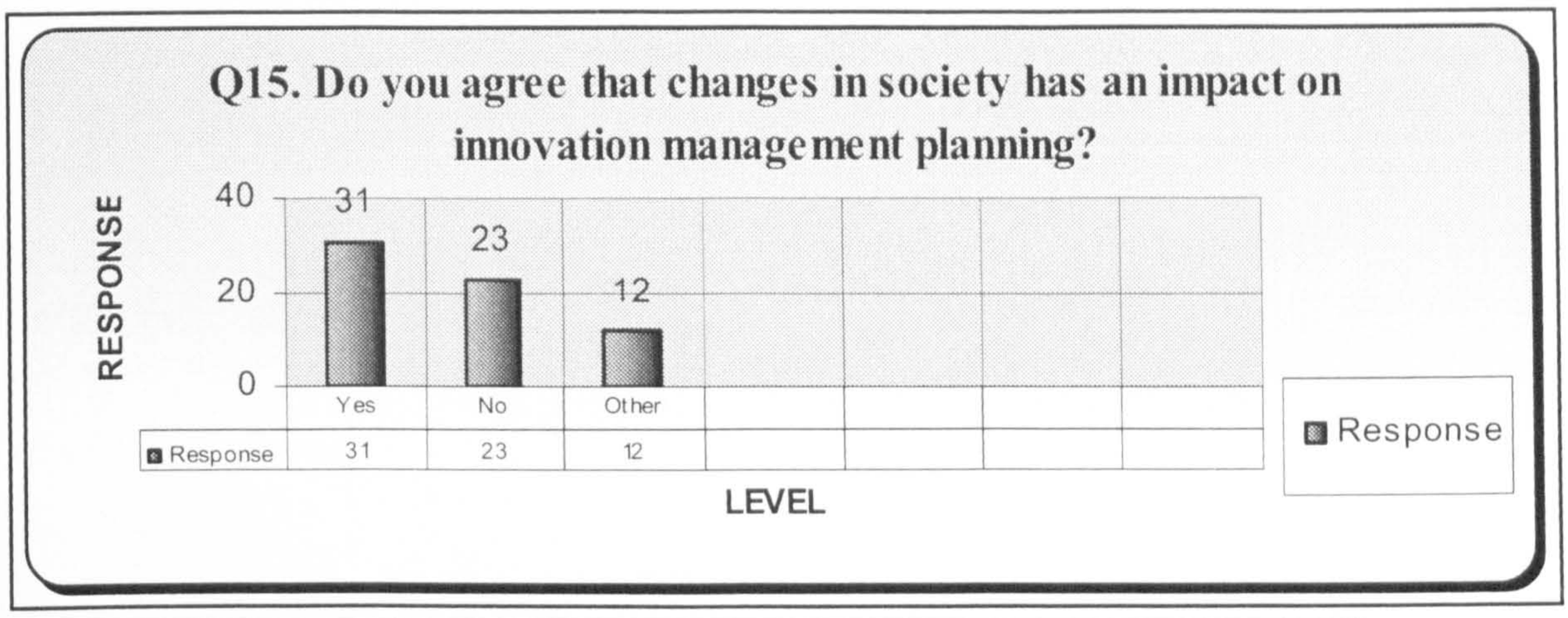


Figure 7.17e: Impact of changes in society on innovation management
Source: Self Survey

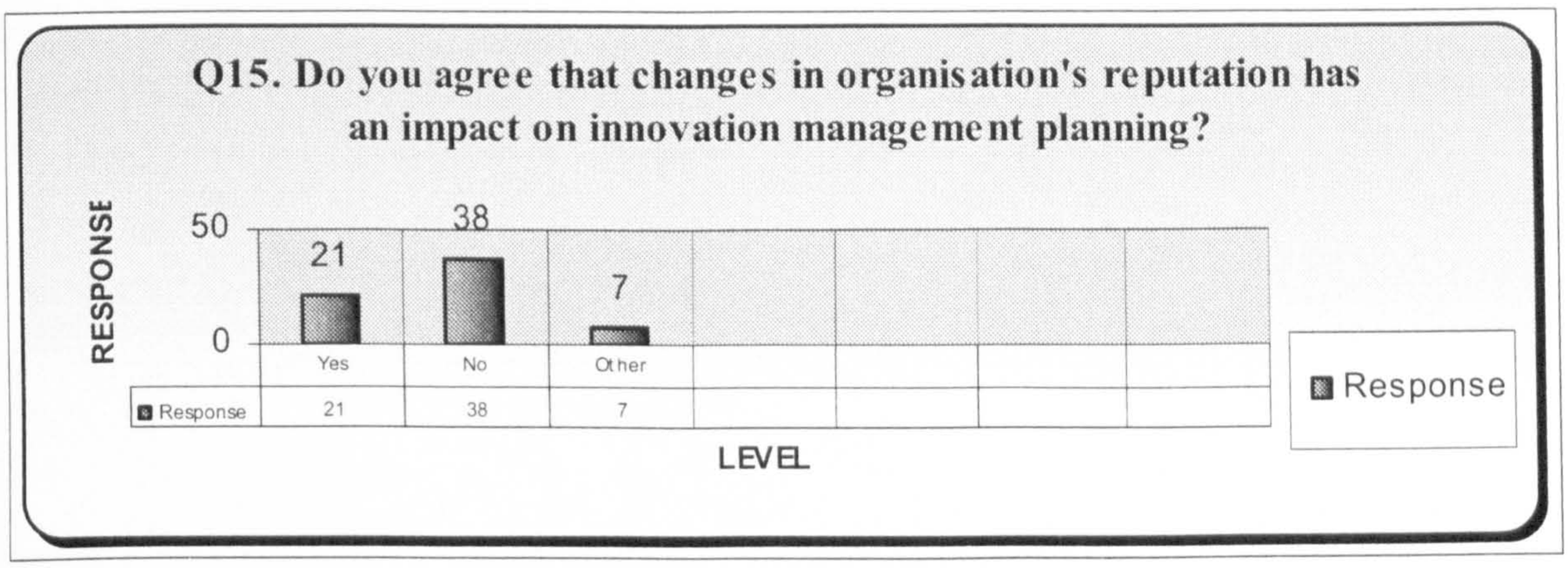


Figure 7.17f: Impact of changes in organisation's reputation on innovation management
Source: Self Survey

"We are living in an era of constant change, and managing change has become the new business imperative".

(www.taylorwoodrow.com, 2006)

16) Do you agree that the developments in the political, economic social and technological environment provide important 'push' and 'pull' factors for innovation management?

56 respondents out of the total of 66, that 84.84% of respondents agreed that the social, political, economic and technological environments are important drivers of innovation activities and the management of innovation in an

organisation. *Doyle and Bridgewater (1988)* explain that successful business starts with an appreciation of the environment, an understanding of the emerging needs of the customers and the corresponding possibilities for developing operative and dynamic solutions to these needs. The purpose was to find out the factors that determine the changes in continuity planning and change management and have a significant impact on them. Internal market and macro environmental pressures were not thought to have a significant impact on continuity planning by the respondents but approximately 84% did strongly believe that the rapid socio economic developments do provide an important push and pull factors for innovation management. These socio economic factors range from customer expectations, to changing economy, and changes in society *(refer figure 7.18)*.

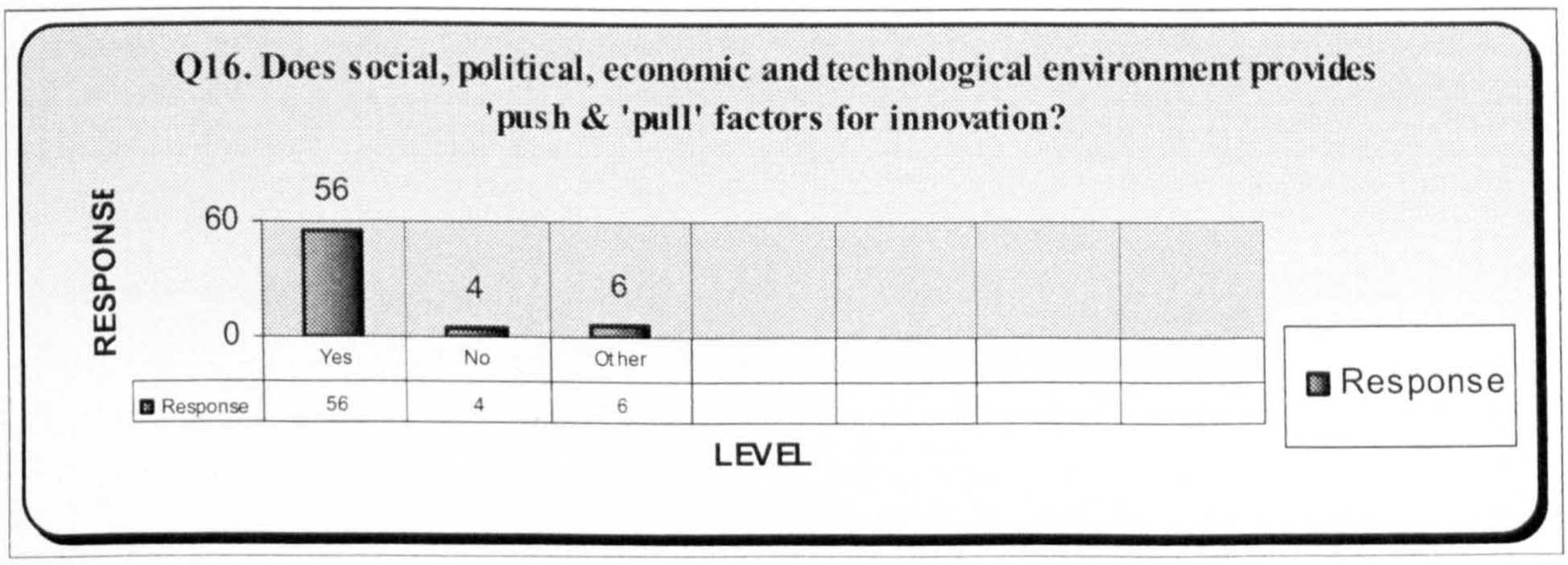


Figure 7.18: Effect of Social Political environment on Innovation
Source: Self Survey

17) Do you agree that innovation and multiple contract management occupies central role in formulating corporate strategy, through interactive processes and effective communication between all levels of management?

There was a mixed response to this question. Where on one hand, 31 out of 66 respondents (47%) stated that innovation and multiple contract management did not occupy a central role in the formulation of a corporate strategy, on the other hand, 35 out of 66 respondents (53%) agreed otherwise. This equal response highlights that many business units, though agree to the importance and benefits of innovation and change management but still do not realise the importance and vitality of integrating innovation objectives with the overall business strategy and working style of the

organisation *(refer figure 7.19). Dahlgaard et al (1995)* stress on the importance of linking innovation strategy to the company's vision and business goals and also state that this linkage should be based on comprehensive and relevant information. Communication and planning form the 'backbone' of the strategy and planning process for innovation management, helping an organisation in achieving long-term success and excellence.

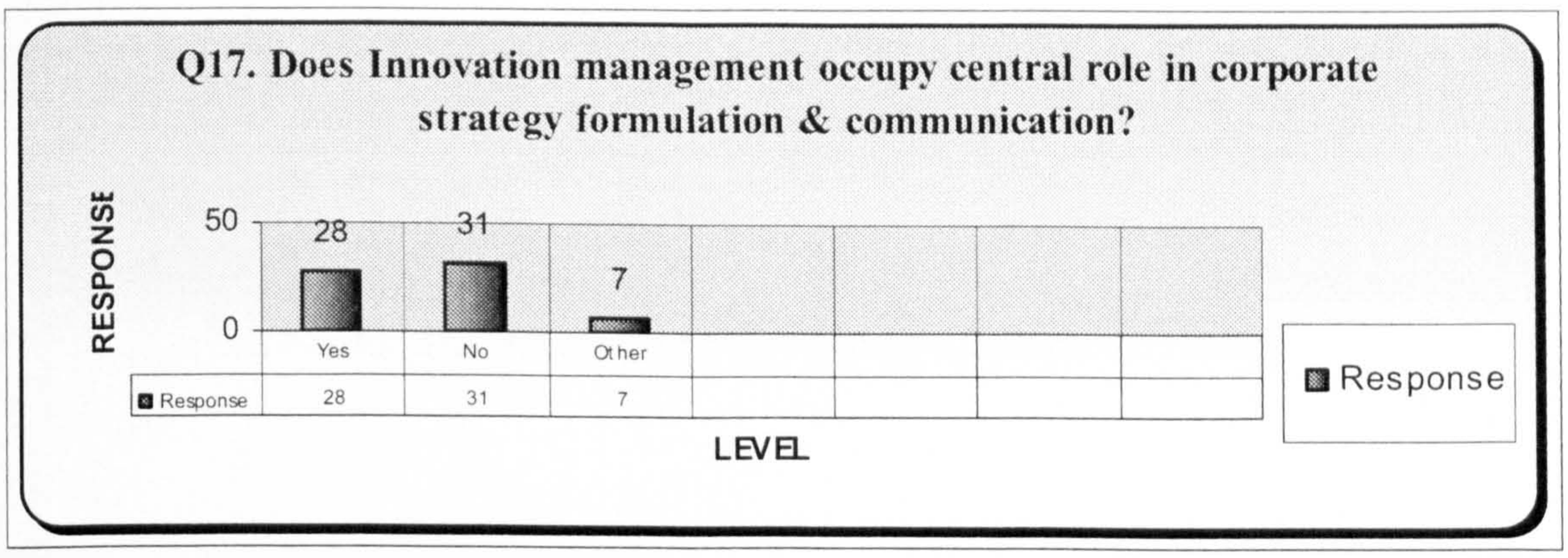


Figure 7.19: Role of Innovation Management in corporate strategy formulation
Source: Self Survey

18) Is it necessary for the business planners to be aware of organisational, cultural and national differences for plans to maintain their potential?

If innovation is all about giving customers their 'Value for Money' and meeting customer needs and demands effectively such that it also adds value to the business, then it is also imperative for all managers and business leaders to be sensitive to the national and cultural behaviour in, which the business operates. It is the cultural environment that shapes the needs and requirements of customers and clients and at the same time governs the working principles of suppliers, contractors and sub-contractors.

Organisations working on multiple sites should primarily take into account the cultural and national differences between various sites and adapt accordingly to get beneficial results. This argument is supported by 45 respondents (approximately 68%) who agree that business planners need to be aware of organisational, cultural and national differences for effective change management *(refer figure 7.20)*

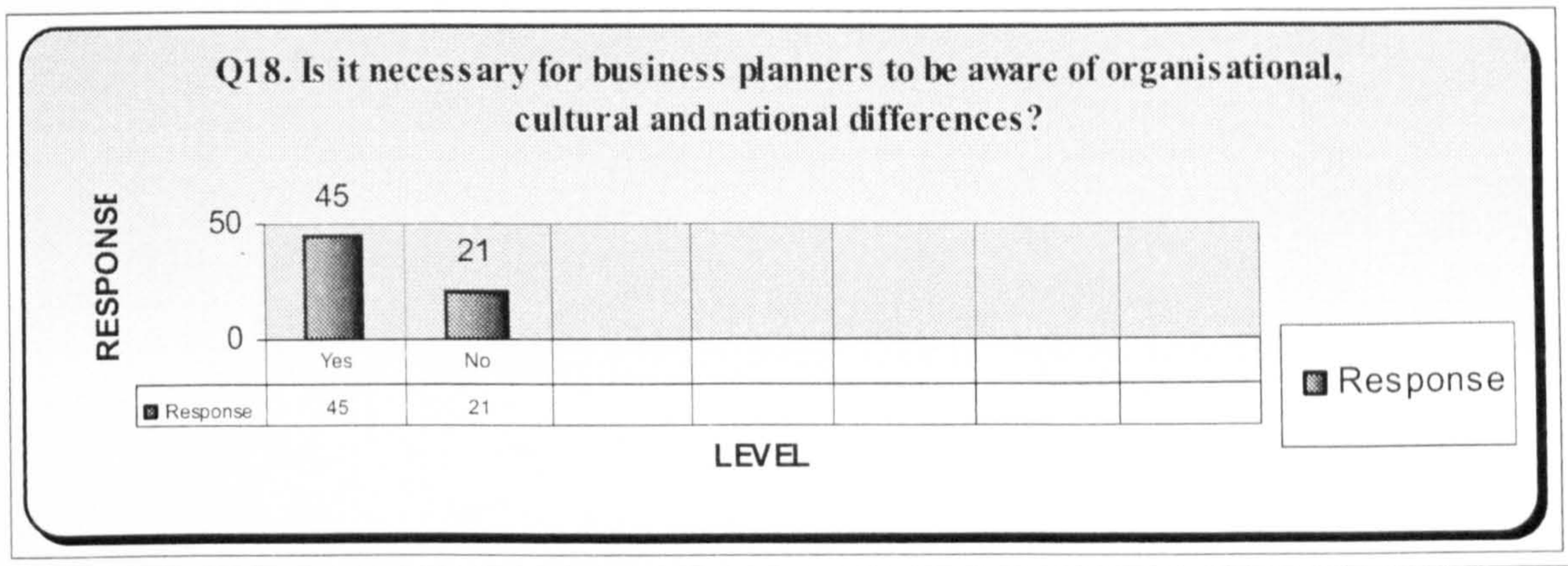


Figure 7.20: Awareness of organisational, cultural and national differences
Source: Self Survey

19) Is there much scope for innovation in Facilities Management?

20) If yes then does this approach towards needs to be planned and formal or an intuitive informal approach on part of facilities manager?

Facilities management is not only about reducing the running costs of buildings or maintaining them. Efficiency, management of space and other related assets for people and processes also form an important part such that the missions and goals of the organisation may be achieved. Innovation in FM can occur in an in-house or outsourced operational context. The most likely environment where innovative FM solutions will thrive is one of competition, hence making competition as one of the principal advantages of an outsourced FM solution.

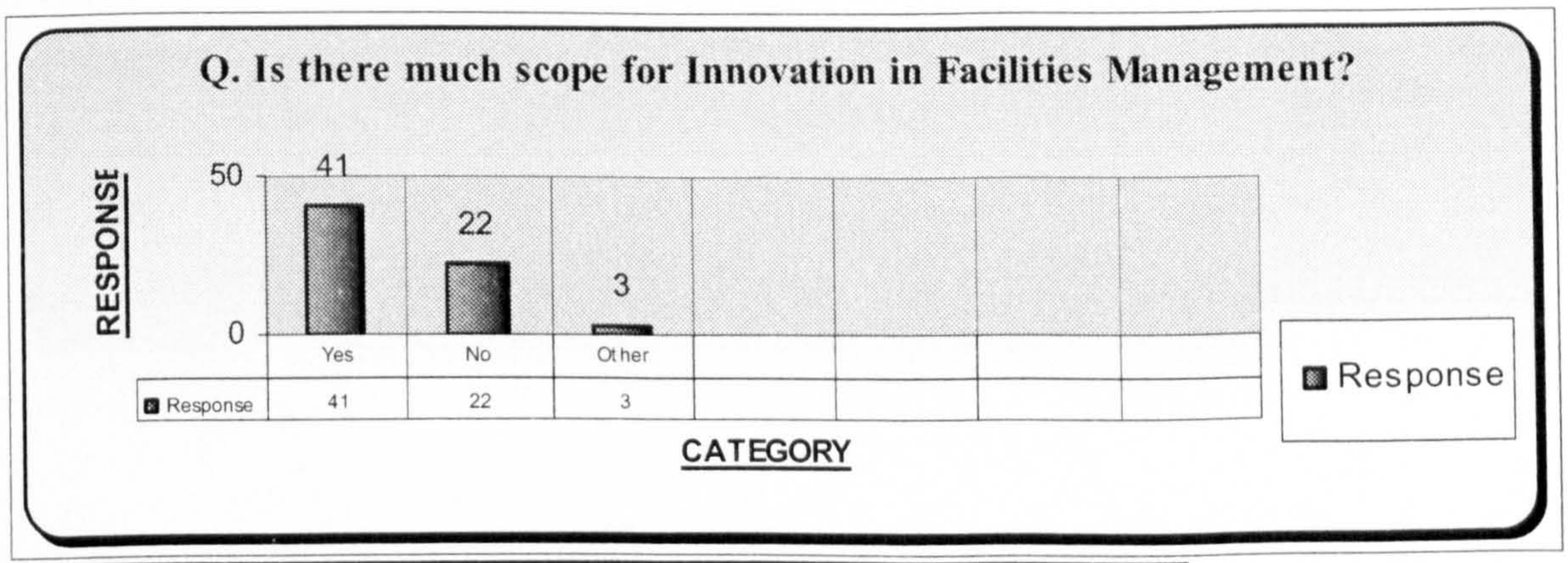


Figure 7.21: Scope of innovation in Facilities Management
Source: Self Survey

It is essential for the established supplier companies to prepare themselves for a future that brings with it immense competition. It is an era of new opportunities and regeneration especially for executives who realise the importance of change and innovation, for mature companies, which

acknowledge that the time for slow change is over and it is important to accept changes in their own best interest *(refer figure 7.21)*.

38 out of 66 respondents (approximately 58%) also stated that FM's approach towards change and innovation management should be formal and planned to allow facilities mangers to be proactive and conscious in their delivery.

It has become extremely important for the service industry today, to be strategic in its approach, facilities management adds value to the organisation, as it merges and incorporates itself with the core needs of the organisation and changes in management structure and operational procedures across all its core and non-core activities *(Goyal and Pitt, 2007)*, *(refer figure 7.22)*.

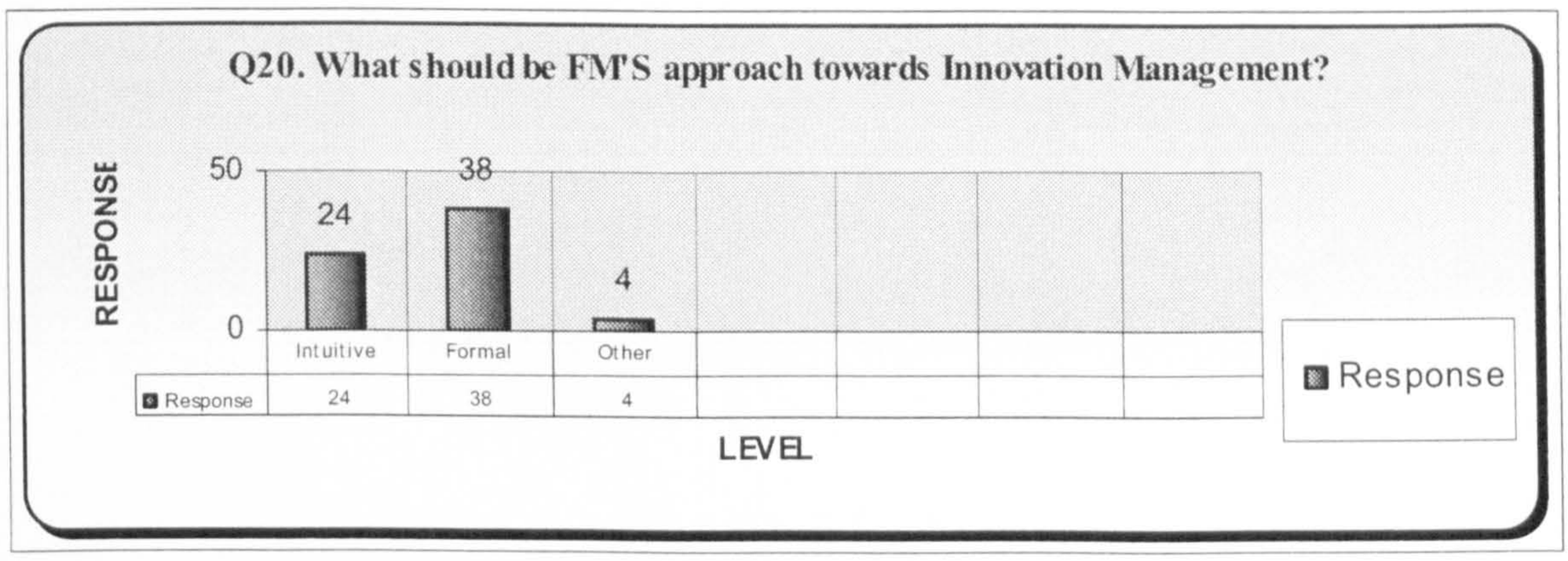


Figure 7.22: Formal or Intuitive approach of FM towards innovation
Source: Self Survey

21) Do In-House and outsourced FM teams have same approach towards innovation management?

The histogram below in figure 7.23 answers it all. 92.1% of respondents believe that the innovation approach differs between outsourced and in-house an FM team, which according to some them comes naturally as those who form part of the organisation will have the strategic organisational boundaries to remain within. A large number of respondents also indicated that outsourced teams should be selected on basis of their approach towards new product development that should also match with the strategic goals of the organisation hiring their services. Many respondents also stated that the management style, history, business ethics and aspirations of all strategic suppliers and contractors should be analysed thoroughly before entering into any kind of contractual agreement or partnerships *(refer figure 7.23)*.

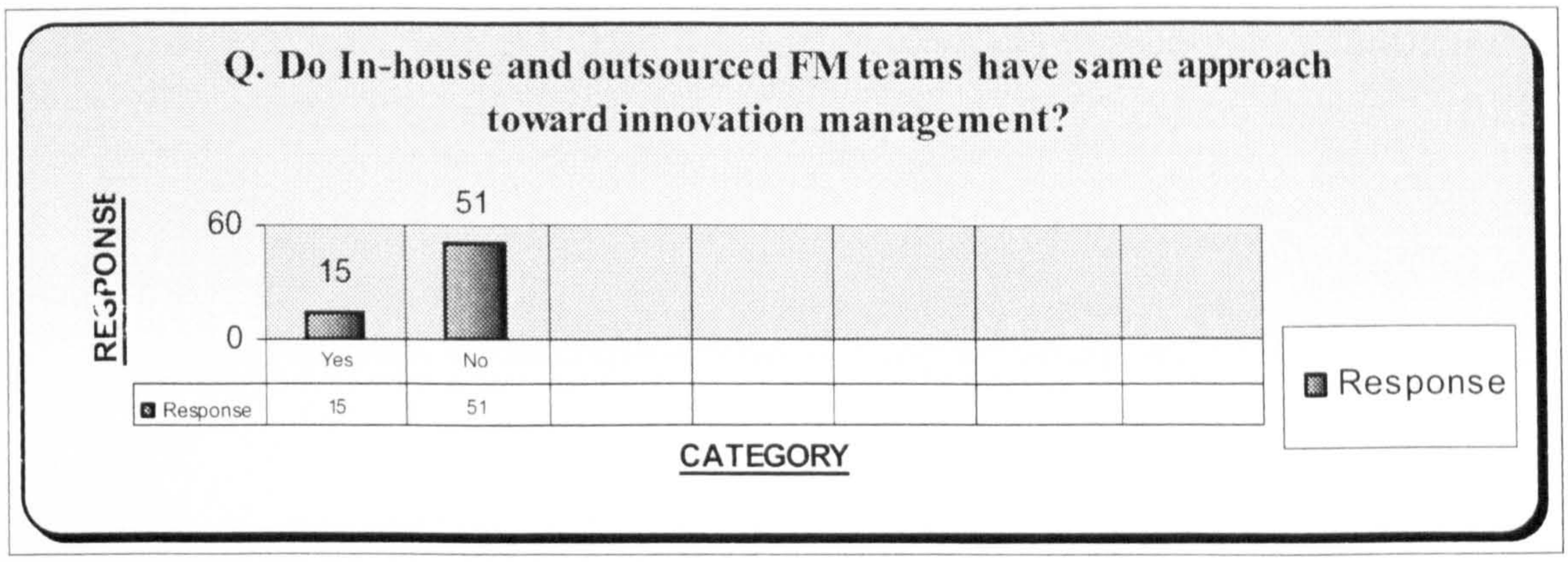


Figure 7.23: Different approaches towards Innovation Management
Source: Self Survey

22) To what extent are these new and innovative ideas driven by client's/customer's requirements?

Customers and clients hold the key to organisations' innovative efforts and strategies. Business processes and goals of an organisation revolve around the needs and demands of its customers, the success of which are then measure by the quantum of returning customers and the level of customer/client satisfaction achieved. This argument is further supported by the survey results as shown in *figure 7.24*, which indicate that 39 out of 66 respondents, which is approximately 59% agree that innovation is mostly driven by client/customer needs, however the rest 40% stated that innovation is affected more by changing technologies, information systems and processes more than they are affected by the requirements of people *(refer figure 7.24)*.

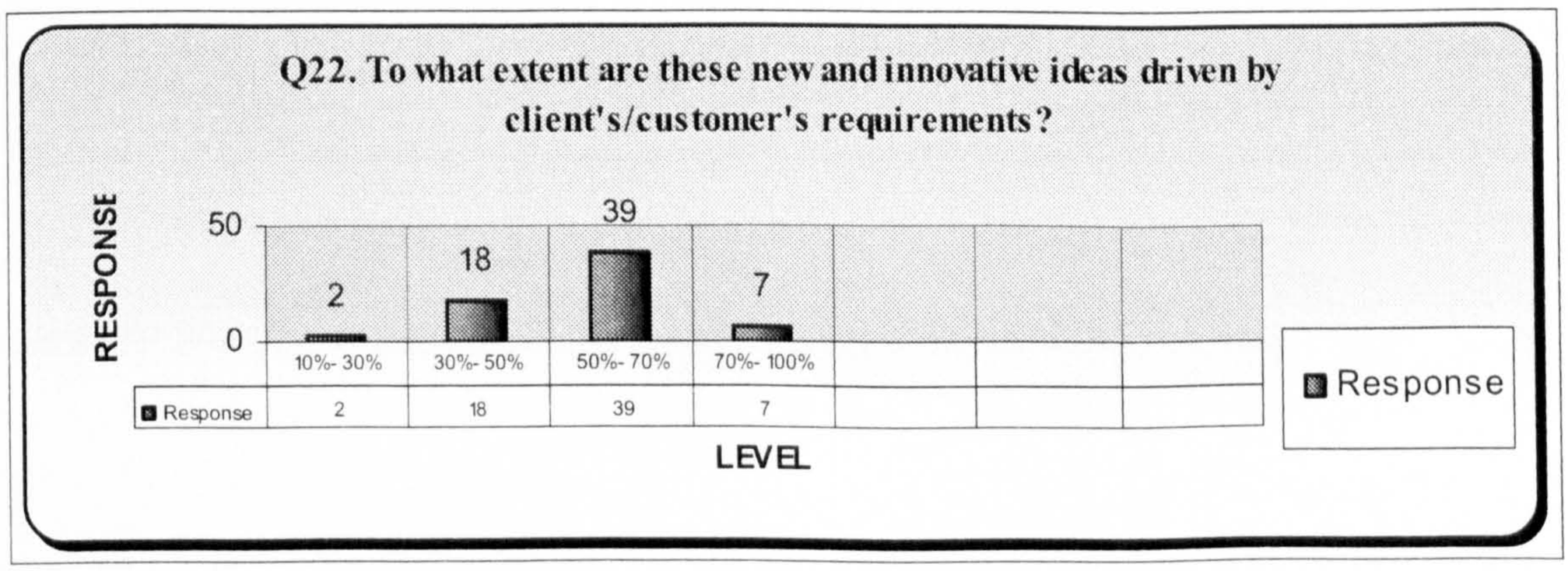


Figure 7.24: Innovation driven by clients and customers
Source: Self survey

23) Which of the following innovations receive most widespread attention in Facilities Management?

Technical	Product	Process	Business
Commercial	Production	Managerial	Organisational

Amongst the above mentioned, it was noticed that business and Process innovation receive most attention within the facilities management field. Facilities Management is evolving from an operational non-core business support services function to a strategic FM position, which supports and enhances both the core and non-core activities of the organisation (*Pitt & Goyal, 2004 &2004a)*. The results seen in, which approximately 74.24% of respondents feel that business and process innovation gain most importance further enhances the fact that facilities management is first and foremost about organisational effectiveness. The decisions taken about facilities are business decisions. The business case for developing facilities depends on an understanding of the potential of facilities for creating quality-working conditions to support key activities. Effectively planned facilities and quality support services can create significant business returns. As competition intensifies, and as change accelerates, many leading organisations are re-valuating the contribution that facilities make to business success, recognising the business consequences of poorly managed facilities and searching for value that can be added through effective planning and management (*Alexander, 1996), (refer figure 7.25)*

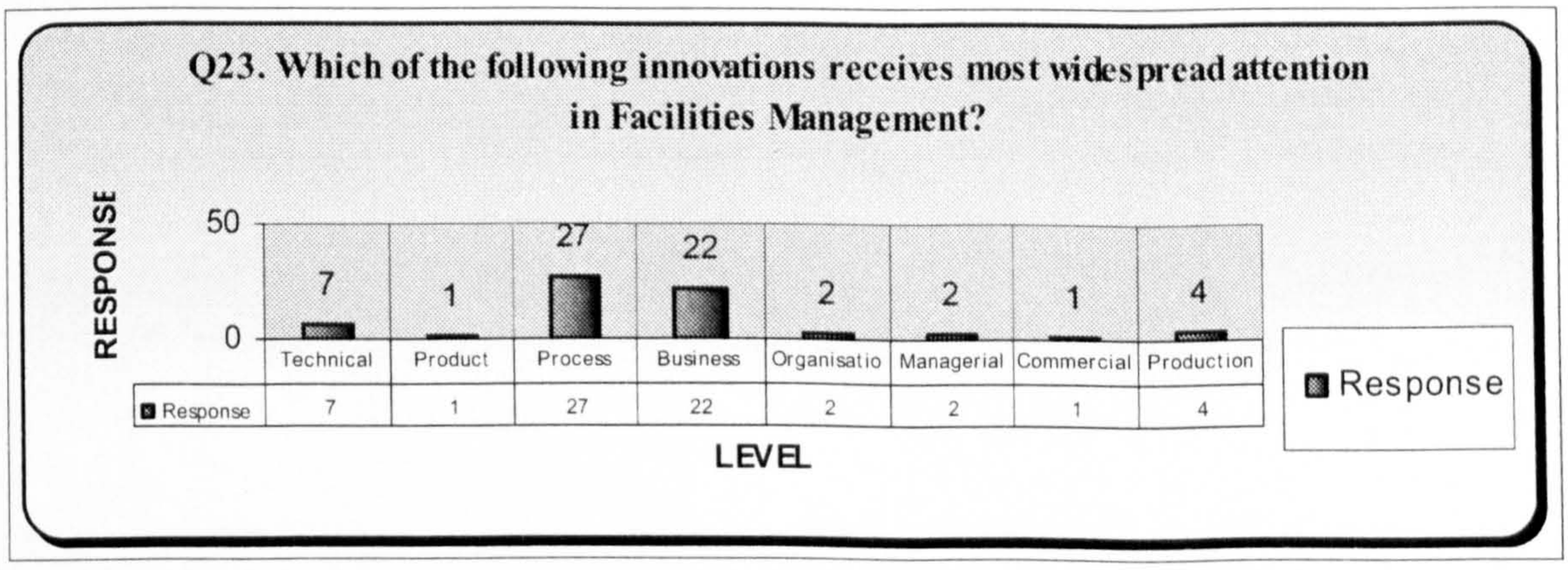


Figure 7.25: Most important area of Innovation in Facilities Management
Source: Self Survey

PRIMARY CASE STUDY - TAYLOR WOODROW CONSTRUCTION

7a.0 Introduction-Desirability of TWC as a primary case study:

The following data was collected and analysed through numerous interviews/meetings conducted with Taylor Woodrow Construction employees, Knowledge Management Director, Knowledge Transfer Partnership Associate and the feedback gained from questionnaires given out at the first stage of research. The Taylor Woodrow Construction (TWC) was chosen as a primary case study since it has been in the housing and development industry for about eighty years, therefore studying and understanding the working of the company was not only enviable but indispensable. Taylor Woodrow Construction has been a part and parcel and also witness of the birth and growth of housing and development as an industry. Age of TWC apart, it has been in the limelight and leading edge in the area of housing and development. Moreover, the company has over 8000 employees and its operations span the United Kingdom, North Americas, Spain, Gibraltar and Ghana. TWC is a major U.K. contractor and happens to be a constant award winner and focuses on delivering first class business solutions and building long term relationships with its suppliers and customers. TWC maintains a world class *'Technical Centre'*, which has the latest facilities providing technical support within TWC and also offers a wide range of consultancy and testing services to external clients.

7a.1 Taylor Woodrow Business operations & Organisational Structure - An Overview:

Taylor Woodrow is mainly divided into Taylor Woodrow Construction (TWC), Taylor Woodrow Developments (TWD), Taylor Woodrow non U.K. operations and Taylor Woodrow Support Services *(refer figure 7a.1& 7a.2), (Naylor, 2006 & case study material from interviews).* TWD, which trades under the brand name of Bryant Homes, is known for creating a wide range of exciting and innovative solutions to all types of needs and requirements – from starter homes to expandable homes catering to family developments and expansions to city centre apartments. In the United Kingdom, Taylor Woodrow services six main areas of construction industry that is, Facilities Management, Residential, Infrastructure, Retail and Private Finance Initiatives (PFI's)

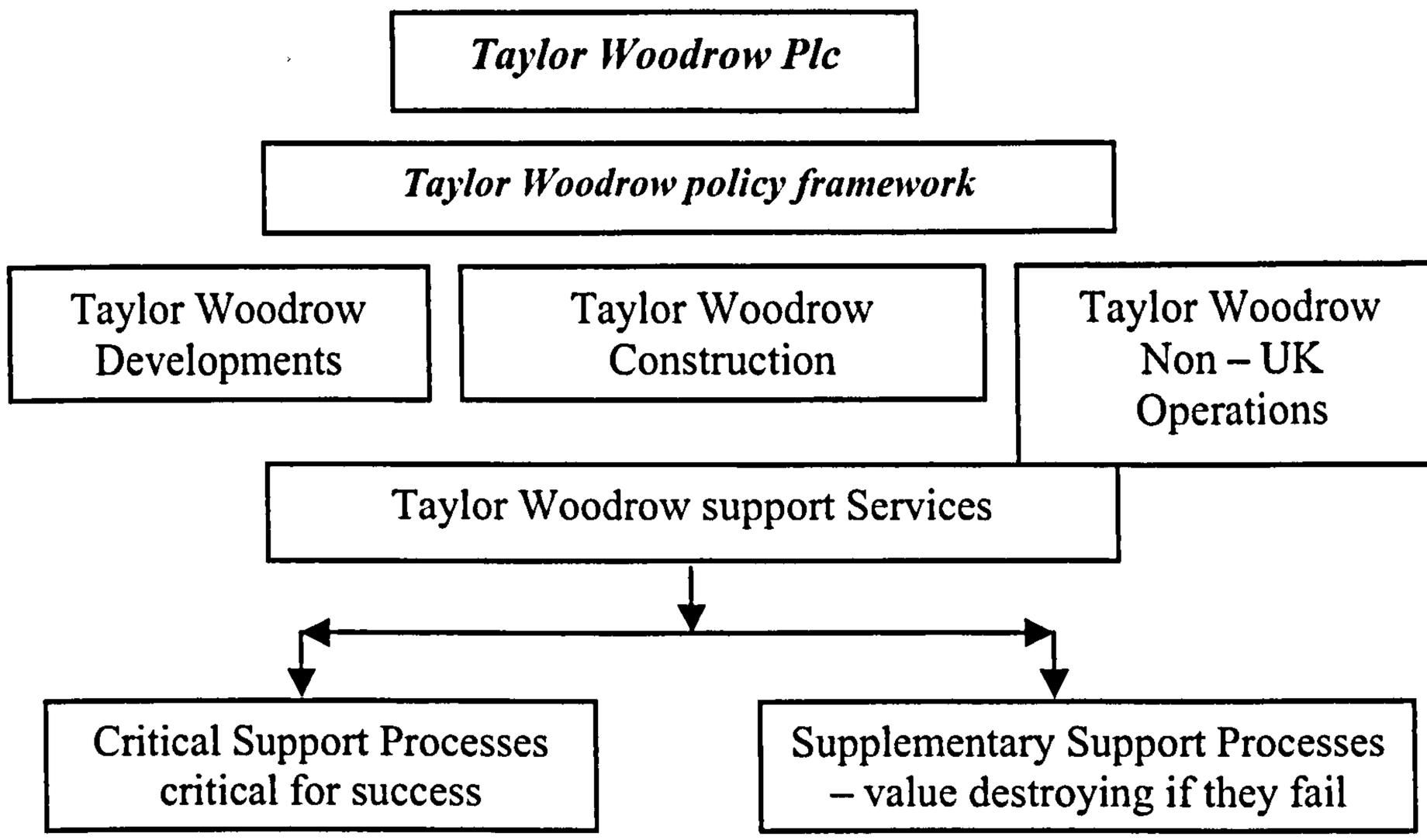


Figure 7a.1: Taylor Woodrow Framework
Source: Naylor (2006)

7a.1.1 Taylor Woodrow Critical Support Services:

Taylor Woodrow provides critical support services in the following areas:

1. Supply chain management;
2. Human Resources – the employee lifecycle;
3. Finance and Management Information;
4. Corporate Social Responsibility (CSR) – Including Health, Safety and the Environment; and
5. Information technology

7a.1.2 Taylor Woodrow Supplementary Support Services:

Taylor Woodrow provides supplementary support services in the following areas:

1. Company Secretariat, Legal and Insurance;
2. Strategy and Business Planning;
3. Corporate Communications;
4. Knowledge Management and Research & Development;
5. Managing 'the way we work' (policies, processes and supporting documents);
6. Managing Risk;
7. Office Management and Internal FM;
8. Managing Business Change Projects;

9. TWD – Specific Support Processes; and
10. TWC – Specific Support Processes.

7a.1.3 Taylor Woodrow Organisational Structure:

The company's organisational structure explicitly illustrates that Taylor Woodrow has not mixed all its operations into just one single entity, therefore giving space and opportunity for the growth and development of each individual functional department in its own right and then integrating it with the whole (amalgamation of separate functional department's innovation goals and objectives with the overall business strategy to achieve continuous growth and improvements) *(refer figure 7a.2), (Naylor, 2006).* There is a well defined separation of business areas, services and the entities looking after them, which enhances the focus and service quality as well as employee efficiency and inputs, thereby augmenting the process of innovation.

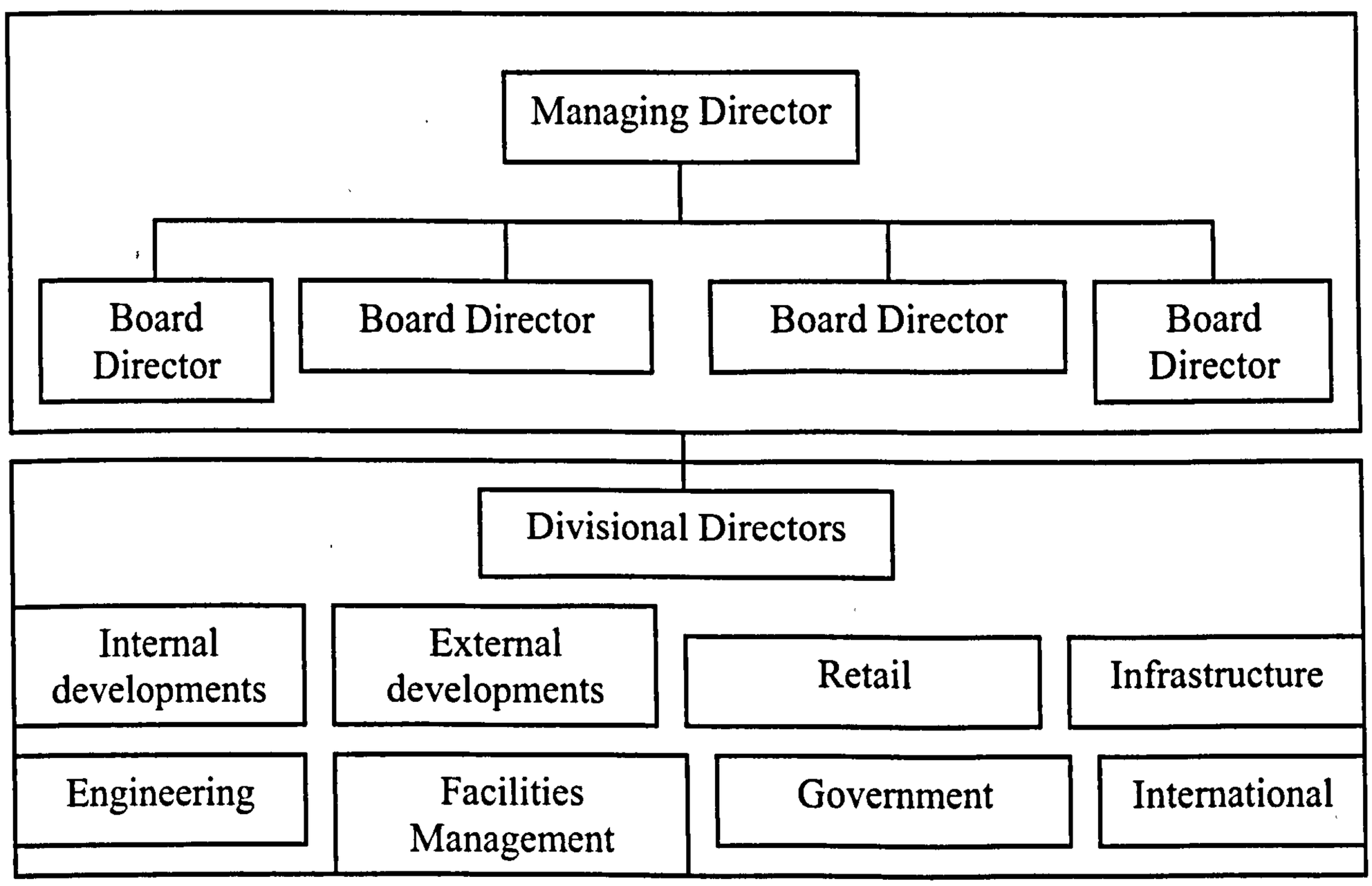


Figure 7a.2: Taylor Woodrow Organisational Structure
Source: Naylor (2006)

7a.2 Visions and Values:

Taylor Woodrow as a company aims to be the home builder of people's choice wherever it operates. To achieve its vision in a day-to-day changing environment, TW has developed a set of core values and principles that guide

the way in, which the company carries out its operations in all areas of services provided. The company's value statement states as follows *(refer http://tayweb/it-systems, 2006, accessed by internal staff during case study interview)*:

We will make a difference

True to our word, we inspire trust

Respecting people, we win their confidence

Caring about what we do, we are passionate to be the best

Doing what it takes, we make it happen

7a.3 Taylor Woodrow Core Competencies:

The core competencies of the company happen to be as follows *(refer http://tayweb/it-systems, 2006, accessed by internal staff during case study interview)*:

- Team work;
- Customer focus;
- Business and commercial acumen;
- Personal drive;
- ***Innovation;***
- Integrity;
- Leadership; and
- Strategic vision

It was analysed during case study interviews with employees that these preset core competencies tremendously help in guiding the working of the company and all individuals, thereby improving the overall performance.

7a.4 Innovation at Taylor Woodrow:

At Taylor Woodrow, very high importance is accorded to innovations within the organisation. The company's technical and core competencies are focused on being innovative within the organisation. TW's sincerity and determination towards growth through innovation lies in the fact that the company now employs an *Innovation Director* and a Technical Director to drive innovation within the company and encourage employees at all levels. In the case and circumstance of TW, the role of the innovation director is vast

and varied and requires integration with different parts of business *(refer figure 7a.3), (case study material collected through interviews):*

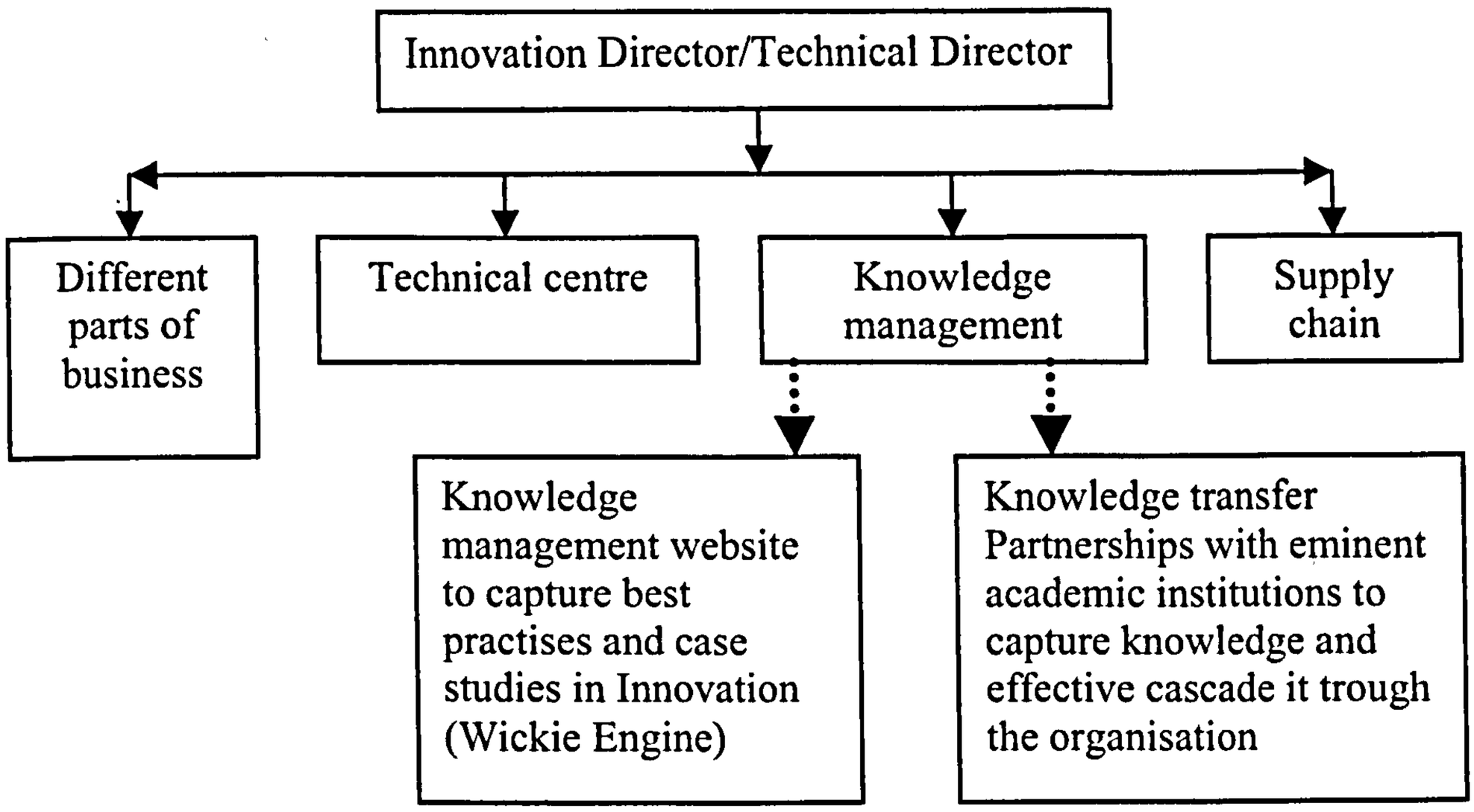


Figure 7a.3: Innovation through Employees-role of innovation director
Source: Self Analysis from case study material

7a.4.1 Innovation Key activities:

The various key activities that guide the working of the innovation department are *(www.taylorwoodrow.com; Naylor, 2006 & interview information):*

- Analysis of information captured in knowledge database and other repositories and communication of trends and significant items to all employees across the company through preparation of summary reports.
- Information management – controlling quality of data stored in electronic systems through data audit and corrective action, to include educating suppliers of information about data quality.
- Maintenance of electronic document and data repositories (e.g. on Tayweb), including maintaining review status and relevance of documents, and maintaining appropriate codification and classification of knowledge captured through use of Uniclass and other knowledge codification standards.
- Production of newsletters and best practice guides using content provided by others.

- Development of tools to support capture and dissemination of knowledge using software such as MS Excel.
- Respond to queries from internal and external customers regarding access and appropriate use of knowledge resources – e.g. Barbour Index.

7a.5 Knowledge management:

TW employees not only constantly work towards supporting the creation and delivery of an industry-leading knowledge management system within the company, but also design, implement, maintain and support the systems required to aid sharing of explicit knowledge within TW and with the company's supply chain (for example intranet, extranet, database, EDMS), therefore ensuring innovation through internal and external sources. Amongst the numerous other purposes, Taylor Woodrow also works to support for activities designed to share tacit knowledge, such as seminars and workshops and encourage knowledge sharing and innovation within TW and the supply chain. This involves:

- Understanding of factors and concepts, which influence successful Knowledge Management (e.g. Culture, process, IT, etc) in order to influence the methods by, which process improvements are made.
- Establish effective methods to capture, review, organise and deliver relevant information to the right people within the construction process – including supply chain.
- Embrace new and innovative ideas with respect to Knowledge Management and add value to existing processes.
- A high-level knowledge management Process Map is used, describing each process, sub-process, activity and documentation to be developed.

7a.5.1 Knowledge Management Mapping Systems:

The management of Innovation and Knowledge management activities as a whole within the company is done through mapping systems, processes, people and strategic advantage *(refer figure 7a.4)*. Taylor Woodrow's Knowledge Management Process allows the organisation to carry out innovative activities through capturing best practices and lessons learnt from

previous construction projects and those of its competitors in the industry, hence adding value to the business of their clients. The organisation has also successfully promoted a knowledge sharing culture by putting in place a simple strategy to deliver valuable knowledge, to the right people at the right time *(refer figure 7a.5) (www.taylorwoodrow.com) (TW internal management system -knowledge management, and case study material analysis).*

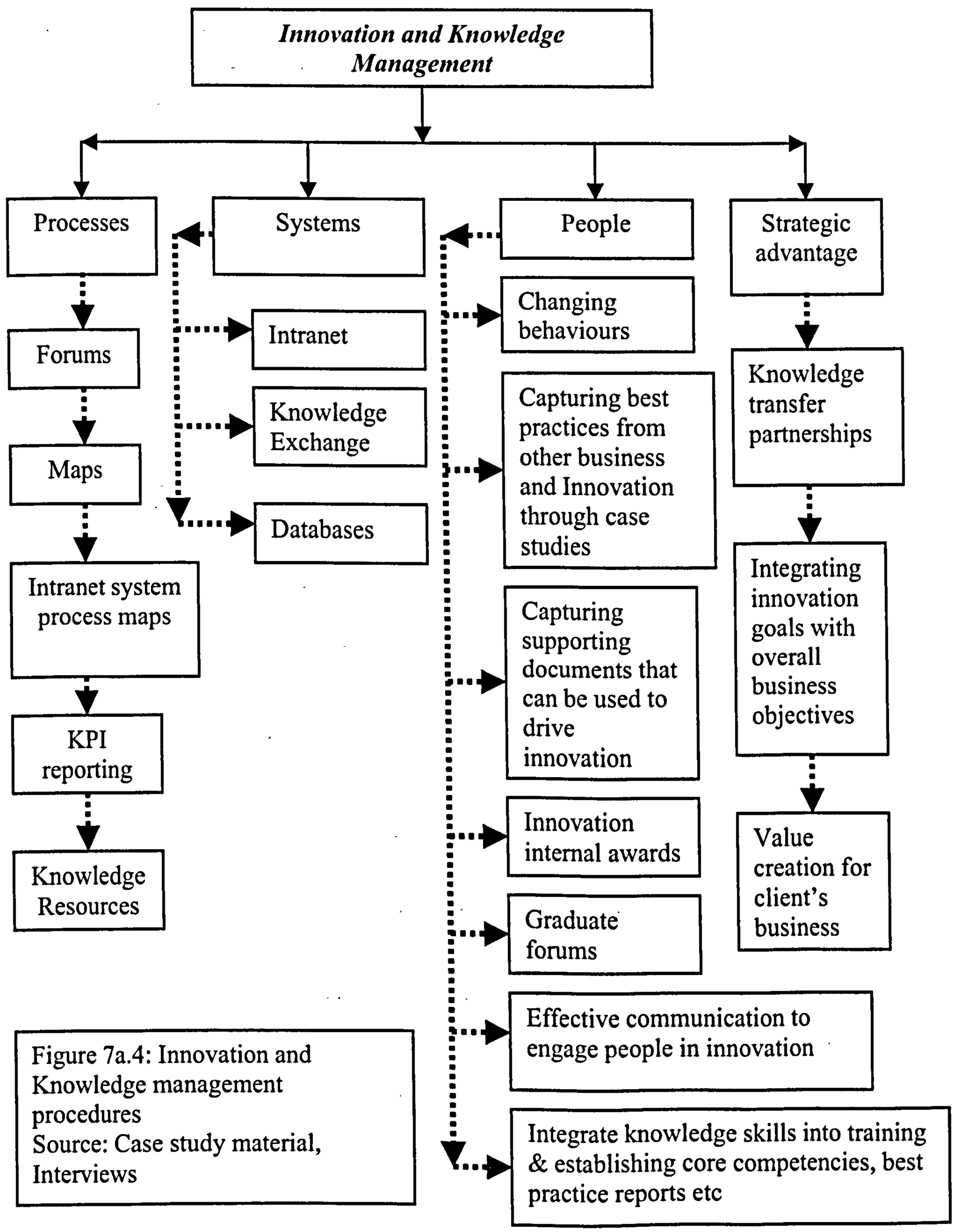


Figure 7a.4: Innovation and Knowledge management procedures
Source: Case study material, Interviews

The service providers feed in service into the organisation through supply chain agreements (data bases, Strategic Alliance Partnerships) and also carry out performance measurement of the deliverable according to the preset SLA's and KPI's. This information is then put on an online form for Taylor Woodrow Review *(also refer performance measurement to performance management, chapter 4)*. The service providers are also asked to come up with various innovative approaches, processes and products.

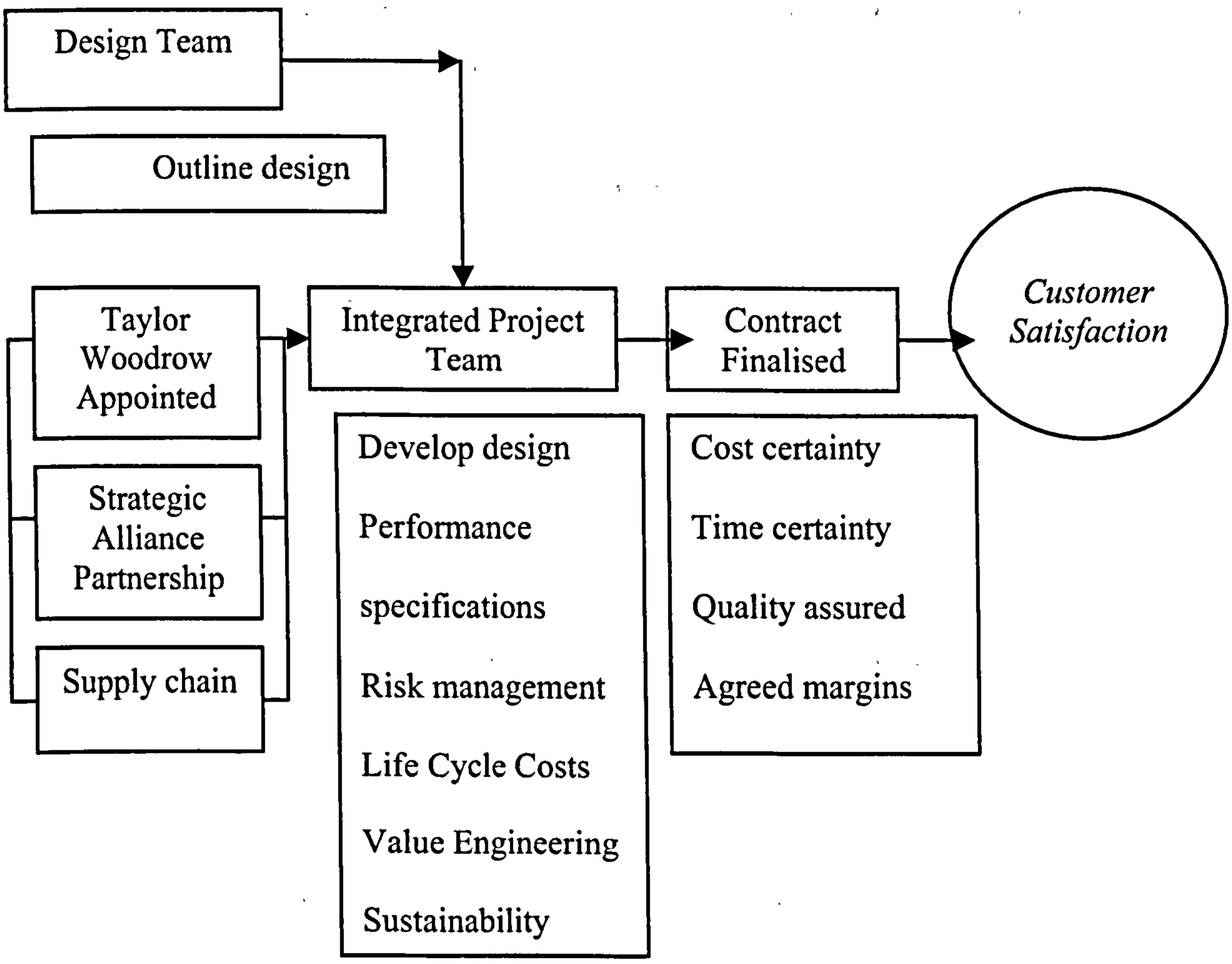


Figure 7a.5: Working of SAP
Source: www.taylorwoodrow.com

7a.6 Employing Information technology and Business Process – Initiating Innovation through Employees:

One of the most important ways in, which Taylor Woodrow initiates innovation through employees is through effectual and successful use of information technology and business processes that allow knowledge sharing within and across the organisational boundaries, supported by efficient business processes to achieve profits. This includes:

- Use of IT systems to ensure that technical knowledge is shared and is easily accessible throughout the TW group. Hence, facilitating a learning organisation.
- Understanding how TW Group activities can make optimum use of IT systems, so ensuring that knowledge management is able to improve the efficiency and effectiveness of the business.
- Identifying and driving through improvements that make optimum use of management information systems, for example in areas such as Internet, Intranet and EDMS etc.
- Help in identifying and developing key business processes needed to improve the business and ensuring that these processes are used across the projects they support.

The various other employee skills and competencies employed by the company for a profitable innovative growth are *(TW internal management system -knowledge management, and case study material analysis)*:

1) Communication skills: This includes;

- Ability to communicate effectively with senior and junior team members with whom the employees come in contact with.
- Maintaining a high quality that successfully communicates the scope and intent of work.
- Being aware of the current status of projects and the immediate work needs and requirements.
- Being able to communicate and interact with other professionals as part of a project team.
- To be able to write clear and concise technical reports that can be understood by the necessary relevant parties.

2) Teamwork:

To ensure profitable results, all employees at Taylor Woodrow are required to work in a team, encouraging and adopting team goals, understanding and appreciating the roles of other employees, learning from others, actively encouraging teamwork by providing support and assistance to others. The company aims to demonstrate this capability through;

1. Encouraging all employees to work well with others in the team - ensuring harmony;
2. To have an easy relationship with all others in the team;
3. Being able to remain emotionally detached from disputes and avoid creating further divisions;
4. Understanding the personal needs of others;
5. Persuading the employees to be actively involved in working towards team goals and understands how these align TWC business objectives.
6. Actively improving the performance of others by providing them with help and support when they need it; and
7. Encourage the employees to co-operate and openly share knowledge and information with all others in the team.

3) Personal Drive:

All employees at TW are required to put in extra time and advance towards each project with a positive and enthusiastic approach. TW employees are required to be willing to accept new challenges those, which set high and demanding personal goals and strives to fulfil their potential and self-development, which again as per the employees is key to innovation as it leads them to develop and exploit new ideas *(data analysis through employee interview)*. The employees demonstrate this through:

- Always looking for the next challenge.
- Taking changes and difficulties in their stride.
- Sticking with tasks to the end, ensuring there are no loose ends and effectively coping with setbacks.
- Striving to fulfil their potential and continuous self-development.
- Prepared to make personal sacrifice to ensure a goal is achieved.
- Actively seeks opportunities for learning.

4) Innovation:

Innovation and incorporating innovative activities in day to day working has always been at the forefront of all TW deliverables. The company encourages all its employees to think and act innovatively such that it adds value to the business and further improves the organisational performance. The employees are required to generate and apply new ideas; identify alternatives

to traditional methods; be open minded and think outside of own area; encourages new ways of working; question existing ways of doing things, look for different application of existing ideas and generate new ideas to deliver improvements to the business *(refer figure 7a.6 & 7a.7)*. Employees demonstrate this through:

- Adopting a new approaches; and
- Willingness to cast aside traditional assumptions and try approaching issues from a different angle or perspective.

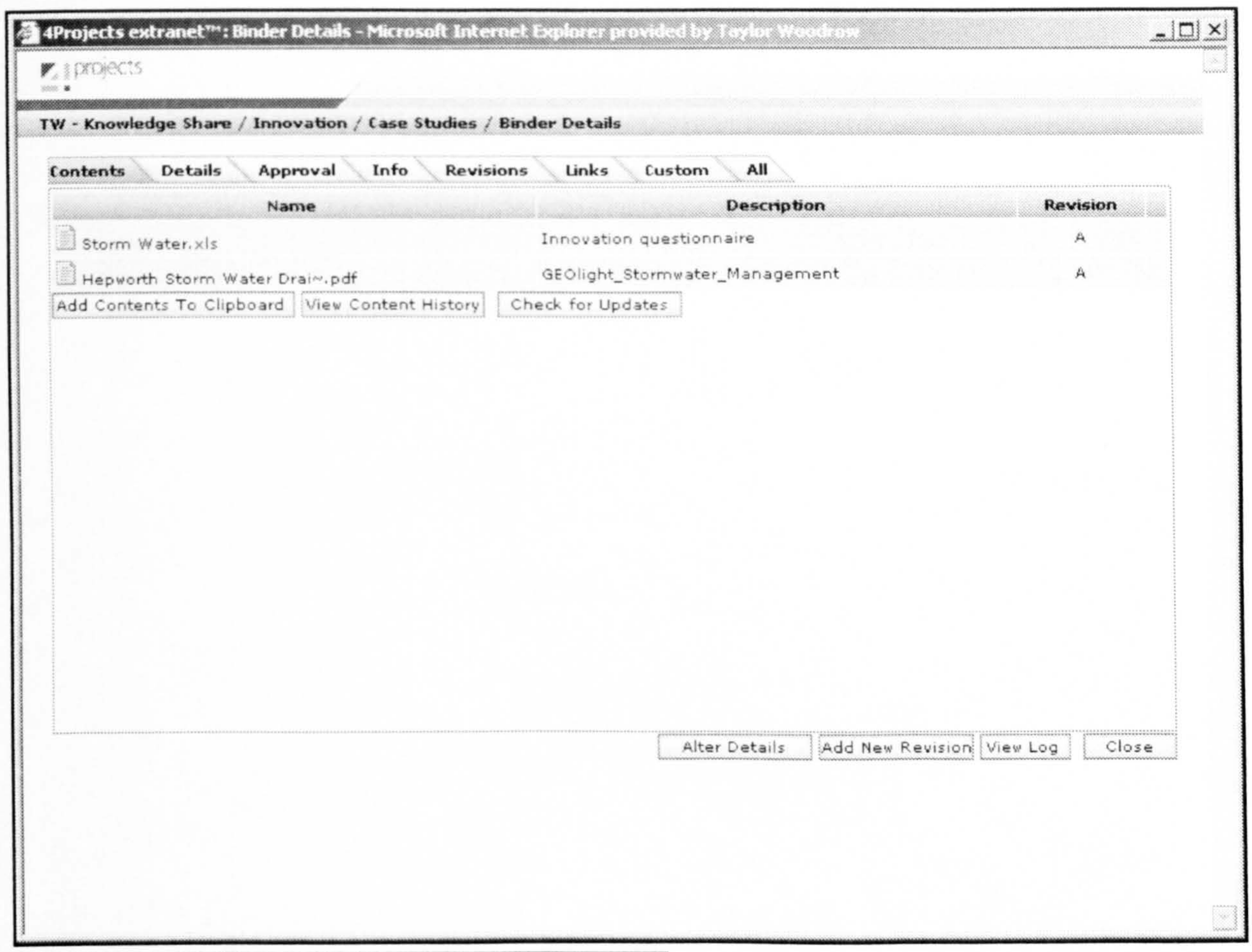


Figure 7a.6: Innovation web case studies
Source: Case study material (Tayweb)

5) Customer focus (internal and external):

Discussions and interviews with Taylor Woodrow employees reveals their commitment towards anticipating and seeking out customer needs both internally and externally with an aim to achieve total appreciation and approval of customer's needs. This according to the people working in the organisation helps in understanding the culture and style of external customers, providing highest level of service and actively building close working relationships with

customers and suppliers *(forming Strategic Alliance Partnerships (SAP) with key suppliers)*. Taylor Woodrow employees demonstrate this through:

- Understanding the key measures by, which his/ her performance will be measured by the customer.
- Working to ensure customer service is an integrated part of his/her own work and that of the project and proactively drives through changes that bring about improvements.
- Using a range of both direct and indirect methods to constantly monitor customer satisfaction and ensure customer intelligence is up to date.
- Actively working to improve the public perception of TWC.
- Proactively using direct yet informal contact with customers to pick up cues regarding satisfaction and future needs/ opportunities.
- Developing innovative solutions that directly contribute to the customer both in the short and medium term.
- Understanding of customers business.
- Being flexible and responsive to customer needs.

Knowledge management
No structured use of data gathered through R&D done by the Innovation team to achieve maximum value addition.

Innovation objectives
Lack of KPI's and innovation metrics to measure performance. Innovation metrics if any are not integrated with the overall business objectives.

Innovation through employees

Innovation at Taylor Woodrow – case study analysis

FM Innovation
FM is expected to contribute significantly to the growth and development of the company however; separate functional departments are not effectively linked with the overall business objectives and goals.

Innovation with suppliers
Suppliers still not chosen completely on the basis of their innovative capabilities. Less integration with the central structure.

Risk and Opportunities register
Lack of linkage between FM Innovation to central structure & its effective usage to add value.

Figure 7a.7: Analysis of case study data.
Source: Self Analysis

7a.7 Taylor Woodrow Facilities Management:

Taylor Woodrow identifies FM as a key strategic growth area and the FM business team is expected to contribute significantly to the growth and development of the company. This additional contribution from FM is expected to come through the expansion of work with existing clients and through tenderising in the open market *(case study material collected via interviews)* and to achieve this competitive advantage, the company stresses on the need to differentiate its FM activities by designing innovative solutions, which meet client requirements and also add real value to those requirements.

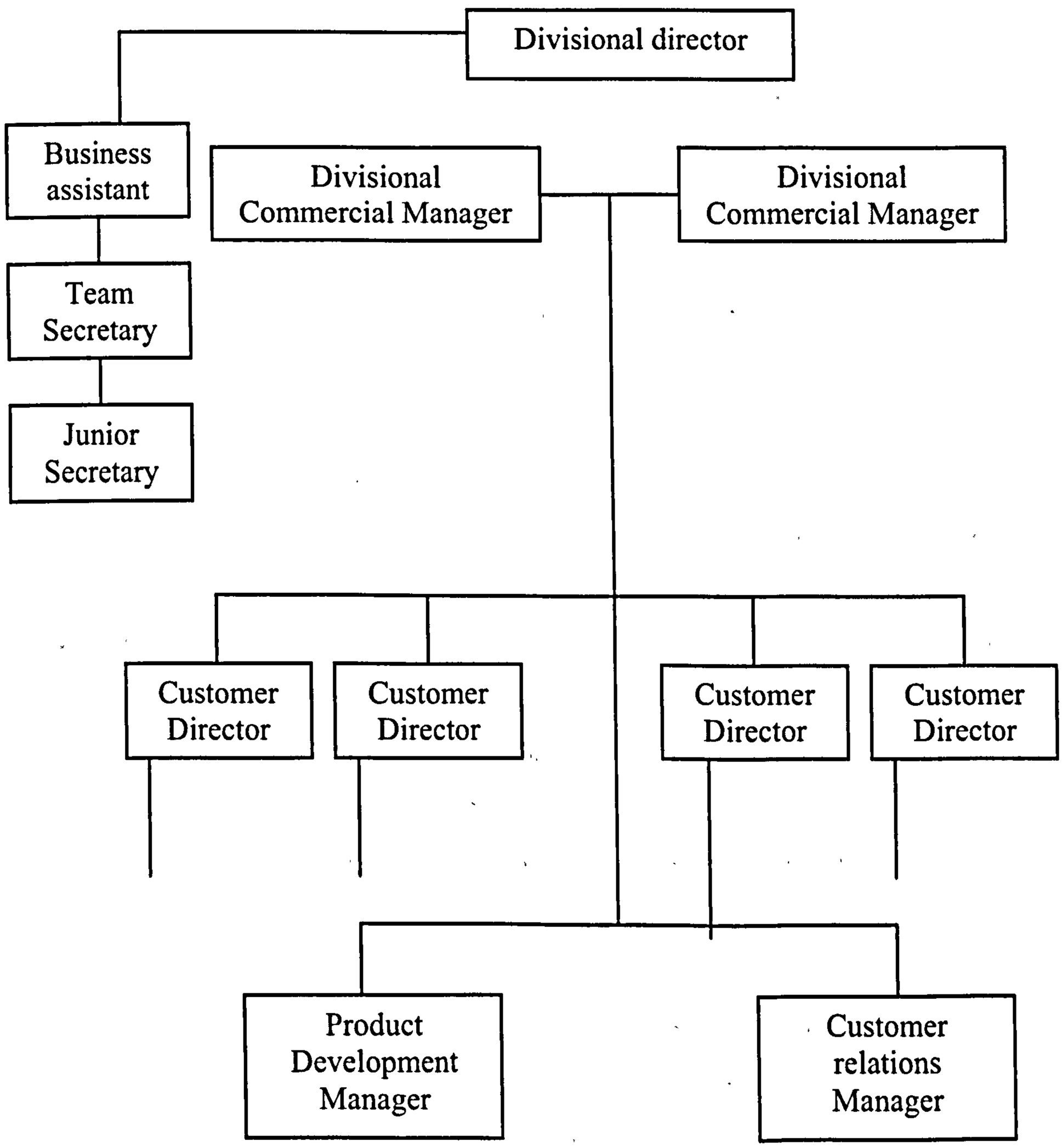


Figure 7a.8: TWC Facilities Management Organisational Structure
Source: Self Analysis from case study material

The Taylor Woodrow Facilities Management department is a team of highly trained and professional project managers, who believe in constantly evolving to enhance the business of their customers, understand the changing customer demands and the business needs to deliver beneficial results that add value to the business *(refer figure 7a.8)*. The solutions are always customer focused, forward thinking and innovative, such that they add value not only to Taylor Woodrow but also to the customer's infrastructure by providing innovative outsourcing solutions. Taylor Woodrow Facilities Management solutions include *(Naylor, 2006); (www.taylorwoodrow.com) and (analysis from case study material):*

- Strategic Facilities Management: The Company's role as managing agent within their clients' companies extends to the strategic direction, management and accountability of an existing network of facilities service providers. From M&E, Building fabric, vending, security and horticulture to ground maintenance, cleaning, office supplies and catering services, each service provider is managed and performance monitored against targets across U.K. and Europe.
- Property Solutions; and
- Refurbishment and Fit-out

Taylor Woodrow's Added Value Expertise includes *(www.taylorwoodrow.com and interviews):*

- FM Consultancy: Taylor Woodrow management believes that effective management of the organisation's infrastructure is key to achievement of best practice in the management of both facilities and property that will lead to efficient support for the core business, increase in productivity and accomplishment of strategic objectives.
- FM Strategy: This includes facilities audits reviews, interim management support, supply option appraisal, lifecycle modelling, process engineering, portfolio and asset management, change management and facilities policy development.
- Technical Services: As a leading provider of both working and living environments, Taylor Woodrow brings together specialist technicians in diverse range of disciplines and core business sectors, hence

committing towards economical and effectual fulfilment of the day to day operational requirements of its clients. Taylor Woodrow's in-house expertise delivers:

1. Building and site surveys;
2. Health and safety audits;
3. DDA assessments;
4. Building services audits;
5. Maintenance policies; and
6. Utilities management.

- Project Management: This includes a team of highly trained and professional project managers with an effectively managed and an efficient communication and reporting system. Taylor Woodrow's core skills in Project Management covers:
    1. Construction management;
    2. CDM Regulations;
    3. Refurbishment & Fit-out;
    4. Design evaluation;
    5. Space planning and Design; and
    6. Relocation management
- Supply Chain Management: Taylor Woodrow delivers added value through emphatic and operative management of the whole supply chain, supported by processes that result in accurate management information through the pro-active monitoring and evaluation of service providers throughout the lifecycle of the contract. Taylor Woodrow's core skills include:
    1. Procurement;
    2. Service provider rationalisation;
    3. Contract specification;
    4. Service Level Agreements (SLA's);
    5. Performance Measurement;
    6. Contract Management;
    7. Monitoring and Evaluation; and
    8. Benchmarking

- Asset Management
- Environmental Management
- Lifestyle Management: The key characteristics of this approach that enable Taylor Woodrow to deliver substantial improvements and real added value to its clients' business are *(www.taylorwoodrow.com)* and *(Naylor, 2006):*
    1. Staff at management and operational level whose training and development reflects communication, customer care and creative thinking.
    2. Development of a broad suite of services within Taylor Woodrow's supply chain that has extended the traditional boundaries of facilities management to optimise productivity by enabling staff to focus on their work.
    3. Increasing levels of collaboration from service delivery structures that provide cross-functionality to steering groups and management groups comprising not only of internal teams but also key supply chain partners and end users.
    4. Contractual arrangements providing flexibility throughout the supply chain, promoting the principal of recognition of achievement and rewarding exceptional performance.

7a.7.1 Facilities management Business Objectives:

The various objectives that command the working of the FM departments are integrated with the overall business goals and strategies to achieve beneficial results that add value not only to the company but also to the client's business. These objectives are *(FM 2006 Business objectives, www.taylorwoodrow.com, 2006)* and *(case study material analysis):*

Profit: To increase the company's profit margin whilst maintaining the planned volume growth in each of the income streams (FM profit to be in excess of £ 4.5 million).

Training: To ensure that every team member has a development plan and that the targeted and approved training and development is delivered effectively.

Churn rate: To continue to enhance employee satisfaction rating and reduce employee churn rate (FM churn rate to be below 12% for resignations).

Communication: To ensure that all levels of management communicate business information throughout the company.

The department continuously examines opportunities for cost reduction with an approach to create an integrated total service that stresses on developing bespoke solutions for customers. This allows the benefits of a co-ordinated approach to a planned and reactive maintenance and refined Key Performance Indicators (KPI's) and Service Level Agreements (SLAs) *(www.taylorwoodrow.com/fm).*

The department has an approved supplier list and follows stringent preset SLA's to keep up to the quality of supply chain. The facilities management department runs around the preset KPIs and SLAs and uses specially designed software (MAXIMO) to measure performance against the SLAs and best practices. A commercial manager is appointed for each project. The commercial manager makes sure that performance is measured on each project and measures best value from each project through the use of MAXIMO *(refer figure 7a.7), (analysis from case study interviews).*

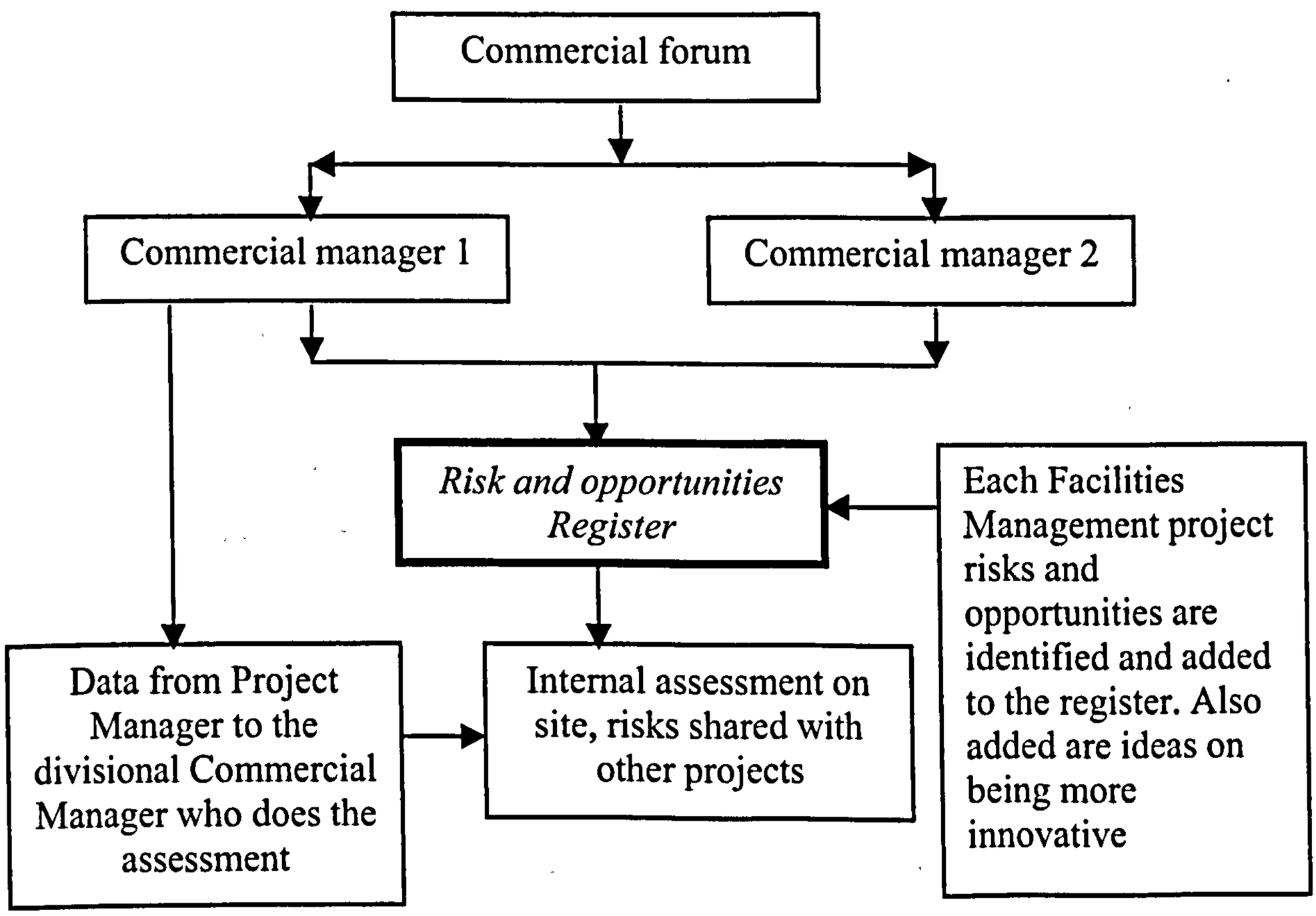


Figure 7a.9: Risk and Opportunities register
Source: Self Analysis from case study material

- The employees are also given opportunity to express their thoughts and ideas through bulletin board and online discussion forum, in which they share ideas and transfer of knowledge takes place as each technician leaves or new one joins.
- Use of Innovation Budget: The facilities management department reports back to Taylor Woodrow Construction (TWC) and makes use of the innovation budget by putting in an application identifying their needs and requirements.

Customer satisfaction: To improve customer satisfaction rating (FM average to be greater than 75%).

Safety: To continuously improve safety performance (All FM projects to score above 80% in safety inspection).

Supply chain: To increase the use of Strategic Supply Chain partners (SAP) and achieve FM utilisation with preferred suppliers to be above 70%

Design management: To develop and implement enhanced design management processes across the business.

7a.7.2 Barriers faced by the FM Group:

Some of the barriers or challenges faced by the facilities management department are:

1. Keeping up with time pressures;
2. Stringent Service level agreements; and
3. Agreeing people to move away from the traditional way of working.

Cost cutting pressure is also identified as one of the important barriers to innovation, challenging suppliers to reduce costs and the understanding of the interfaces between the work ethics and business culture of various suppliers involved.

7a.8 TWFM Risk and Opportunity Register - Capturing Innovation:

This is the system for Taylor Woodrow's facilities management division, which is right now in the process of being launched. The TWFM Risk and Opportunity Register have been formulated to identify examples of risks & opportunities for review by the company's Divisional Commercial Managers. The Risk and Opportunity Form and Central Register is to be published on

Intranet FM Zone for download and the Central register to be published on FM Zone and updated with new ideas periodically.

The Purpose of the Risk and Opportunity Form is to *(refer appendix 3)*

- To share knowledge between team members and projects.
- To generate, develop and exchange ideas across all FM projects in terms of cost saving and value enhancing initiatives together with ways of risk avoidance.

7a.8.1 Risk and Opportunity Process Overview:

This overview excludes management of ideas through business case/implementation *(material gathered through case study interview)*

The form comes with the Review & Publication Process instruction for users (Two short guides), one for the users who are submitting ideas and the second guide provides a short step by step guidance to the administrators of the process review *(refer figure 7a.9)*

7a.9 Partnering for Innovation - Supply Chain Partnering:

Taylor Woodrow's core business areas of construction, facilities management and engineering are well integrated to provide a holistic framework for developing individual and beneficial solution for its customers, with a focused aim to achieve long-term customer satisfaction *(Naylor, 2006 and material from Tayweb collected through interviews)*. To achieve success and innovative outsourcing solutions, Taylor Woodrow reorganised its supply chain, firstly by reducing the number of suppliers and then by identifying a number of *Preferred Suppliers*, with similar business ethos as its own, to join Taylor Woodrow's integrated project teams. From within the company's preferred suppliers, it created a *Strategic Alliance Partnership (SAP)* to encourage sharing of knowledge, skilled labour and technology, all directed towards providing an improved customer service and value addition.

Taylor Woodrow Construction enjoys productive, long-term relationships with a number of its blue-chip clients. These clients have recognised the company's potential for adding significant added value to their projects and have encouraged Taylor Woodrow to align its business to complement their own. Continuous improvement and repeat order business characterise these arrangements. Taylor Woodrow also recognises that business-to-business

relationships with its key suppliers are a better way of doing business, to achieve industry leadership in supply chain partnering.

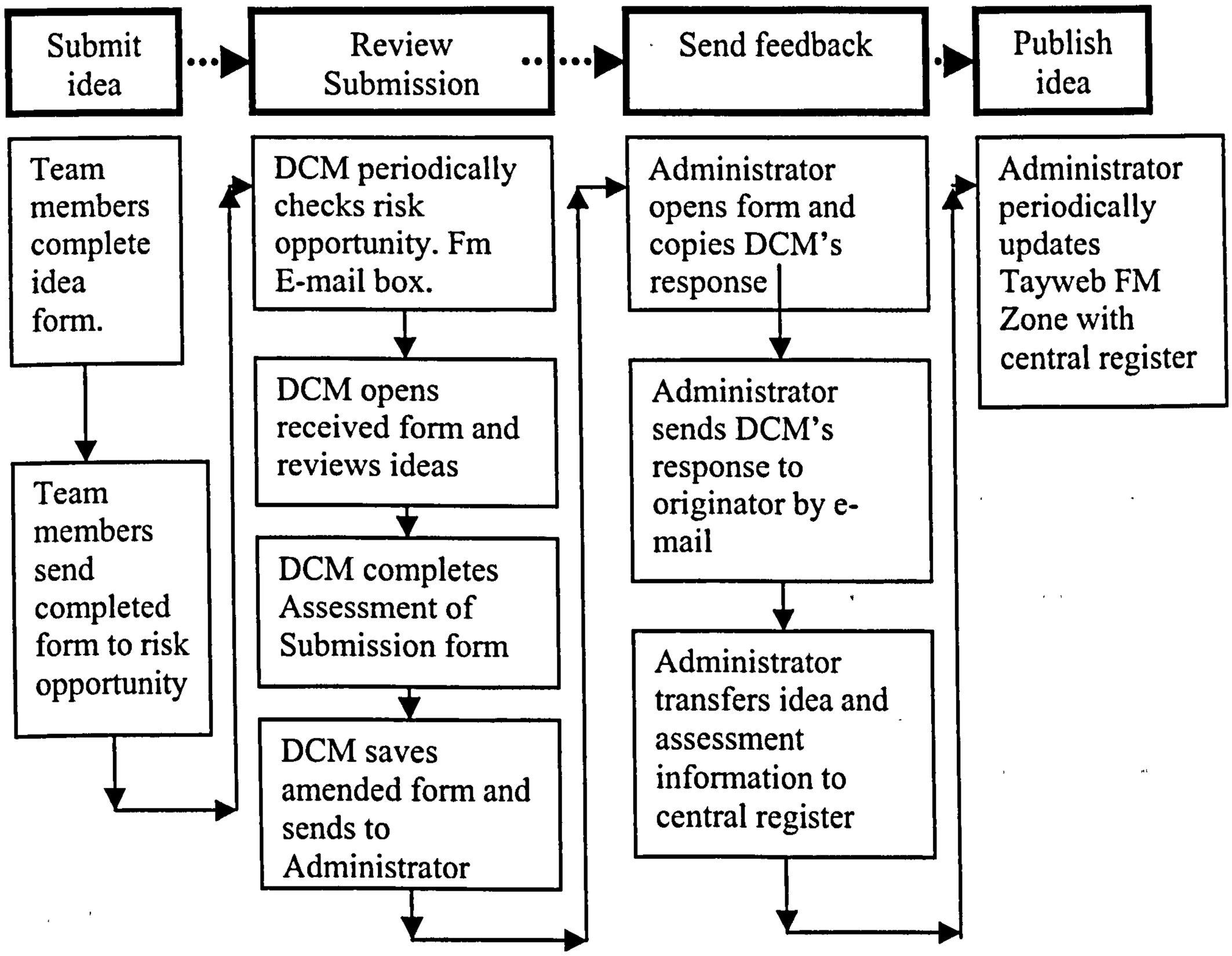


Figure 7a.10: TWFM Risk and Opportunity – Overview of review Process
Source: Case study material, interviews, Tayweb intranet

Taylor Woodrow Supply chain Management also involves *(www.taylorwoodrow.com; Naylor, 2006l), (refer 7a.10 & 7a.11):*

- Development and sustaining long-term relationships to achieve success
- Realising the benefits of collaborative working and that a successful relationship requires not only a framework of shared values and aims but also effective tools with which to function.
- Partnering with M&E suppliers to translate best practices into a truly collaborative environment that delivers appreciable and concrete benefits to the organisation as a whole.

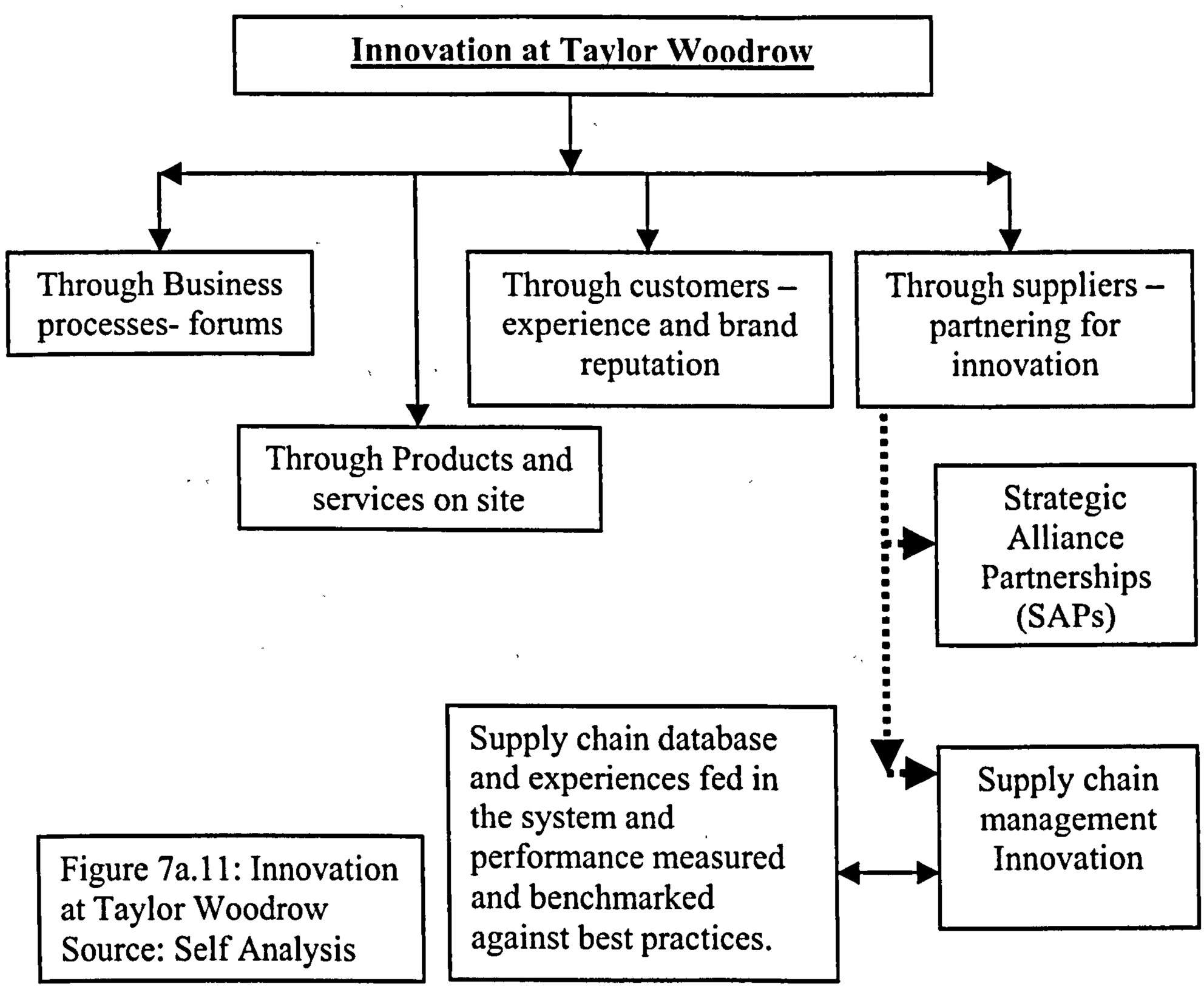


Figure 7a.11: Innovation at Taylor Woodrow
Source: Self Analysis

7a.10 Business excellence:

Taylor Woodrow is the first construction company to win the Committed to Excellence Award, which was presented by the British Quality Foundation in recognition of Taylor Woodrow's clear improvement in business performance. The company has adopted EFQM's Business Excellence Model *(refer appendix 10)* as a vehicle for continuous improvement and aligned its corporate visions, aims and policies with the business values under which Taylor Woodrow operates. These values are then cascaded down to the company's Quality Assurance/Continuous Improvement Management System and form the backbone of its operational procedures and processes *(www.taylorwoodrow.com)*.

The "Zero Defects" approach enables identification of defects before they occur by placing high importance on pre-construction activities and by working closely with customers and supply chain to ensure that right information and resources are in place at the right time, the results of which are seen in the quality of the end product.

7a.11 Innovation through Research and development:

As a progressive organisation that believes in continuous improvement, long-term satisfaction for customers and providing innovative outsourcing solutions, Taylor Woodrow is committed to investing in research and development to enhance the satisfaction level of its customers and add value to the business by continuously improving its deliverables. The research and development programmes adopted by Taylor Woodrow bring new and innovative thinking to its construction projects through collaboration with Universities, Research Organisations, Professional Institutions, construction organisations and through various Knowledge Transfer Partnerships (KTPs), across the United Kingdom and Europe. The key areas within research and development, emphasised by Taylor Woodrow are *(www.taylorwoodrow.com):*

1. Advanced Manufacturing;
2. Sustainability and the Environment;
3. Collaborative working & interoperability of IT systems;
4. 3D Project modelling;
5. Life Cycle Cost modelling; and
6. Knowledge Management

7a.12 Innovation Group Guidelines:

Taylor Woodrow has set a number of guiding principles that are followed strictly by the innovation group. These are *(Case study Material collected through Interviews):*

- The group is to be the focal point within the Taylor Woodrow Development (TWD) for innovation and the selection of new products and processes for development and evaluation.
- The group will sponsor market research, concept assessment studies and feasibility trials on new products and processes that are market and customer focused, investing in those initiatives that have the potential to be implemented and realise tangible benefits, either in terms of growing revenues or reducing costs.
- The group will co-ordinate innovation and research activities from across the company and will actively seek out new ideas from the regional business teams.

- The group will track and report on government, major competitor and allied activities of potential interest to TW and also may commission reports from external resources as appropriate to establish background intelligence on specific areas where there is inadequate or insufficient expertise within the company.
- The group will seek assistance of direct research and development funding by working with TW's supply chain or integrating the work into major projects to offset some or all of the costs. Long term research, where appropriate, will be undertaken in collaboration with other partners, taking advantage of the financial gearing available from the UK Government or European Commission.
- The group will ensure that a project charter is completed and approved for each project. Cost/benefit metrics will be required as part of the evaluation of new projects. The progress and performance of projects will need to be measurable and reported to the TW's Technical Steering Group (TSG) at appropriate intervals.
- The annual budget and delegated authority for authorising project expenditure will be set by TSG, in accordance with TW's investment policy.
- The group will prepare and publish a communications policy. It is intended that the scope of activities will be disseminated to the regional teams whilst recognising that some elements will need to be held in confidence.
- The group will meet 4 times a year and sponsor workshops or other events as appropriate to ensure that there is good stream of ideas for consideration and that the company is well informed of emerging and new opportunities and work.
- The group can invite external contributions and guests to the meeting as appropriate.
- The group will establish and maintain good communications with TWC, the technology centre, TW' s North American and Canadian businesses.

7a.13 Summary:

Taylor Woodrow aims not only to improve its own performance as an organisation but also make a difference to the industry as a whole by active participation in best practice and innovation. The company, which has proved its worth through a number of industry awards and the volume of repeat order work from its clients, aspires to continuously represent the best in its industry. Taylor Woodrow aims to make this difference through *(www.taylorwoodrow.com and Case Study Material, 2006):*

- Customer satisfaction;
- Business excellence;
- Social responsibility;
- Commitment to quality;
- Supply chain management;
- Research and development; and
- Knowledge management.

Innovation is internally driven through:

- Employees role profile: Innovation forms the most important requirement and competency of their job profile
- Innovation fund: Employees fill a form to get funding for their ideas, which is reviewed and processed by the top management and granted fund if found appropriate.
- Internal Innovation and Knowledge Management strategy: This is integrated with the overall business objectives and goals, allowing effective sharing of knowledge with clients, customers and supply chain partners for achieving long-term success and innovative outsourcing solution.
- Intranet system: Across the whole team and the supply chain that allows easy and timely flow of information and knowledge sharing.
- Innovation meetings, presentations and brain storming sessions: To get people thinking, this is attended both by the employees and the supply chain partners.
- Supply chain partnerships and management: the organisation's systems and models are evolved and continuously improved to meet

the changing requirements of its clients, to identify the right suppliers and to ensure that best value is achieved.

- Lifestyle FM: Taylor Woodrow believes that Lifestyle FM is an all-embracing approach that recognises the importance of people as well as the envelope in which they work. It enables work/life balance to be achieved, extends the traditional boundary of the built environment, empowers staff to achieve optimum performance, encourages the customers to define service need and goes beyond process to achieve real partnership.

7a.14 Drawbacks:

Taylor Woodrow has a planned system that allows the company to drive innovation both internally with its employees and externally with its clients, customers and supply chain. However, what it lacks is an effective and efficient system to measure the value added through its innovative activities. Though the company is working on standardising of all measurements and formulating a single set of metrics, the Business case and the Innovation strategy has no process that allows measurement and its feedback to management *(refer figure 7a.12)*.

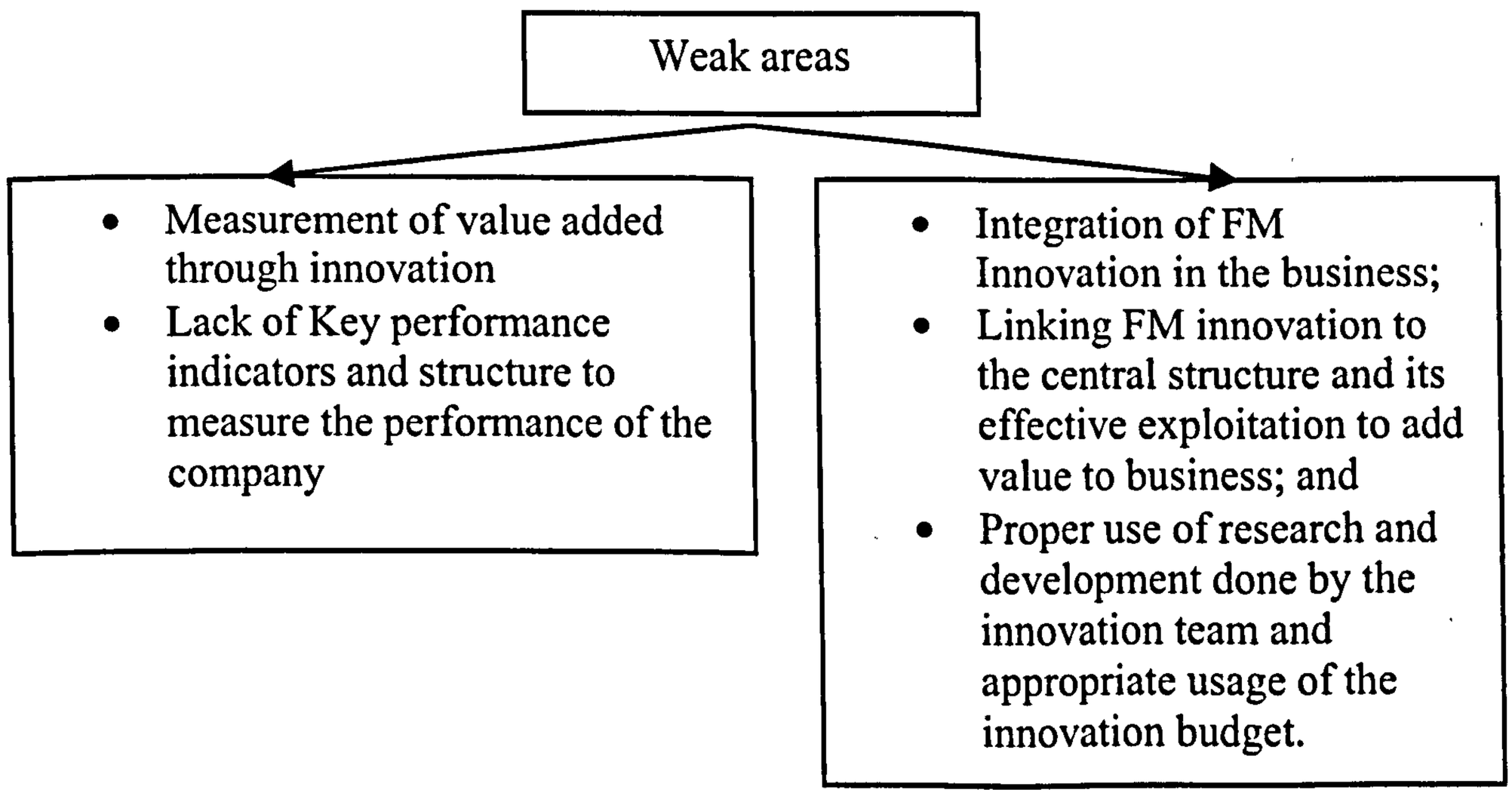


Figure 7a.12: Weak areas within the innovation management structure
Source: Self Analysis of case study material

PRIMARY CASE STUDY - AMEC BUILDING AND FACILITIES SERVICES – DELIVERING QUALITY AND VALUE

7b.0 Introduction:

AMEC is an international project management and services company that designs, delivers and supports infrastructure assets for customers across the public and private sectors. AMEC employs more than 45,000 people working from a global network of offices throughout the UK, US and Canada, as well as regional offices and projects worldwide. AMEC works in many different markets around the world with special expertise and a large customer base in the oil and gas, power and transport sectors and in process industries like mining, food and pharmaceuticals. In addition AMEC also has customers in a wide range of industrial and commercial sectors such as financial services, retail and leisure.

AMEC works with its customers from the very start of their investment and helps them develop the initial concept, plan funding and add value from the initiation stage through to detailed designs. Throughout this process, AMEC adds value by providing services like operator training, regulatory and environmental advice and business consultancy. *Brikho (2006)* states that leadership; training and innovation are essential in making a company successful. However, AMEC also considers exporting and going international as the key to success and has global clients and presence that allows interaction with a wider workforce and vast knowledge base. Long-term success for companies comes only when they have an edge in innovation, which continues to develop their people and, which have strong leadership do better in business and are affected minimally by any downturns.

Work culture at AMEC follows the 'Cracking the Performance Code' (The Work Foundation Research), which affirms that all successful companies should:

- Encourage innovation;
- Don't focus on structure but allow simple decision-making;
- Share information freely and have networks that allow them to do this;
- Have invisible and accessible leadership and management;
- Set high expectations; and

- Value quality not quantity.

Innovation and continuity at AMEC is carried out through its Continuous Process Improvement centre (CPI). CPI is crucial throughout the business and is driven from above and below the central core of management. Knowledge on existing best practices and information on new and innovative methods is collected and analysed by the CPI manager and the core team. Innovation at AMEC is further enhanced as its supply chain is also charged with feeding the process with new innovative ideas as it is developed, which are then entered into the CPI register.

7b.1 Innovation at AMEC:

AMEC Building and Facilities Services is committed to delivering exceptional quality and value to its clients. To facilitate this, AMEC incorporates two key concepts of:

1. Continuous process improvement; and
2. Organisational learning

As part of its drive towards delivering best value to customers, AMEC also invests in

1. Team working skills; and
2. Training for the future of the industry.

Innovation forms an integral part of AMEC's work culture and strategies as the company strongly believes that innovation helps:

1. To generate profits and help stay in business in the long run;
2. To build long term relationships with the clients;
3. To make clients competitive;
4. To be efficient in the workplace;
5. Allows the company to be competitive in the market place;
6. To offer better value for money;
7. Allows growing as a business;
8. Provides motivation to all employees;
9. To embrace the principles of re-thinking construction – Egan Report[1];

[1] Rethinking construction is the name of the report produced by Sir John Egan's Construction Task Force and commissioned by John Prescott, the deputy prime minister and published in July 1998. The report asserts that through the application of best practices, the industry and its

10. To improve client satisfaction; and
11. To improve predictability

7b.1.1 Continuous Process Improvement:

AMEC considers Continuous Process Improvement as a booming process that requires concentration and hard work, whereby improvement opportunities are captured and evaluated. This evaluation process is based upon the Plan, Do Check, Act Cycle formulated by the company *(refer figure 7b.1):*

The outputs and benefits of this process are:

- Continuously improving business process;
- Continuously improving products and materials; and
- Continuously improving tools and techniques.

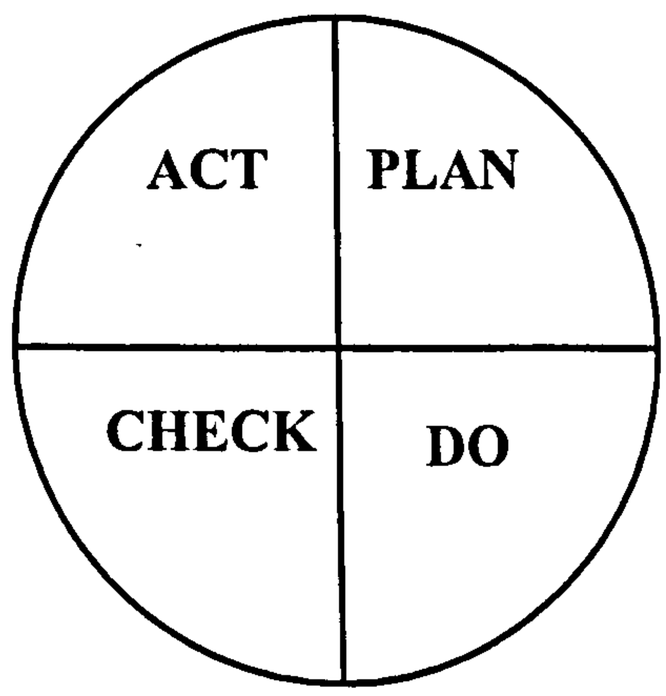


Figure 7b.1: The PDCA cycle for continuous improvement
Source: Case study material from AMEC

The business development officers at AMEC stress that the process of continuous improvement requires rigorous safety, environmental, engineering compliance and financial evaluations to be completed and analysed before new innovation can be adopted.

clients can collectively act to improve their performance. The rethinking construction report proposed the creation of a "movement of change" which would be a dynamic, inspirational, non-institutionalised body of people who truly believe in the need for radical improvement within the construction industry. One such outcome was the launch of movement for innovation on 3rd November 1998. www.rethinkingconstruction.org/rc/report

7b.1.2 Organisational learning:

AMEC's product development and training centre allows the company and its employees to immediately implement beneficial changes in the company's business environment and culture. However, AMEC's business development officers feel that a lot more is still to be explored in this area, which would allow AMEC to innovate more and provide better results in all its undertakings and accomplishments. The business development officers at AMEC stress that it is not the organisations that improve but the people and if people don't perform then there will be no improvements. Hence, it is essential to educate people through organisational learning.

7b.1.3 Team working:

AMEC aspires to work closely with both its client representatives and supply chain members to offer the clients continuously improving and beneficial project solutions that add value not only to the company but give profits to all involved. This is achieved by channelling the creativity and inventiveness of the company's supply chain, engineers and construction installation teams to evolve project solutions that deliver the following *(refer figure 8b.2), (AMEC case study material)*. AMEC believes that the trust placed in the company by its clients is based upon high commitment to delivering projects that exceed their expectations both in terms of quality and value.

7b.1.4 Training for the future of the industry:

Apprentice and technician training is also carried out in the Product Development and Training Centre where the next generation of construction technicians are allowed and given the opportunity to become acquainted with the innovative approaches. The CPI training centre is a multi-functional, multi-disciplinary centre that offers both education and training and an environment for best practice to grow, develop and flourish.

7b.1.5 The AMEC Way:

The AMEC way is about how the company carries out its business with respect to its clients. It is about working together to achieve mutual benefits and profits. However, the most essential feature of the AMEC way is about how the company and its employees behave. The AMEC Way is a practical guide using tested tools and techniques to apply in everyday workplace and links the way in, which AMEC works towards its visions and business culture,

and part of the culture is to continuously improve the way in, which AMEC does its work.

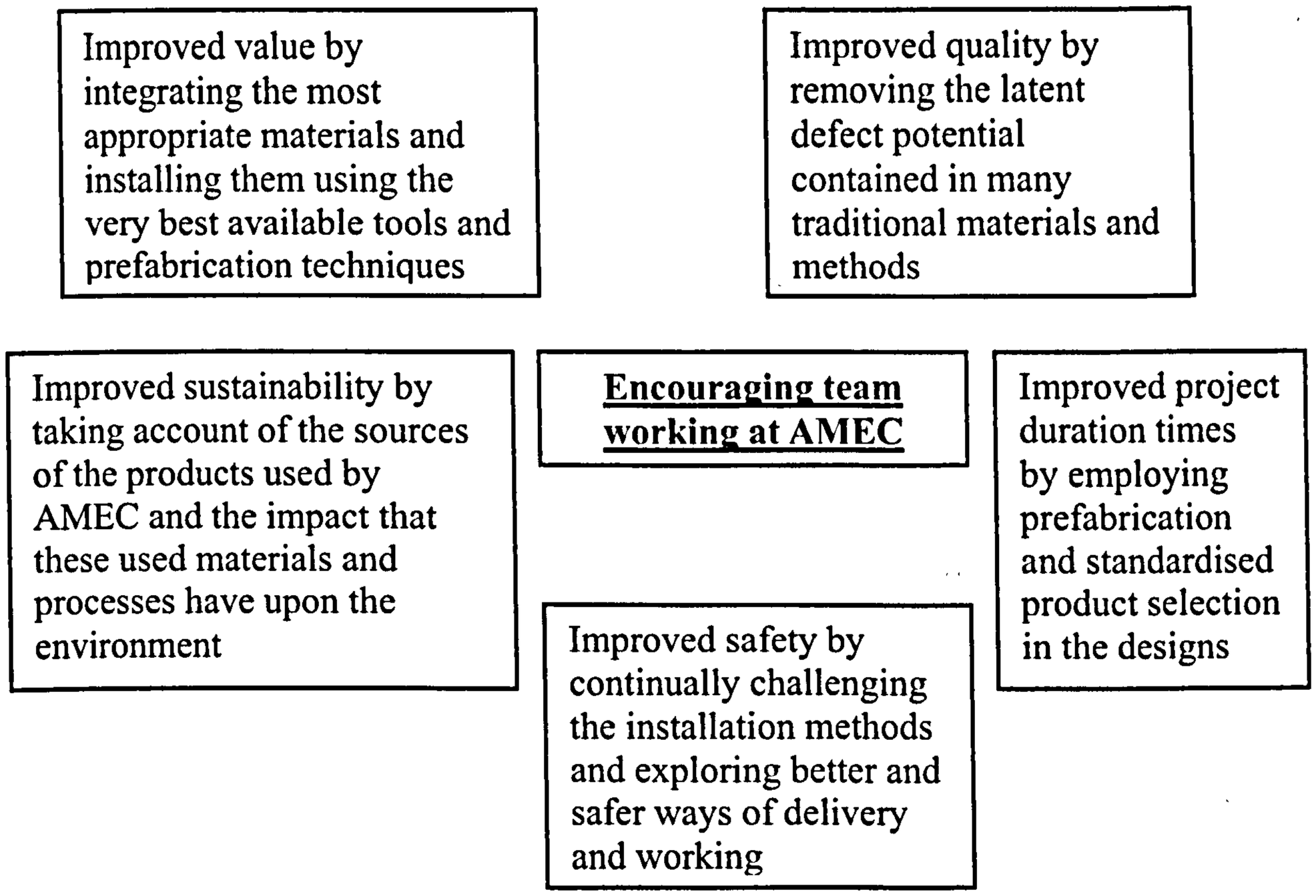


Figure 7b.2: Encouraging Team Building at AMEC
Source: Self Analysis from case study material

7b.2 Continuous process improvement:

CPI is about making small regular improvements to the way in, which work is carried out at AMEC plc. It is carefully explained as means to investing a significant amount of time working with associated people, understanding the business process of the company and the needs of the clients, analysing the ways in, which AMEC delivers and performs and finding ways to improve constantly. CPI as stated by the business development officers at AMEC is a method of introducing a formal improvement structure into an organisation involving everyone. The various factors that completely describe the essence of CPI are *(AMEC case study material)*:

- Innovate: Working with supply chain to find new and better ways;
- Evaluate: Carry out trials on the new methods and measure benefits;
- Assimilate: Link ideas together to form exceptional products and systems;

- Integrate: Ensure that the company incorporates its standard products in the design solutions;
- Educate: Guarantee that all project stakeholders are aware of new methods through organisational learning; and
- Congratulate: Enjoy the customer(s) satisfaction through positive customer feedback.

The CPI centre is created to test and evaluate new products and approaches through vigorous evaluation process, which involves *(refer figure 7b.3 & 7b.4):*

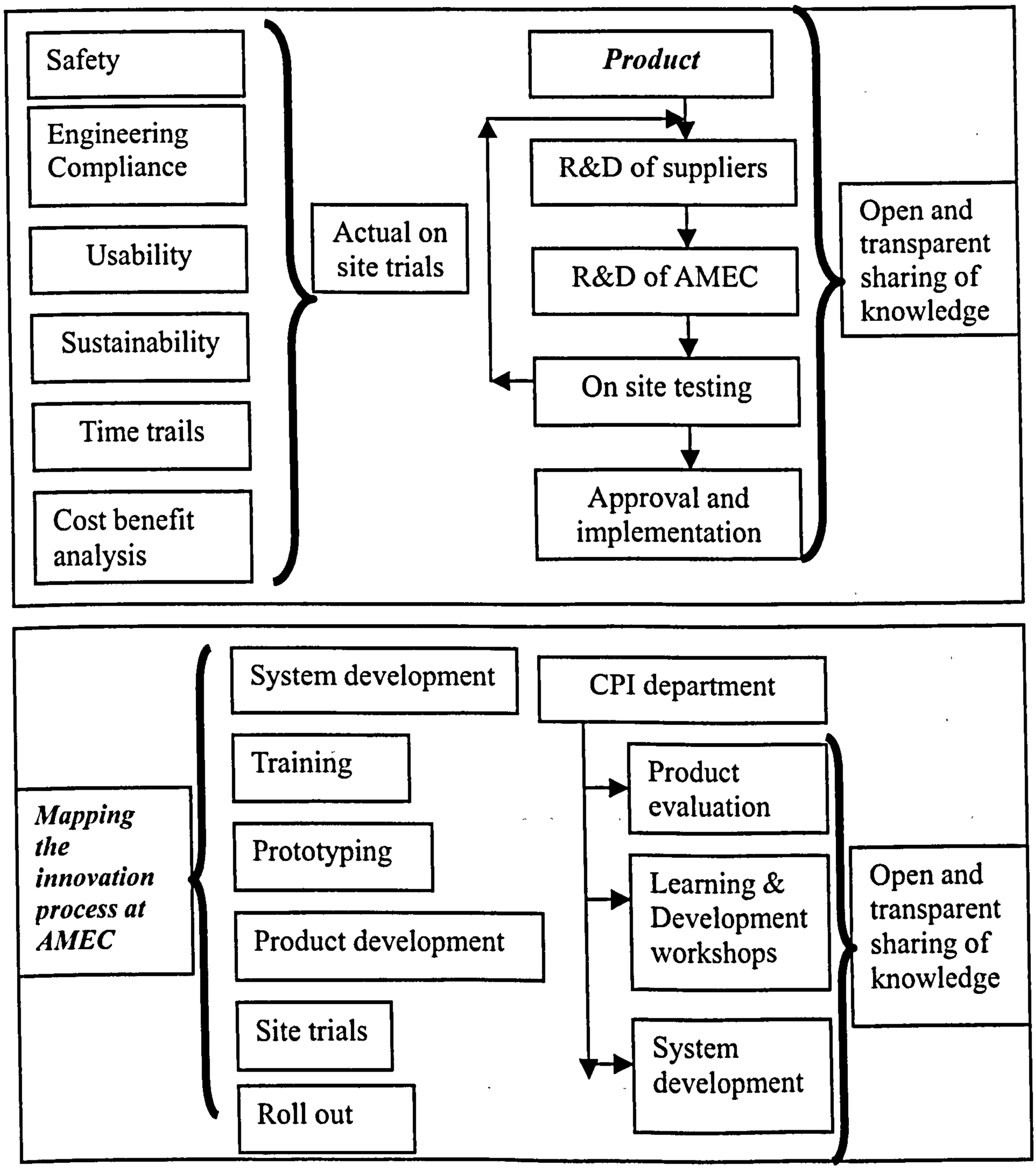


Figure 7b.3 & 7b.4: Innovation Process at AMEC
Source: Self analysis of case study material

7b.3 Innovation model at AMEC:

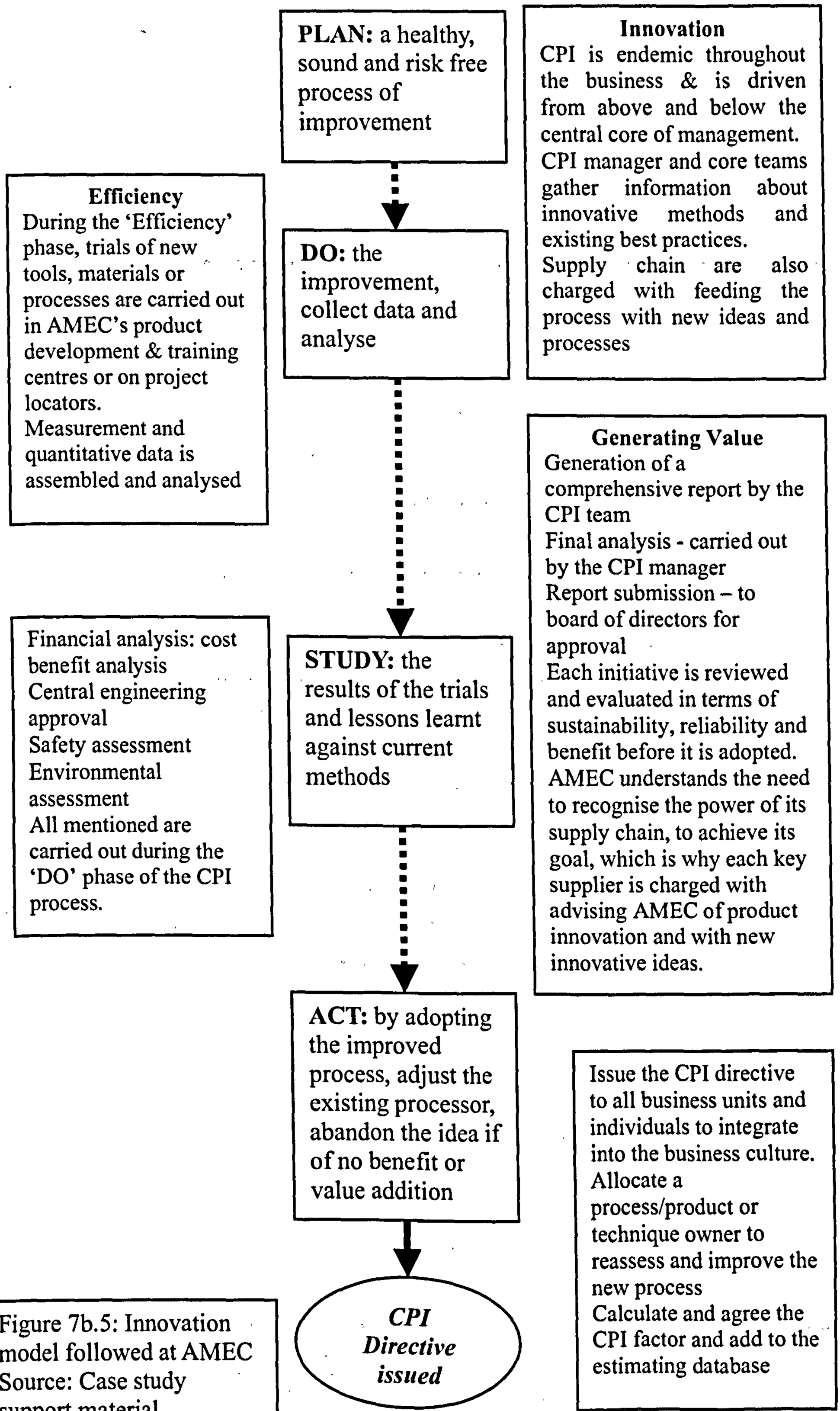


Figure 7b.5: Innovation model followed at AMEC
Source: Case study support material

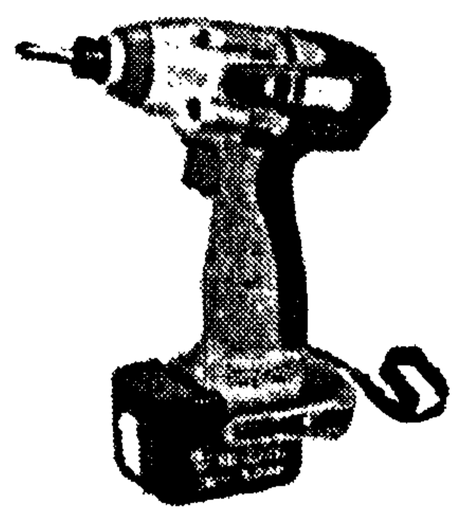
Directive 35

Continuous Process Improvement

amec

Impact Battery Screwdrivers

THE BENEFITS



- ✓ New generation of powered screwdrivers
- ✓ Much faster than using hand tools
- ✓ Uses impacts to drive in screws - not just rotation
- ✓ Uses far fewer bits
- ✓ Trials of 3 models available resulted in the Hitachi being the best option

APPLICATION

- ✓ Use for all screw applications when fast installation time is required.
- ✓ Use for new generation plugless fixings

Contact: Internal Asset Management

Product Owner: Mick O'Toole cpi@amec.com

This product can be viewed at the CPI Product Development and Training Centre, Trinity St. London

This process improvement has been fully evaluated by our CPI Teams and provides performance benefit. This improvement should be implemented immediately

For CPI Team

H.R. Haldane ..... Signed: ..... Date: 15/12/03

Regional acceptance

K. Morgan ..... Signed: ..... Date: 15/12/03

M Burgoyne ..... Signed: ..... Date: 15/12/03

T. Atherton ..... Signed: ..... Date: 16/12/03

Sanctioned by G. Ludlow Signed: ..... Date: 19/12/03

Figure 7b.6: Continuous Process Improvement Directive Form
Source: Case study support material

The areas in which CPI can make improvements are *(Brikho, 2006)*:

1) Innovation
2) Waste
3) Risk
4) Design
5) Methods
6) Materials
7) Tools
8) Teamwork and
9) Training

When asked how innovation and entrepreneurship can be applied in building and facilities services, the head of continuous process improvement at AMEC Building and Facilities Services stated that organisations should not wait or hope for a miracle to happen, both within the organisational environment and from people working outside of entrepreneurship and innovation environment. Instead, new ideas should be encouraged, nurtured, researched, developed and then implemented with use of appropriate resources. In order for building and facilities services to achieve these culture organisations need to understand *(Haldane, 2006):*

1. The workings of the innovative mind and provide an environment that encourages it.
2. Organisations must seek to eliminate culture that can destroy a new idea before it has had an opportunity to grow and develop
3. People who know the idea cultivation process can only nurture innovative thoughts and ideas in the correct environment.
4. To become innovative, organisations must learn the principles of innovation; understand the process of idea development and become adept in its application.
5. Organisations must embrace, help and take inspiration from business stakeholders, including existing and future customers and supply chain partners who have research and development budgets, which could be easily integrated with the organisations' research and development budgets thereby, helping each other to develop solutions, products and processes that would add value to the business of not only the organisation but also the suppliers. This fosters a high performing and rewarding business environment *(also refer innovation through partnering - chapter 3).*

6. Organisations must also strive to understand the current market trends in terms of management skills, project designs, material selection, tools, installation methods, commissioning, maintenance approaches etc.
7. Organisations need to find new markets where they can introduce services that provide exceptional value to present and future customers and all of this would require systematic planning and investment.
8. Organisations need to look for innovation activities that address the key concepts of improvement namely; improved productivity and delivery, better quality and reliability and address shortcomings in safety and environmental and sustainability performance *(refer figure 8b.7).*

Figure 7b.7: Building and Facilities Services Innovation
Source: Self analysis from case study material

Organisations that embrace these principles would not only reduce their cost base or the investment they put in their products and services when compared to the return on investment but also ensure that they remain competitive in the current market environment and in favour with the loyal customer and supplier base. Innovative thoughts and ideas can only be nurtured in the correct

environment by people who know the idea cultivation process *(Haldane, 2006)*. *Haldane (2006)* states that though some great inventions result from moments of genius, but by far majority of them are as a result of recognising that there are business opportunities that can be exploited if necessary resources, planning and determination is applied to develop the idea. Innovation is clearly a day- to- day process regularly managed in the business activity. It acts a means through, which change can be exploited as an opportunity for a different business or completely new service. *Haldane (2006)* concludes that nnovation is a business culture that must be understood, embrace and promoted with much the same dynamism and vivacity as health and safety, human rights, equal opportunity, sustainability and corporate governance.

7b.4 Innovation with suppliers:

Fairweather et al (2006) accentuate that building a strong supply chain is an essential part of successful project delivery. Selecting and building long-term relationships with the best companies is critical for success and long-term profits. Working with the right suppliers, in the right way, can bring strategic value to offer clients a competitive advantage. Various steps taken by AMEC to achieve beneficial relationships with their suppliers and hence, customers are as follows. The process is continuous and is constantly improved through experiences learnt with each project. However, some of the activities carried out by AMEC are as follows:

1. For complex services that are critical to the client and the success of the project, AMEC develops a fully integrated team with the supplier at the earliest possible stage, which helps maximise the benefits of their expertise and innovation.
2. AMEC aspires to work as a strong team player within an alliance.
3. The company makes major investments in training staff not only in the required technical skills but also in succeeding within a culture of integrated project teams.

7b.4.1 Examples of innovation with suppliers:

Fairweather et al (2006) state various examples of innovation and partnership shared by AMEC with its suppliers, which clearly explain how AMEC's supply

chain partners play a vital role in helping it deliver projects for clients and form a critical link in the chain.

1. AVEVA, established in 1967, has been an excellent example of technological innovation since past five decades. The company is well known for its Vantage PDMS (Plant Design Management System) software, the original 3D plant design solution. AVEVA has a strong working relationship with AMEC going back to 20 years and this has been possible due to its commitment to developing effective tools for the market place and constantly works towards moving technology forward. PDMS global software enables worldwide execution of a project in multiple locations. This allows fast and effective sharing of information to the people on site even if they are not present on the same location as that of designers.
2. The second exemplary example of supplier innovation given by *Fairweather et al (2006)* is of AMEC with Hi-CAD. In the past 25 years, Hi-CAD has established itself as an internationally recognised 3D laser scanning and dimensional survey specialist with an approach to embrace new technology and simultaneously testing and developing it to ensure profits and business benefits. Hi-CAD focuses on understanding the business requirements of the client and then develops solutions, which not only meet their needs but yield profits. The strong partnership between AMEC and Hi-CAD can be attributed to their matching business philosophies and the existence of a good and beneficial cultural fit between the two companies. This enables employees from both the companies to approach opportunities for improving work processes in an open manner.

8b.5 Key points from interview:

AMEC Facilities and Building Services stands out as an admirable and distinguished example of a company that continuously works towards innovation to improve its working and delivery and consider innovation as an integral part of every day activities and not just a one time event. AMEC works together with its clients and supply chain to create and maintain more productive and sustainable capital assets and hence is considered unique and outstanding in the areas of design, environmental engineering, project delivery

and support services. The company also invests in and delivers privately financed infrastructure and property projects on a selective basis, often with associated long-term support service contracts to keep up to its commitment to continuously improve – the highlights being *(AMEC case study material):*

- A long standing and vigorous commitment from the supply chain;
- Hardworking and highly motivated and inspirational CPI teams and leaders;
- Product development teams;
- Building services design teams;
- Project installation teams; and
- Innovation with clients.

The management at AMEC believes in the need to embrace innovation since there are numerous players within the building industry, each with their own specific needs. AMEC's CPI department challenges:

1. Easier and faster to install products – challenging productivity;
2. Ensuring defect free products – challenging quality;
3. Elimination of safety risk; and
4. Environmental safety – ensuring sustainable materials and

Organisational learning: with respect to people, customers and supply chain, educating them in the above mentioned principles and ensuring that the supply chain not only develops materials and systems, which they hope to be attractive but actually are.

7b.6 Barriers to Innovation – Drawbacks faced at AMEC

- In the area of facilities management, innovation still takes a back seat as people today are still more oriented towards construction. Therefore, requiring restructuring of the department.
- Calculations and performance metrics are based on assumptions, which tend to raise false hopes and are not real measure of the value addition.
- Barriers also occur in the form of:
    - Mental block of employees
    - Not being able to accept that every new activity has risks involved

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- Barriers also occur in the form of:
    - Mental block of employees
    - Not being able to accept that every new activity has risks involved

- To take cost benefit analysis as the most important innovation metrics and indication of value added.

7b.7 Summary:

Top management at AMEC states that an organisation can only grow, succeed and gain competitive advantage, only if the long terms interests of all stakeholders are considered. By taking their needs and demands into account, an organisation can ensure a healthy and beneficial partnership with them and also at the same time safeguard its own future and the future of all of its employees *(Brikho, 2006 & www.amec.com).* One of the most important innovation activity that gives AMEC a competitive advantage over its competitors, is the sustainability programme that runs right across the company and commits AMEC to progress not just against commercial objectives but also against broader objectives, such as behaving ethically and respecting community concerns.

Also, included in its innovation initiatives is the safe delivery of projects. Health and safety discipline is fundamental to AMEC's culture and runs through each and every activity carried out in the organisation ensuring excellent project management and delivery. This also includes taking responsibility for customers' investment and valuable assets, which enables AMEC to build strong and long-tem partnerships with its customers. The customers are completely integrated with the working and activities of the organisation as one team. This gives the company an opportunity to deliver value for money to customers over a lifetime.

In facilities management it is all about realising expectations of all stakeholders involved, which should be fulfilled by increasing improvement potential, reprogramming and training people, employees, supply chain, leaders, workforce (through organisational learning) and attaining a higher productivity target *(Haldane, 2006).*

PRIMARY CASE STUDY: THE WATES GROUP

7c.0 Introduction:

Wates is one of the UK's largest private construction and development companies. Wates Construction is renowned for its innovation and commitment to delivery of all its projects on time and on budget. The company not only works within Public Sector Frameworks, Private Sector Partnerships and Private Finance Initiatives (PFI), but also has a valuable reputation for conservation and restoration projects within the United Kingdom *(Wates, 2007), (refer figure 7c.1).*

In 2005, Wates achieved a ranking in Business in the Community's *'Top 100'* making it one of the UK's most progressive companies in terms of corporate responsibility, delivering benefits to all its stakeholders through an accelerating, impetus and innovative business activities. The company strongly believes that an effective and efficient corporate responsibility policy integrated with business goals and aligned with the company's strategic vision is indispensable and paramount to achieving long-term success and benefits.

7c.1 Visions and Values:

Wates vision as a business is to be the first U.K. construction company that delivers for customers on time and on budget, every time. The company aspires to achieve this vision for 2010 through a clear strategy focused on Wates Development and four key construction businesses namely, Construction, Interiors, Living Space and Retail *(Wates, 2005).* The company's aim to achieve its vision for 2010 has formulated a diligent and persevering three-part improvement programme. The key points of this improvement programme are *(Wates, 2005)*:

1. Delivering operational success;
2. Clear insight into the right markets and customers; and
3. Strategy for recruiting and retaining best people the industry.

The company's values of integrity, intelligence, performance, respect for people and communities and teamwork support this vision. The company aims to *(Wates, 2007):*

1. Deliver superior value to customers;
2. Define clear business goals that focus on strategic business;
3. Drive key business improvement projects; and

4. Create development opportunities for all

Long-term relationships with customers form the core of the business along with strategic frameworks and partnerships, which enable the Wates Group to collaborate with its supply chain and customers to drive continuous improvement and deliver more value *(Wates, 2005), (refer figure 7c.1).*

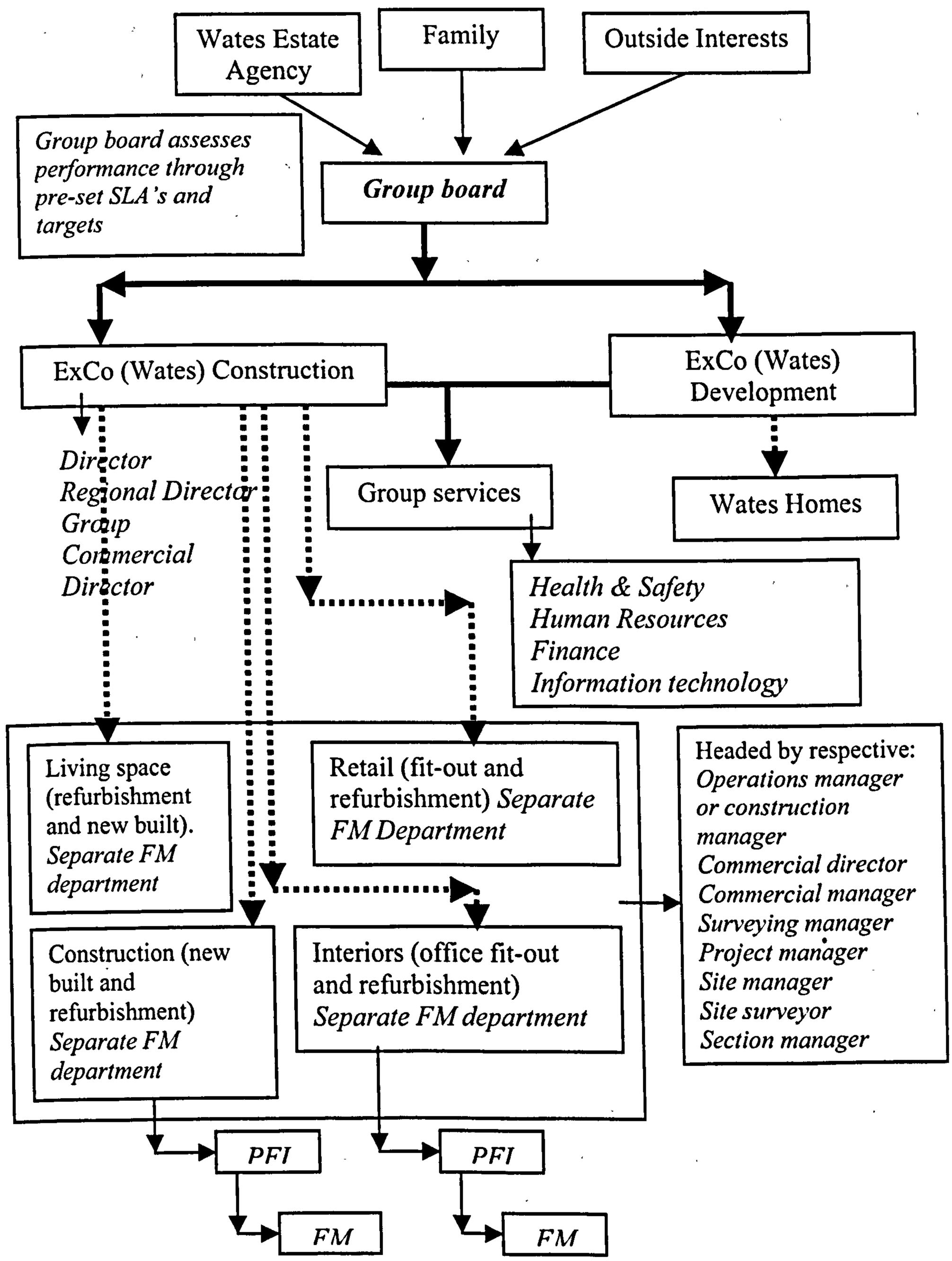

Figure 7c.1: the Wates Group Organisational Chart
Source: case study material through interviews

The intention of the company is to create and improve the built environment for working, living, learning and leisure through achieving an endurable and lucrative growth and by unceasingly fulfilling the needs of its customers, staff, suppliers and all other stakeholders. The Wates Group aims to deliver sustainable, social and environmental benefits across the communities it serves by *(Wates, 2005):*

- Delivering projects to the highest level of quality and standards through intelligence, creativity and innovation;
- Achieving long-term successful and profitable partnerships with customers and service providers; and
- Creating a working environment where everyone enjoys working and aspire to achieve outstanding performance that adds value.

7c.2 Innovation at Wates:

Business Excellence Model: The Company uses the Business Excellence model as a pointer for scoring activities and measuring performance *(refer figure 7c.2).*

Implementation Register: Use of an Implementation Register, which schedules improvement projects that are rated against the Business Excellence Model to figure out the potential gap – use of quantifiable methods to judge performance. After the potential gaps are identified and ranked, a re-assessment process is again carried out against the model (internal benchmarking), *(refer figure 7c.2 & appendix 4).*

1. Contractors and Sub-Contractors are chosen locally depending upon the project. However, a generic online system is used (TIVA) for the assessment of all contractors, sub contractors and the entire supply chain.
2. Employees are encouraged to innovate, though no structured system has been put to place. Team discussions, group meetings, etc. lead to generation of innovation ideas. Employees have easy access to top management that allows effective communication and helps in cascading knowledge across the organisation at all levels.

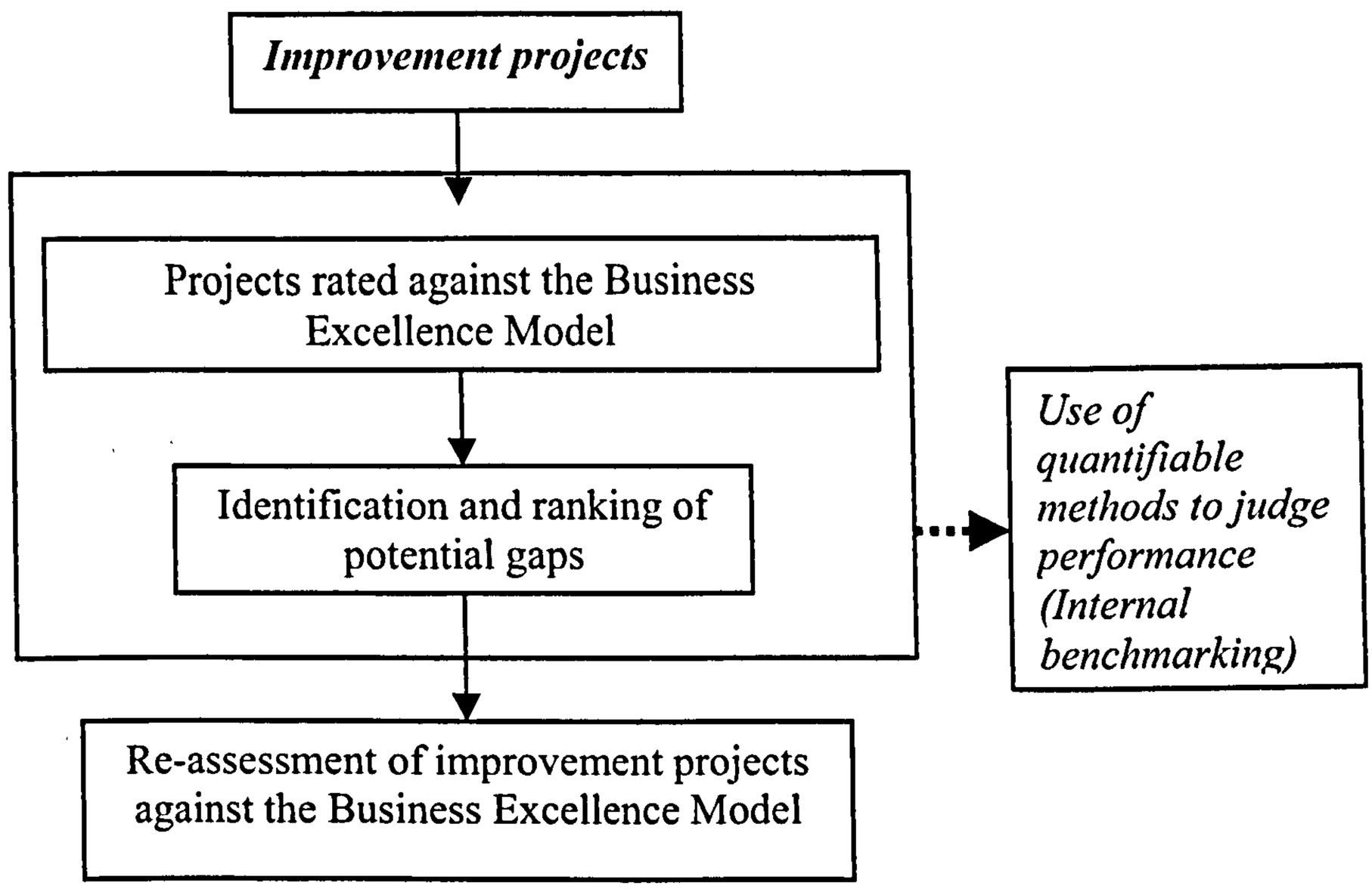

Figure 7c.2: Assessment of Improvement Projects
Source: Self Analysis of case study material

Intelligent contracting: The approach of Intelligent Contracting is used by Wates Interiors. This approach involves understanding of what customers really value and then finding innovative ways to deliver the same. As per the Wates Group, the result of this approach is an inspirational office environment at the right price – "Value for Money", hence achieving the vision of delivering every office interior on time, on budget, every time.

Durham Strategic Alliance: Wates Group is one of the founding members of the Durham Strategic Alliance, which is also one of the first construction partnerships founded in the United Kingdom. The company is now a partner on numerous strategic frameworks and works along with other market leading and dynamic partners such as the Prison Service, Birmingham city Council and Hampshire County Council.

Partnering for Innovation: Both Wates Construction and Wates Development (land management and development Business) follow partnering in most of their projects to achieve excellence and as a means to add value to the business.

- Wates Construction – focuses on education, commercial buildings and public sector frameworks, delivered across the U.K. through centres of excellence *(Wates, 2007).*

- Wates Development - This section of the Wates Group works in joint venture with house builders and partners in new projects using its past experience to create beneficial developmental schemes.

The Wates Group works jointly in a communion with its customers, their advisors and the supply chain to accomplish best value and on time, on budget delivery, every time (keeping up with the company's values and visions). The partnership with numerous external contractors seeks to add real value through continuous improvement.

For example, Wates is part of the Birmingham Construction Partnership, which manages the construction programme of Europe's largest authority. In its first year the framework agreement allowed the partnership to increase the number of projects delivered on budget in Birmingham by 361% and the number delivered on time by 437% *(Wates, 2005)*. The retail section of the Wates group also enjoys a beneficial partnership with the Marks & Spencer in the private sector, reaping similar benefits and demonstrating the success of such an approach.

Innovation through employees: Each and every employee in the company is given a chance to put forward their ideas that are reviewed by the top management for approval. Group discussions, team meetings and company wide intranet discussion board give employees the required platform to share their views and innovative ideas with all. In April 2005 the Wates Group became one of the first contractors to receive Group-Wide Investor in People certification. In the same year, the group also launched a *'Business Excellence'* award scheme that recognises rewards and publicises outstanding performance and contribution by individuals. The awards focus on five areas, which are *(Wates, 2005):*

- Community involvement;
- Customers growth;
- Environmental performance;
- Health and safety; and
- ***Innovation.***

Employees are also given opportunities for training and continuous professional development *(for example, Chartered Institute of Building (CIOB)*

qualification, apprentice training programmes etc.) as it believes that training is often the key to better performance and higher benefits that add value to the business.

Corporate Responsibility: The Company's strong commitment to corporate responsibility has made it market wide famous between customers and suppliers as the policy provides focus, guidance and a framework for action, management and measurement.

"Wates' corporate responsibility is the link between its values and activities. The aim is to balance sustained, profitable growth with the delivery of social and environmental benefits".

(Wates, 2005a)

The Corporate Responsibility (CR) Strategy Group, which comprises of senior executives and the Director or Chair of the CR Strategy group works towards *(Wates, 2005):*

- Approving CR policies and strategies;
- Examining the impact of both existing and emerging risks and opportunities;
- Benchmarking performance and driving improvement;
- Ensuring continuous improvement in company delivery and processes; and
- Communicating best practice across the organisation and industry as a whole.

7c.2.1 Measuring CR Performance:

The Wates group measures performance both internally and externally. Externally, performance is measured against the Business in the Community (BITC) CR Index and also other standards and processes that are relevant and appropriate to the business. Internally, the Wates Group has a CR measurement framework, which covers activities with all of its stakeholder groups (the two main being customers and employees). The collected and measured data is reported to the executive committee through a meticulous and systematic reporting system. The CR Strategy Group then measures performance against the CR Framework, after which improvement

recommendations and suggestions are made *(Wates, 2005), (refer figure 7c.5).*

7c.3 Innovation with Suppliers – Introduction of Profiler:

The company drastically changed its interaction with its suppliers in 2005, by introducing a web-based tool named *'Profiler'*, which enabled the buyers and suppliers to work more effectively together. The use of Profiler gave a competitive edge to the organisation through many ways, some of which are *(Wates, 2007a):*

- Identification of 'ideal' vendors;
- Specification of technical competencies;
- Defining best practice cultures and values;
- Keeping an up to date health and safety record and raising the standard of health and safety throughout the supply chain as total score for supplier accreditation is related to health and safety, culture and practice;
- Ensuring sustainable practices and specifying environmental credentials; and
- Strong commitment to corporate and social responsibility.

Each and every supplier, contractor and subcontractor working with the Wates Group is required to match up with the company's requirements, by answering an online questionnaire *(refer appendix 4).* Such kind of selection process helps the company to *(Wates, 2007a)*:

- Build and access accurate information on suppliers;
- Better understand the strengths and capabilities of the supply chain and how those can be used effectively for the benefit of the customers;
- Accredit new suppliers more efficiently;
- Ensure that the company and the supply chain meets its policy obligations and targets for improving health and safety; and
- Track the performance of suppliers over time.

The Wates Group stresses that with the use of this web based tool the company can not only appropriately connect the customers with the supply chain by giving them a snapshot of the suppliers, identifying those who meet specific requirements required for specific projects but also impress the speed

and quality of information/knowledge flow across the whole of supply chain, encouraging greater, collaborative and a more productive working environment that is beneficial for all *(Wates, 2005)*.

Wates also constantly encourages its employees, customers and supply chain to be involved deeply and have a strong and positive impact on their local community, hence demonstrating a responsible approach to all of its stakeholders. This includes involvement in annual community day, school visits, Partners in Leadership programme, Wates Building Futures Programme and sharing experiences on community impact within the construction industry. The *'Building Future Programme'*, which is delivered in partnership with specialist government agency, is separate from other 'back to work' training programmes as it targets the age group of 35 plus and helps those who face barriers or problems in employment. The key features of the programme being *(Wates, 2005):*

- Provision of 'Returning to Work' skills, provide training to make the transition between unemployment and employment;
- Basic IT awareness and training;
- An insight into construction industry through site visits;
- Practical trade training in carpentry and brick work;
- Completion of various accredited Health and Safety tests;
- A guaranteed interview with the Wates Group or one of its supply chain partners;
- To showcase construction industry as a beneficial and productive route to employment; and
- Support the needs of economic regeneration and sustainable communities.

As a major step towards reducing impact on environment, the Wates group recognises environmental performance as one of the key elements in its CR strategy with respect to, which the company is closely working with its supply chain to formulate a strategy for achieving *'Zero Waste'*.

7c.4 Summary:

By the year 2010, the Wates Group plans to carry out projects to the highest standards through long-term successful partnerships with customers, service

providers and all its stakeholders and continuously improve its delivery by benchmarking performance improvements in four key areas, which are *(Wates, 2005):*

1. Customers;
2. People;
3. Performance; and
4. Value.

The company constantly works towards new ways of working that would give improved performance and deliverables in future through:

1) *Partnering (pathway to future)* – this would give certainty of:

Cost	Learning and Knowledge transfer
Quality	Innovation potential
Time	Improvement each year
Customer satisfaction	Job Satisfaction

2) *Private Finance Initiatives*

3) *Whole Life (refer figure 7c.3)*;

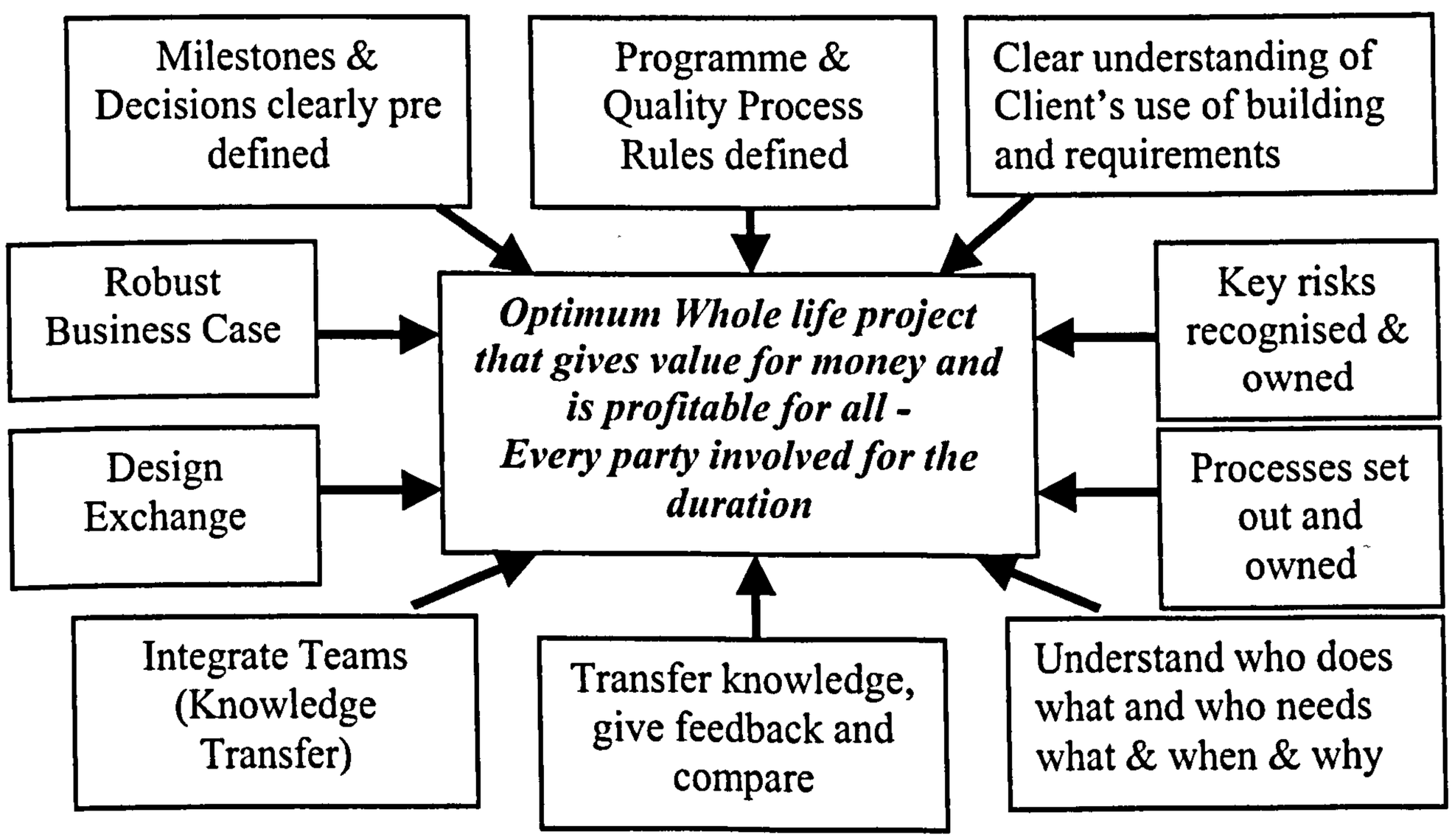

Figure 7c.3: Optimum Whole Life Project
Source: interview case study material

4) *Strategic Trading Agreements* – In 2005, the Wates Group made another significant development by investing in 'Strategic Trading Agreements'. The company directed its indirect spend on specific materials and supplies for the

benefit of subcontractors, hence making sure that the organisation provides its customers with 'Value for money' through highest standards of quality, performance and environmental safety *(Wates, 2005)*. This according to Wates Group will help them in building strong relations with their supply chain partners and understanding of their strengths, done through encouraging frequent, consistent and regular engagement with suppliers at all levels and at all sites *(Wates, 2005), (refer figure 7c.4)*.

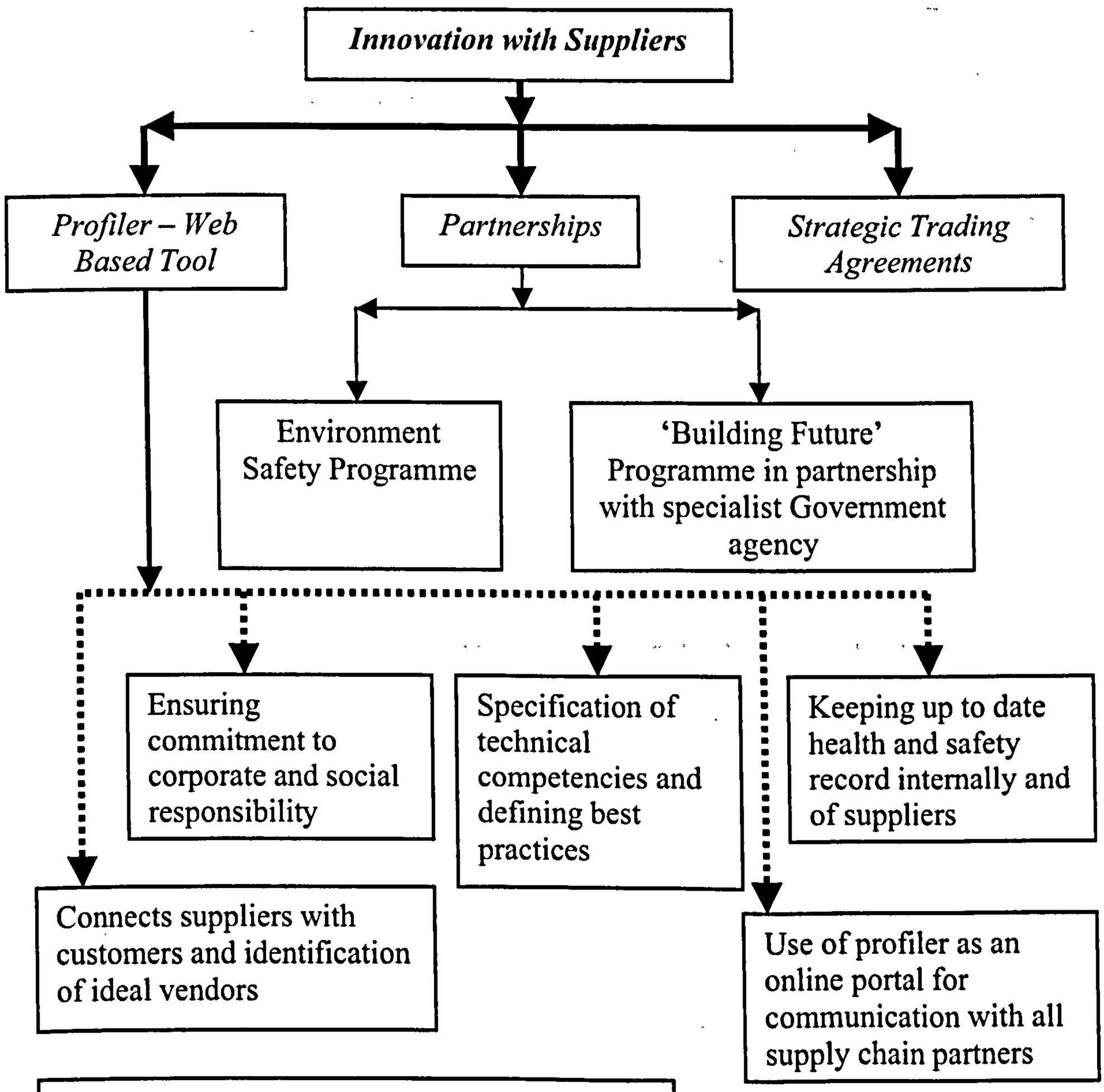

Figure 7c.4: Innovation with suppliers
Source: Self Analysis of Case Study Material

5) *Strategic Partnerships/Alliances with key suppliers* – Innovation through effective and efficient Supply Chain Management: This involves identifying ideal partners *(Strategic Vendors)*, whose business ethics and management style can be integrated with the overall business goals and strategies and

forming long term successful relationships with them, which adds value to the business and gives customers 'Value for Money' *(refer figure 7c.4)*

7c.5 Innovation through Corporate Responsibility Strategy:

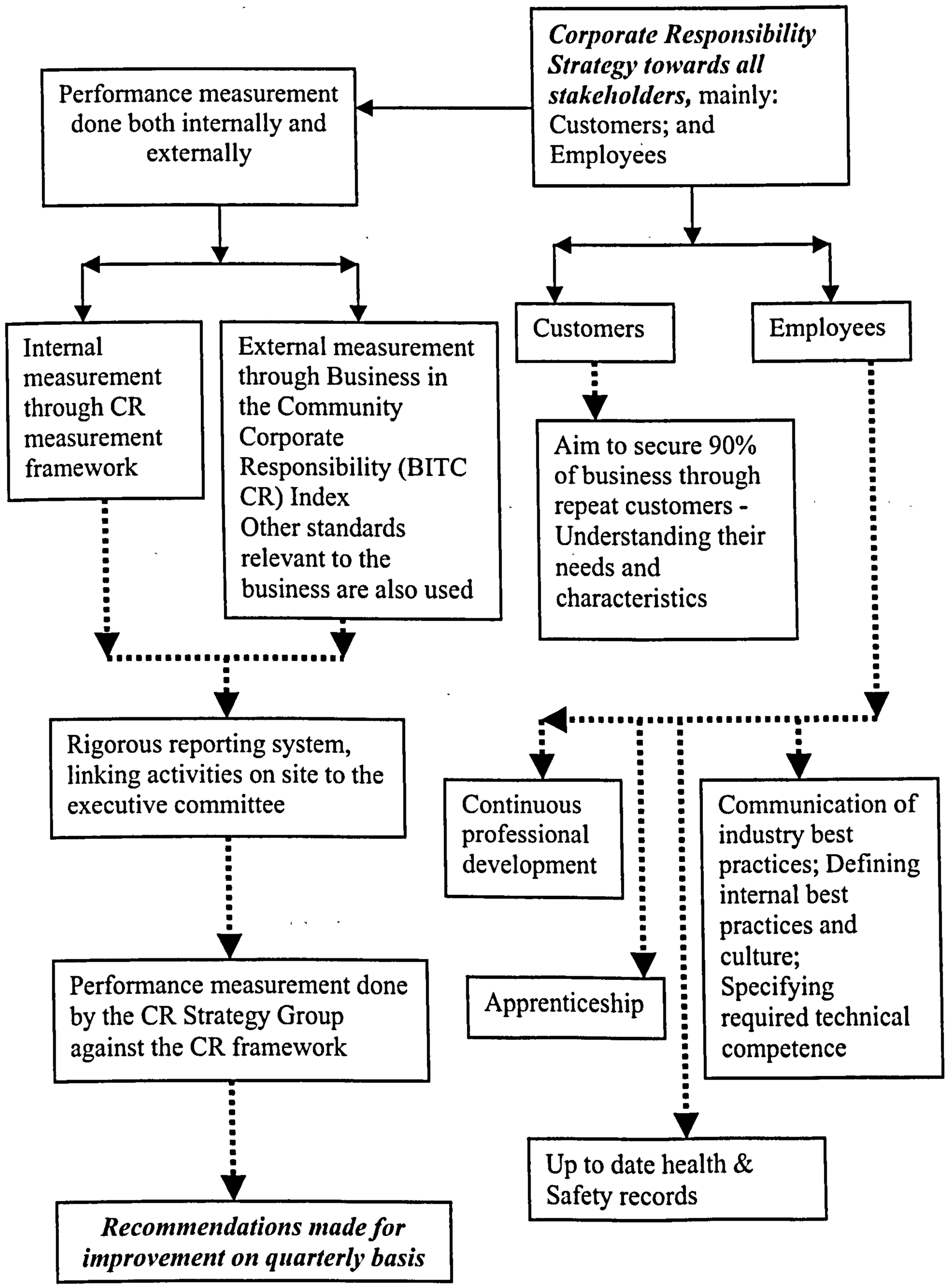

Figure 7c.5: CR Strategy Innovation
Source: Self Analysis from Case Study Material

7c.6 Drawbacks:

- Absence of a structured system that allows employees to put forward their ideas.
- More development can be done in the area of personal development reviews.
- Further improvement in management and measurement of Health & Safety performance within the supply chain.
- No pre-set innovation objectives and measurement metrics, which are integrated with the overall business objectives. Innovation is carried out in separate sections within the organisation and with suppliers but not regarded as an important factor during tendering process or choosing suppliers.
- FM department is still considered as a very small part of the whole. Reporting patterns and styles are similar to those of construction reporting and managed by Quantity Surveyors as part of PFI. The department mainly consists of construction specialists and the business case for all FM projects is construction based.
- FM strategy forms a very small part of the overall Business Strategy and objectives and needs better integration with the overall business aims.
- Sharing of knowledge and information with other competitors is not considered as an option for organisational learning due to competition at corporate level. This innovation as sharing allows knowledge flow and better learning from others' experiences.

PRIMARY CASE STUDY – 2020 LIVERPOOL: PROPERTY AND PROFESSIONAL CONSULTANCY SERVICES

7d.0 Introduction:

2020 Liverpool is an innovative joint venture partnership between Liverpool City council and Mouchel Parkman. The partnership was established in October 2003 to deliver property and professional services to the city of Liverpool. Approximately 160 staff from the Liverpool Council's Design Consultancy and Land and Development Services joined with around 30 Mouchel Parkman staff to form the new company. The partnership was set up to provide services to the council under a ten/twenty year contract, simultaneously providing services to a wider client base including the private sector. The partnerships' skills include building and landscape architecture, quantity surveying, engineering, property and land surveying and project management. 2020 Liverpool has gained authentication in:

- Quality Management;
- Investors in People;
- Environmental Management; and
- British Quality Foundation committed to Excellence scheme.

The first full year's operation of 2020 Liverpool projected the company as an extremely innovative and forward thinking partnership that is becoming the model for other councils. The company has demonstrated its worth by portraying itself as a leading organisation that constantly aspires to find new ways of delivering services and valuing partnership, innovation and long-term relationships. The joint venture strongly emphasises on working in partnership and developing new, better and sustainable ways of working with clients and partners (*www.2020liverpool.co.uk & 2020 Liverpool, 2005), (refer figure 7d.1).*

7d.1 Values and Visions:

- The aim of the partnership is to be a model of public sector service delivery;
- To be a 'flagship' partnership, which other local authorities will want to emulate;
- To work in partnership to create a stronger, safer communities;

- To deliver value for money, high quality services;
- To support active, healthy and independent living;
- Placing customers at the heart of everything council did;
- Communicating honestly and openly with customers and colleagues at all times;
- Being personally accountable for all actions and their consequences;
- Having pride in all achievements; and
- Taking personal responsibility and recognising and respecting the contribution of all colleagues.

Added to the above values of the city council are the values of Mouchel Parkman that help in making this partnership stronger and more beneficial. These are *(www.mouchelparkman.com):*

- Respect: recognising the talents and aspirations of others and not dismissing their views.
- Responsibility: to keep up with the promises made to colleagues and clients.
- Teamwork: by supporting each other, sharing ideas and not accepting behaviour that excludes colleagues.
- Integrity: treating people fairly, being open and honest in everything and not accepting hidden agendas.
- Innovation: to be inventive and imaginative.
- Delivery: to be responsive and enthusiastic and not accepting failure to perform.

Figure7d.1: Joint ventures of Liverpool City Council
Source: Self Analysis of Case Study Material

7d.2 Partnering for Innovation:

The Liverpool city Council is involved in a number of joint ventures and partnerships, some of which are (*Liverpool, 2005):*

- Liverpool Direct: Joint venture with British Telecoms (BT), responsible for customer facing services such as Liverpool Direct Call Centre. This is the council's main joint venture.
- Enterprise – Liverpool: This strategic service partnership between the City Council and Enterprise is responsible for street based cleaning services, regeneration and responsive repairs to social housing. This joint venture was started in April 2002 and now employs over 1200 employees approximately, providing a range of services from street lighting, highway maintenance, graffiti removal and fly tipping. The group recognises that high degree of integration, trust and openness is fundamental to the success of out-sourcing and partnership agreements through highly developed flexible business processes and change management systems
- 2020 Liverpool: Partnership between Liverpool City Council and Mouchel Parkman consultancy service specialists to form a support services group that delivers property and professional services to the city. The main portfolios for the group are:
    1. Estates: property management and valuations of social housing
    2. Buildings: Public and Private sector commissions on building projects
    3. Public Realm: Providing technical services and traffic systems design
- Onyx: Partnership between Liverpool City Council and one of the world's leading waste management companies. The group delivers the services of refuse collection, covering approximately 200,000 households. The other services included in the joint venture are the collection of trade and clinical waste as well as alleyway cleansing.
- Geraud Liverpool Markets: Liverpool City Council operates a number of retail markets through its joint venture partnership with Group Geraud, which is the largest European operator of local authority markets.

- Abitibi: This partnership provides multi material kerbside collection and recycling service and also carries out education and promotion of recycling throughout the city to ensure that Liverpool is a greener city in the future.
- Bulky Bobs Household Wastes: This partnership arrangement helps the Liverpool City Council with training opportunities in the local community as well as the disposal and re-use of bulky household furniture and white goods.
- Glendale and Service Team: Liverpool council works closely with the two companies to maintain and upkeep the city's parks, sports facilities and green areas. The partnership also includes floral decorations, ranger services and a public advisory service.

7d.3 Performance and Business Management:

Liverpool City Council (LCC) is made up of five portfolios, which contain a number of different services within themselves and are responsible for the delivery of council services. These are:

Central services:

- Responsible for numerous centrally based services such as Internal communications;
- Marketing;
- Premises management;
- The news team;
- Business Process Re-engineering;
- Equalities; and
- Positive Action Training.

Children's services:

- This is responsible for all children's services;
- Schools and education across the city;
- Libraries; and
- Leisure centres.

Regeneration: *(also refer 7d.2)*

- This is responsible for managing the economic development;
- The environment maintenance of the city; and

- Performance and Business management.

Resources:

- This is responsible for the financial management of the council
- Risk assessment and legal services

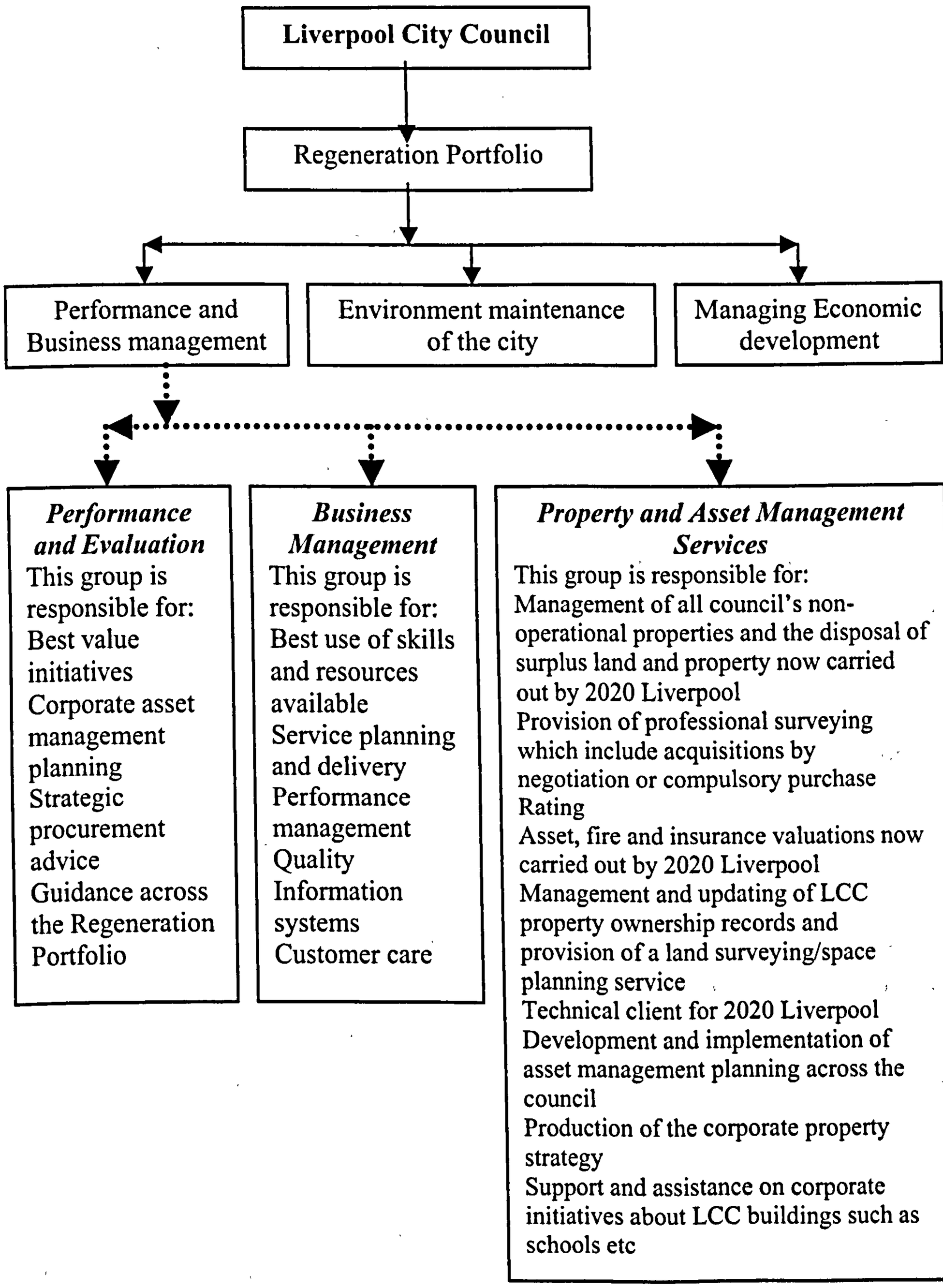

Figure 7d.2: Liverpool City Council Portfolios
Source: www.2020liverpool.co.uk

Supported Living and Community Safety:

- This is responsible for Adult Social Care;
- Community Safety; and
- Housing across the city.

Performance and business management is an integral part of the Regeneration Portfolio of the council and deals with Business management, Performance and Evaluation and Property & Asset Management Services (previously known as Land and Development Services, LADS) *(refer figure 7d.2), (case study material).*

7d.4 Innovation at 2020 Liverpool:

Innovation, creativity and inventiveness are central to each project. The partnership believes that fresh thinking enables better service delivery to the clients. For example, Mouchel Parkman has developed a pre-eminent position in Early Contractor Involvement (ECI) schemes, which ensure that contractors and consultants work in partnership from start to completion of the projects *(www.mouchelparkman.com, 2006).* 2020 Liverpool engages in the following activities to increase the productivity and enhance the capabilities of its employees in order to achieve better and innovative results that set an excellent example in innovative partnerships for other councils to follow.

7d.4.1 Training:

2020 Liverpool is strongly committed to training, which forms an important part of its strategy to have Liverpool services delivered from Liverpool rather than Manchester or London. Keeping up with their promise and responsibility towards training, 2020 Liverpool recruited 12 graduates in their first graduate intake and set up a training scheme with the council to support the training and development of the graduates. The core competencies provide the employees with a framework of what is expected out of them, demonstrates values, creates trust and measure performance *(refer table 7d.1), (data collected through personal interview)*

2020 liverpool provides its employees not only with change management exercises but also a totally brand new environment, in which the employees at all levels have an easy access to the top management giving them opportunities to develop better and communicate effectively.

Table7d.1: four levels of high performance behaviour

Capability	High performance behaviour	Value – Measuring Performance
Business thinking	Commercial acumen Generating ideas Flexible thinking	Innovation
Working with colleagues	Team working Building relationships Developing self and others	Team work integrity
Inspiring people	Building confidence Persuading and influencing Communication and presenting	Respect
Achieving goals	Improving performance	Deliver responsibility

Table 7d.1: four levels of high performance behaviour
Source: Self Analysis from case study material

7d.4.2 20-20 Vision for Liverpool:

The joint venture between Liverpool City Council and Mouchel Parkman is latest in the group of strategic partnerships developed by the City Council to improve its services and enhance its regeneration strategy. The joint venture was initially based on property and infrastructure services but has provision to include other professional services during the course of its progress. The joint venture known as *"Liverpool 2020"* focuses on the delivery of Liverpool's regeneration strategy, which is central to its determination to reclaim its place as a premier European city *(Liverpool city council, 2006).*

The joint venture is committed to developing employment in professional services in the city and supporting a wider range of regeneration objectives, including training and social enterprise. This was possible because of Mouchel Parkman's innovative proposals for the joint venture, together with their long-term involvement in the community and capability to provide with a top quality and efficient management team.

7d.5 Case study example - Innovation and Improvement Project – 2020 Intranet Review:

Described below is one of the many innovative activities carried out at 2020 Liverpool to make it into ideal example of innovative partnership. The 2020 Intranet Review being carried out by the Business Development Officers at 2020 Liverpool examines the key themes of Communication, Knowledge and Technology. The following information was collected during interviews with the business development officers at 2020 Liverpool and analysis of case study material provided *(also refer www.2020liverpool.co.uk)*

7d.5.1 Project description:

Intranet is created to provide vast amount of local information, business systems, resources, and bids and also to help communicate news and latest events. The realisation of Information technology as a service rather than an application makes it even more important to develop service and customer orientation. This according to the project leaders would lead to:

1. Effective use of knowledge leading to well informed and analysed decisions;
    - Explicit knowledge – documents/databases/processes etc.
    - Tacit knowledge – in the minds of employees/experience
    - Potential knowledge – masses of raw data never used, for example insights, market and customer knowledge.
2. Better sharing of new initiatives and best practices;
3. Delivery of higher quality and extra value to the clients; and
4. Generate healthy and robust competitive advantage.

7d.5.2 Project implementation:

The project, which is still ongoing, was initiated through the use of questionnaires to determine current satisfaction levels and to help identify areas for improvement in an objective way. A focus group has been formed comprising of a cross section of staff from across the business to consider results and conduct brainstorming sessions and agree subsequently to the list of improvements for top management approval.

7d.5.3 Identified Innovations and Improvements:

1. Make 2020 intranet default homepage;
2. Put latest internal new on homepage (e.g. contracts);
3. No duplication of information (e.g. newsletter/intranet);
4. More interesting/up to date news;
5. Change the look of the homepage to attract people to get to look further;
6. Raise awareness through launch, seminars, competitions, team meetings;
7. Restrict the number of quick links on the homepage;
8. Introduce a content management system;
9. Review and expand business development pages;
10. Straightforward user guidance/Site map; and
11. Introduction of search engines

7d.5.4 Identified Results:

The initial action plan to identify specific improvements to be implemented, was deployed successfully in April 2006 and further implementation plans and actions identified.

7d.5.5 Project Assessment and Review:

The results of the survey led to new insights about how users consider the 2020 intranet and how these should be considered if the exercise is conducted again in the future. The use of a focus group and a questionnaire worked extremely well during the survey and provided with useful areas for improvement.

7d.6 Summary:

The Liverpool city council believes that it is important to partner with the private sector to deliver major projects and this flexible and innovative joint venture between Mouchel Parkman and Liverpool City Council will help in driving a change in delivery by harnessing the private sector to deliver major regeneration projects within the city of Liverpool. The unique partnership allows individual staff members to develop their own flow by providing them with lot more training, which helps them meet their continuous professional development commitments and easy transfer of knowledge between Mouchel Parkman and Liverpool City Council.

Innovation at 2020 Liverpool is about creating an organisational culture of innovation where people are made aware of the processes through documentation and effective communication. The partnership also uses the Business Excellence model to deliver best practice and achieve excellence. Mouchel Parkman puts in work in the partnership, thereby expanding the career progression and interest of staff members and meeting the aspirations of both staff and end users.

Mouchel Parkman's rare combination of professional, commercial and technical expertise enables them to improve their strategy, services, people and asset management to achieve excellence. Performance measurement framework forms an important part of the innovation strategy making it even more flexible and links the efforts towards continuous improvement and innovation. Risk management systems and problem solving techniques are also used to demonstrate value to the clients.

7d.7 Drawbacks:

- No separate budget/financial provision for innovation activities.
- No pre- set standard metrics, KPI's to measure the value added.
- The biggest barrier faced by the management during the implementation of the partnership and transfer of employees from the city council to 2020 Liverpool was the employees concern to shift from public sector to the private sector, which brought in fear of job losses etc. This element of fear is being constantly overcome by the management through communication, openness, easy access to top management, briefings, meetings and presentations, in which all employees are also encouraged to present their innovative ideas and also helps in building up their trust in the success of the partnership.

7d.8 Innovation model followed at 2020 Liverpool:

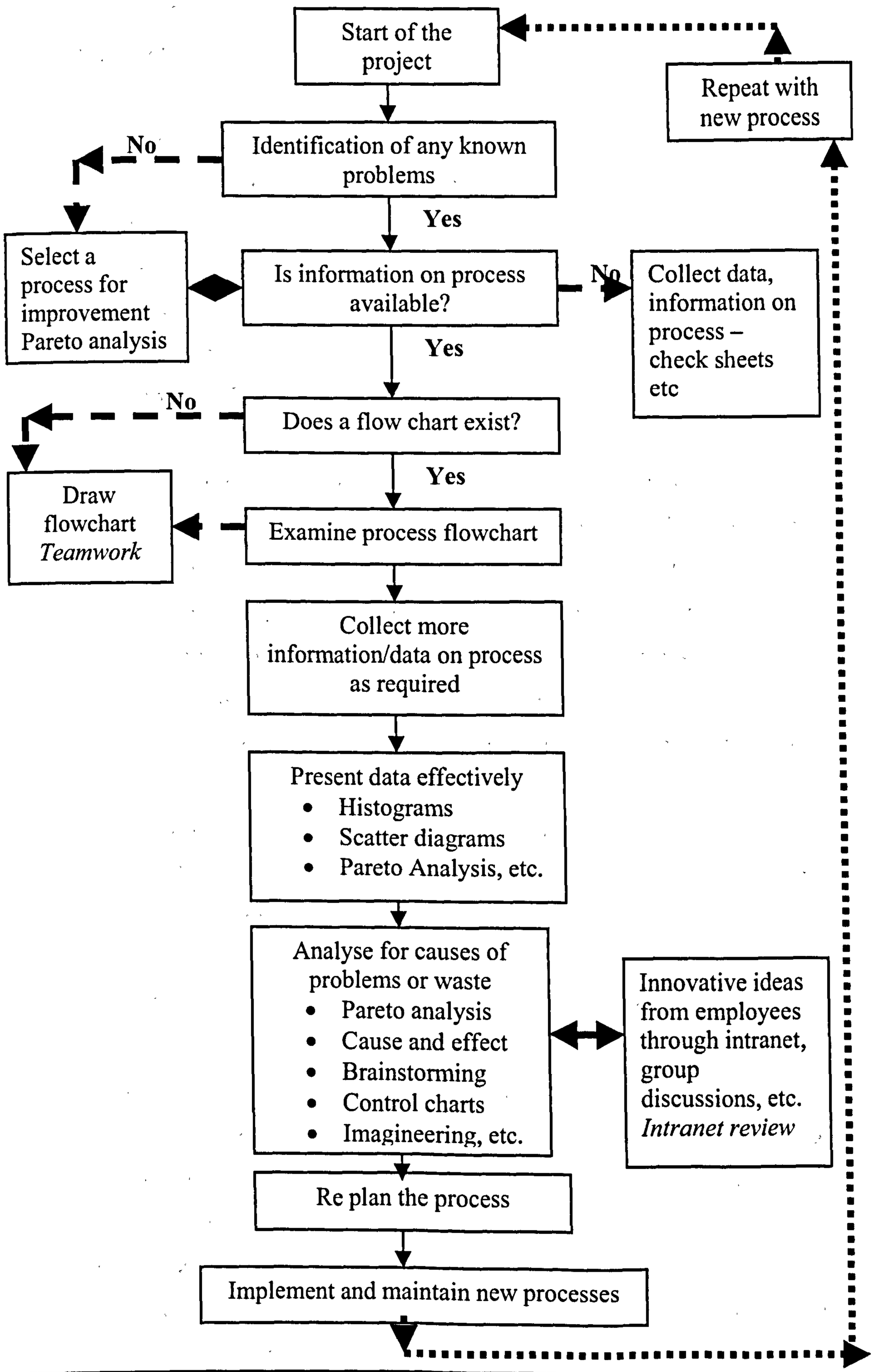

Figure 7d.3: Innovation at 2020 Liverpool
Source: Self Analysis from case study material

7d.8.1Strengths:

The following analysis have been made by the author from the case study material collected and personal interviews *(also refer Liverpool City Council, 2005)*

- The employees have easy access to top management that allows them to communicate easily and share knowledge not only within the partnership but also with other partnerships.
- Use of company wide intranet system that captures innovative and best practice examples from other companies. The other sources of communicating best practices adopted are news letters/notice boards and other professional groups in practice.
- Rewarding working relationships and developing partnerships that matures into long-term relationships. This includes employee suggestion scheme and a reward mechanism. The management makes necessary changes as suggested in the staff survey.
- Innovative approach to managed services provision and consultancy assignments generating supportive and strategic partnering.
- The joint venture actively encourages individuals and teams to take ownership and provide with support, facilities training and technical excellence.
- The partnership works towards creating lasting value for all its shareholders and provides it employees with an environment that develops them both professionally and personally.
- Inculcating a strong culture of communication within the partnership that allows effective work with clients, partners and communities.
- A separate innovation plan is integrated within the annual business plan review and headed by innovation champions and the internal innovation group who meet on a monthly basis to work towards enhancing business delivery (Innovation champion is a specialised person, employed to cater specifically to innovative activities. The divisional director who also goes along to board meetings to communicate the work done by the innovation group represents the innovation group).

PRIMARY CASE STUDY 7(e) - COMPUTER SCIENCES CORPORATION INDIA PVT. LTD.

Consulting, Systems Integration, Outsourcing

7e.0 Introduction:

In India, Computer Sciences Corporation (CSC) has been a consistent, unfailing innovator since its inception and an initiator of Business Process Outsourcing (BPO). Not only was it one of the first IT companies to venture into BPO but also a pioneer in undertaking IT infrastructure support work remotely from India. From the very beginning in 1997, it focused on domain expertise and remote development. It was the first multinational company to set up a centre in a non-metro location mainly to be close to the source of manpower. CSC, India has completed hundreds of projects in applications software development, IT infrastructure services and business process outsourcing and has developed domain expertise in property & casualty insurance, life insurance, banking and healthcare. Incorporated in India as Policy Management Systems India Pvt. Ltd. (a 100% subsidiary of PMS Corp. of USA), in September 1996, the company became a part of CSC when PMSC was bought over by Computer Sciences Corporation (CSC), the third largest IT services company in the world, in late 2000.

A dedicated, qualified and committed team of more than 1300 employees form the core of the organisation and keep up with the company's motto of - *"Quality in All Things"*. The company's success is based on its culture of working collaboratively with clients to develop innovative technology strategies and solutions that address business challenges. The company employs approximately 90,000 employees worldwide out of which 7500 are in India alone. Facilities management is outsourced to Johnson Controls and the performance measured constantly through strict Service Level Agreements (SLAs) that have been put to place to better maintain facilities in terms of cost, delivery and customer service. The company's core area of focus is employee and customer satisfaction, which is why stringent innovation metrics are used to capture measure, examine and evaluate data of all deliverables. Employees are also encouraged to put forward their ideas through discussions, team meetings (knowledge management forum), intranet, etc and are appropriately awarded for their efforts. The rewards are judged on the

newness, marketability, and versatility of the idea and on the judgment of the benefits or profits it may raise. Again, this judgment is customer focused. CSC office of innovation in India has been launched to achieve the goal of being a conduit for delivering Business Transformation to each and every client that CSC supports globally.

7e.1 Values and Visions:

CSC India has some of the best human resource (HR) practices and innovative people programmes and is continuously pushing its offshore service delivery capability up the value chain through application of innovative technology solutions. The company is very well known for its uncompromised achievements in customer satisfaction levels. Its Office of Innovation Programme focuses on integrating innovation with culture to achieve better results. CSC, India aspires to be the best IT services company in India through *(www.csc.com,2006 and case study material):*

Customer satisfaction	Equal opportunity
Quality in all things	Two-way communication
Employee development	Professionalism
Innovation	Ethical conduct

7e.1.1 Management principles:

The purpose of CSC, India is to be paramount and unmatchable as a business unit that provides solution for client business problems through the use of IT and states that such aspirations require strong commitment to excellence in performance and delivery of its products and services, which is why each employee is required to perform according to the following principles *(www.csc.com, 2006 and interviews):*

1. Commitment to client satisfaction as most important business objective;
2. Recognition of the accomplishments as work of the people at CSC. Encourage initiatives, recognition of individual contribution, treating each and every employee with respect and fairness and opportunity for individual growth in CSC;
3. Employees to work with highest standards of professionalism and technical competence;

4. Maintaining highest standards of ethics and business conduct and working according to the laws and regulations of the countries in, which business is to be done,
5. Identify and respond appropriately to all new opportunities and commit to success in each undertaking, and
6. Achieve profits, success and organisational growth with strong leadership.

7e.2 Innovation at CSC:

To be a catalyst in driving innovation, the Office of Innovation in India has evolved a strategy to address client problems of managing, supporting and addressing IT needs. The client progressively gains economic value through process optimisation, technological and business innovation. Strategic client innovation initiatives are specifically designed based on the scope of work being carried out in each of the locations where CSC has its centres in India. The Innovation Centre in India is created with an intention and purpose to offer CSC employees and partners, a technological environment with the state of art facilities, tools and process frameworks that effect clients' value-delivery and adds value to the business. The innovation centre creates tools, processes, methodologies, frameworks and reference support for answering to the needs of the clients. Innovation at CSC is seen in its state of art facilities and technical systems *(interviews and case study material), (refer figure 7e.1)*

1. All centres are presently connected to each other by domestic leased lines and to multiple CSC hubs in the United States, a European hub in the United Kingdom and a regional hub in Singapore. Multiple connectivity to these CSC hubs make the Indian centres an integral part of the CSC network and enable every workstation in India to access the tremendous resources of CSC, spread throughout the world.
2. All centres are equipped with video conferencing, voice over leased lines, Internet labs, technical labs, training rooms and libraries. The libraries of all centres contain many technical books and journals as well as computer based training (CBT) videos.

3. Disaster recovery plan: CSC in India has a disaster recovery team (management recovery and facility teams) at each location to handle recovery in case of disaster. The Disaster Recovery Plan team conducts periodic tests to ensure regular backups and document upgrading. The disaster recovery plan (DRP) covers events like a business unit becoming inoperable due to fire or earthquake, an entire city going down due to natural or other calamities and the unlikely event of the entire country being severely affected due to disaster such as war. CSC, India has extremely well defined norms for acceptable recovery time (maximum time clients can manage without the use of CSC services) and for acceptable data loss (maximum data loss in worst case scenario).

The entire DRP process is established and maintained based on these set out procedures and norms. Recognising the need for Business Continuity Planning CSC (India) has designed, developed and implemented a robust DRP. The company also uses the Six Sigma methodology for continuous improvement in most of its projects and many internal projects like training, finance and HR have been brought under the Six Sigma.

4. Employee recruitment: CSC recruits experienced employees and managers from the best Indian and multinational employers who have to meet stringent and rigorous selection criteria that include written aptitude ad technical tests. New employees are provided with technical, managerial, domain and customer environment training, through a combination of on-the-job, CBT and classroom based training techniques.
5. CSC's innovations @ work (I@W) is a unique programme wherein CSC employees can keep learning more and continuously. The Innovations at Work programme (I@W) in CSC (India) forms a part of the office innovation activities carried out in the organisation. It offers employees with an exciting and innovative platform to work on out-of-box ideas that add significant value to the client's business requirements and processes.
6. CSC also offers its employees, advanced technical laboratories to help them work on a wide range of latest software and simultaneously

experiment with cutting edge technologies. This also helps the employees to enhance their knowledge base and technical expertise. The laboratories provide matured subject matter experts (SME's) a platform and an opportunity to sharpen their skills and also form teams to create centres of excellence.

7. CSC (India) is an integral part of the Global Office of Innovation. Seven key issues form the basis of the office operation agenda. These key issues revolve around targeted high-impact, value driven processes and initiatives for employees, customers, analysts, partners, research academic institutions and external agencies, integrating vertical domains and operating development centres.
8. Open work culture: The organisation has an extremely open work culture with comfortable and relaxed work environment that helps increase the productivity and efficiency of its employees. Existence of team-building exercises form an integral part of the work culture promoting healthy interpersonal relations and mutual understanding, which leads to healthy discussions between the employees hence, generating innovative ideas. This is further enhanced by discussion forums and training programmes on stress management and employee well being. The author believes that such kind of organisational innovation activities reveal that organisations today are stressing more on soft innovation as key to hard innovation.

CSC believes that the ultimate aim of innovation is to create business value for its client's through uniting CSC's key technology leadership programme, innovation centres and groups and by setting new standards for practical innovation and solution delivery to all CSC clients.

Based on the information gathered through case study analysis and interviews done at CSC (India), the author has summarised in form of a flow chart, how innovative activities are carried out in the company, including performance measurement, introducing innovation to the employees and providing them with adequate training and tools to carry out the required processes *(refer figure 7e.1).*

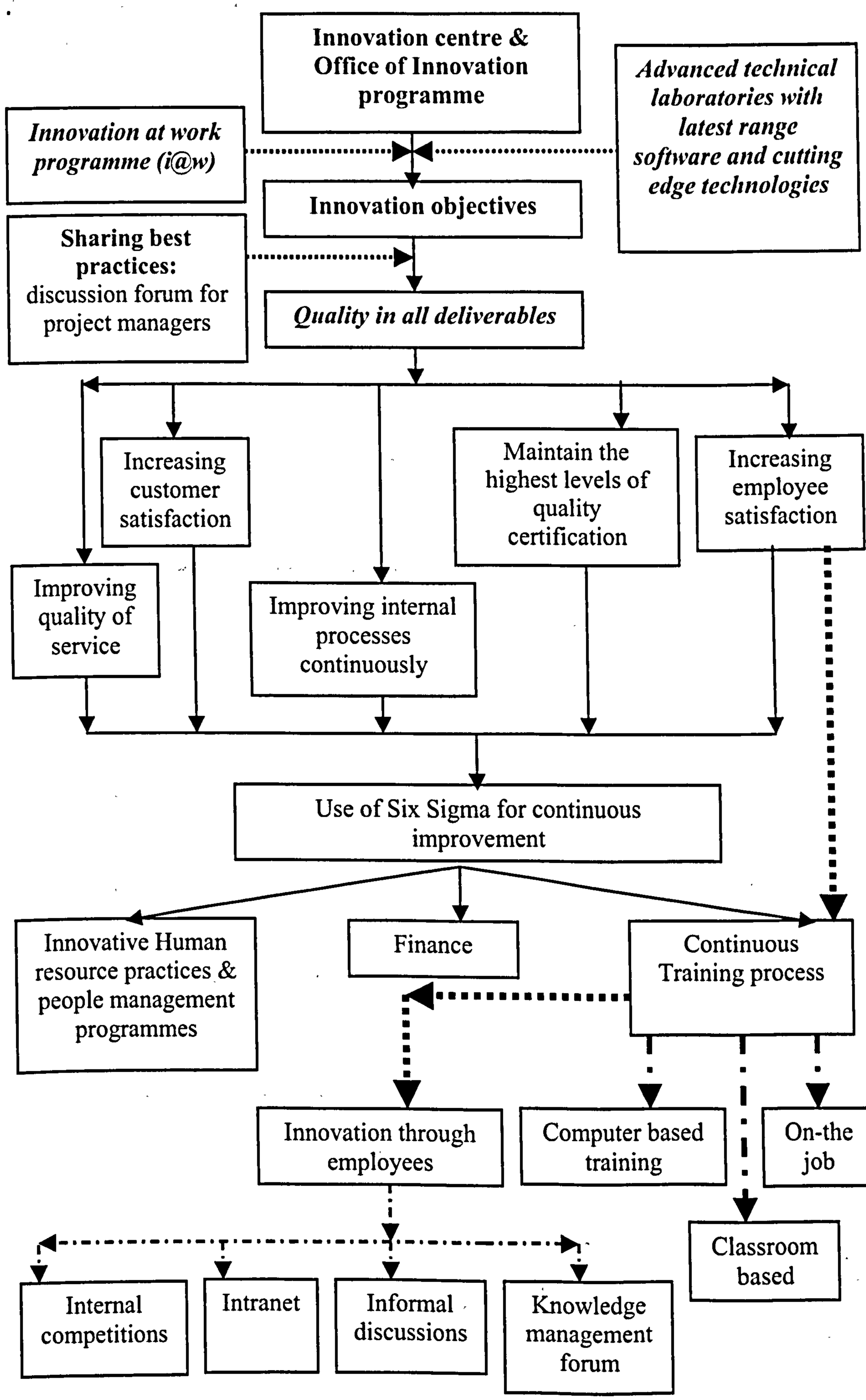

Figure 7e.1: Innovation at CSC
Source: self analysis of case study material

7e.3 Focusing on technological innovation:

CSC India's Information Technology (IT) professionals have expertise in most major technologies used by sophisticated IT users throughout the world. The company has developed a methodology for remote development that can help first-time remote users to understand and effectively utilise remote development in a short time period. CSC has made most of its substantial experience and knowledge in this area by implementing CSC's Global Process Framework, World Sourcing Manager, Catalyst Methodology, Balance Scorecard and Knowledge management tools *(refer figure 7e.2), (CSC Case Study Material).*

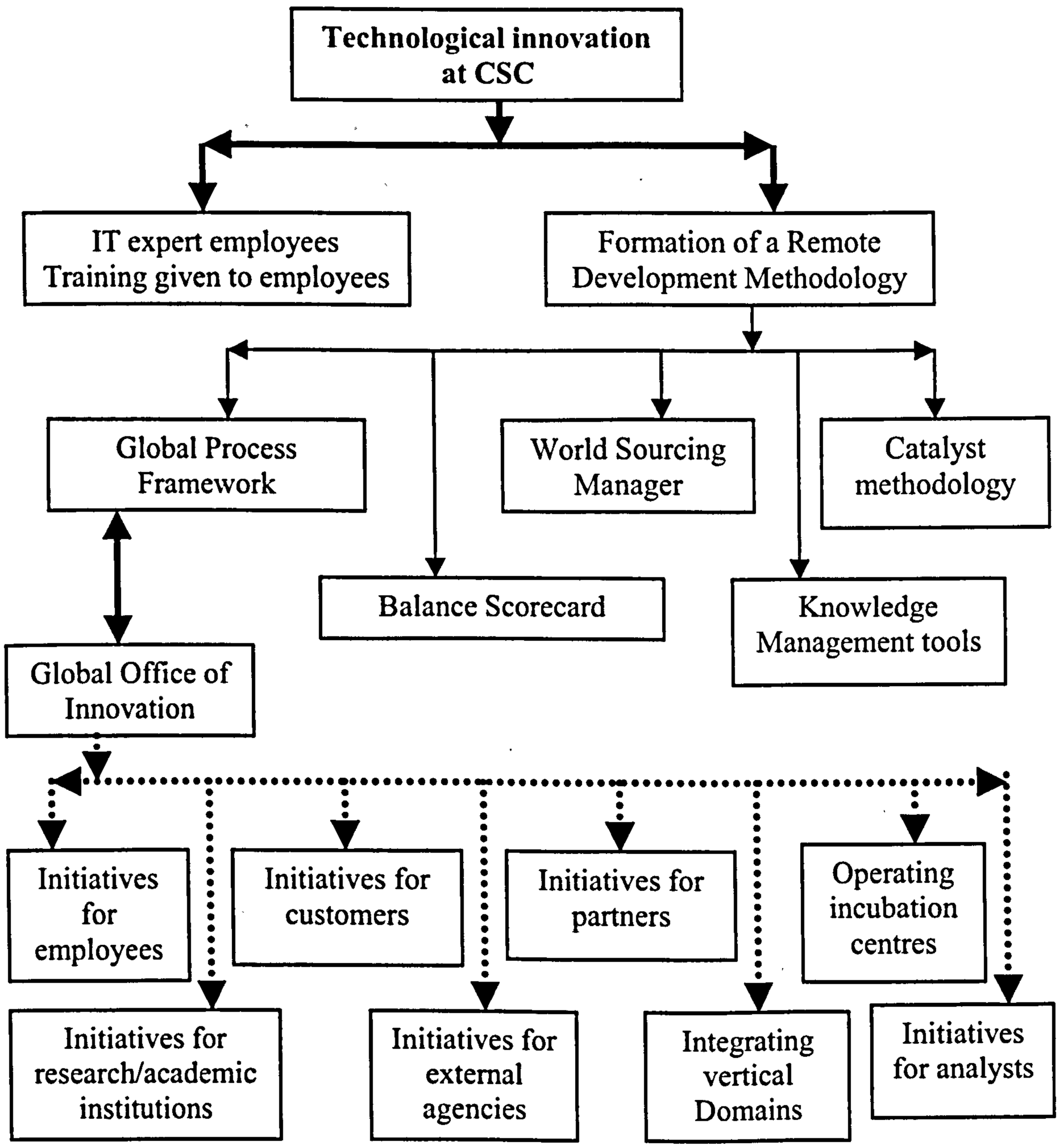

Figure 7e.2: Technological Innovation at CSC
Source: Self analysis of case study material

7e.4 Innovation through sharing best practices:

Dubey (2006) explains the "Care to Share" initiative started by CSC (India) with a purpose to share the tools and best practices used in different projects. This was started by the Financial Services Group (FSG) division of the company as a discussion forum for all project managers. Most of the tools shared in the forum are developed in-house to improve productivity, attain faster turnaround and for efficient reporting. Stating this as a new and innovative strategic approach, *Dubey (2006)* accentuates that "Care to Share" allows sharing of project experiences, finding solutions to unanswered questions and project difficulties, plan together and coordinate activities that ultimately help in adding value and give profitable returns. During the internal project auditing and process compliance auditing, the knowledge management group (KM) and the Quality Groups identify the tools and best practices from different projects. These along with best practices from the knowledge management database are then selected to be a part of the discussion forum. The discussion forum is mainly attended by the Project Management Group (PMG) and the details of the discussion are mailed to all employees so that they can use this information appropriately in their own work and projects and hence, derive benefits in terms of saving cost and time not only for the company but also add value to the client's business.

7e.5 Innovation through performance management:

To ensure that its workforce retains a high level of competence and motivation, CSC India focuses on establishing a healthy and robust performance management system, which allows continuous improvement of the knowledge, skills and performance of all its employees. The company's success is based not only on its culture of working in collaboration with its clients to develop innovative technological strategies and solutions that address specific business challenges but proper measurement and analysis of each of its actions to measure the value added. This also includes measuring the performance of employees and making sure that they adhere and deliver to the highest level of performance.

Employee performance management at CSC (India), includes planning work and setting expectations, developing the capacity to perform, continuously

monitoring performance and evaluating it *(refer figure 7e.3) (Computer Sciences Corporation India, 2006)*

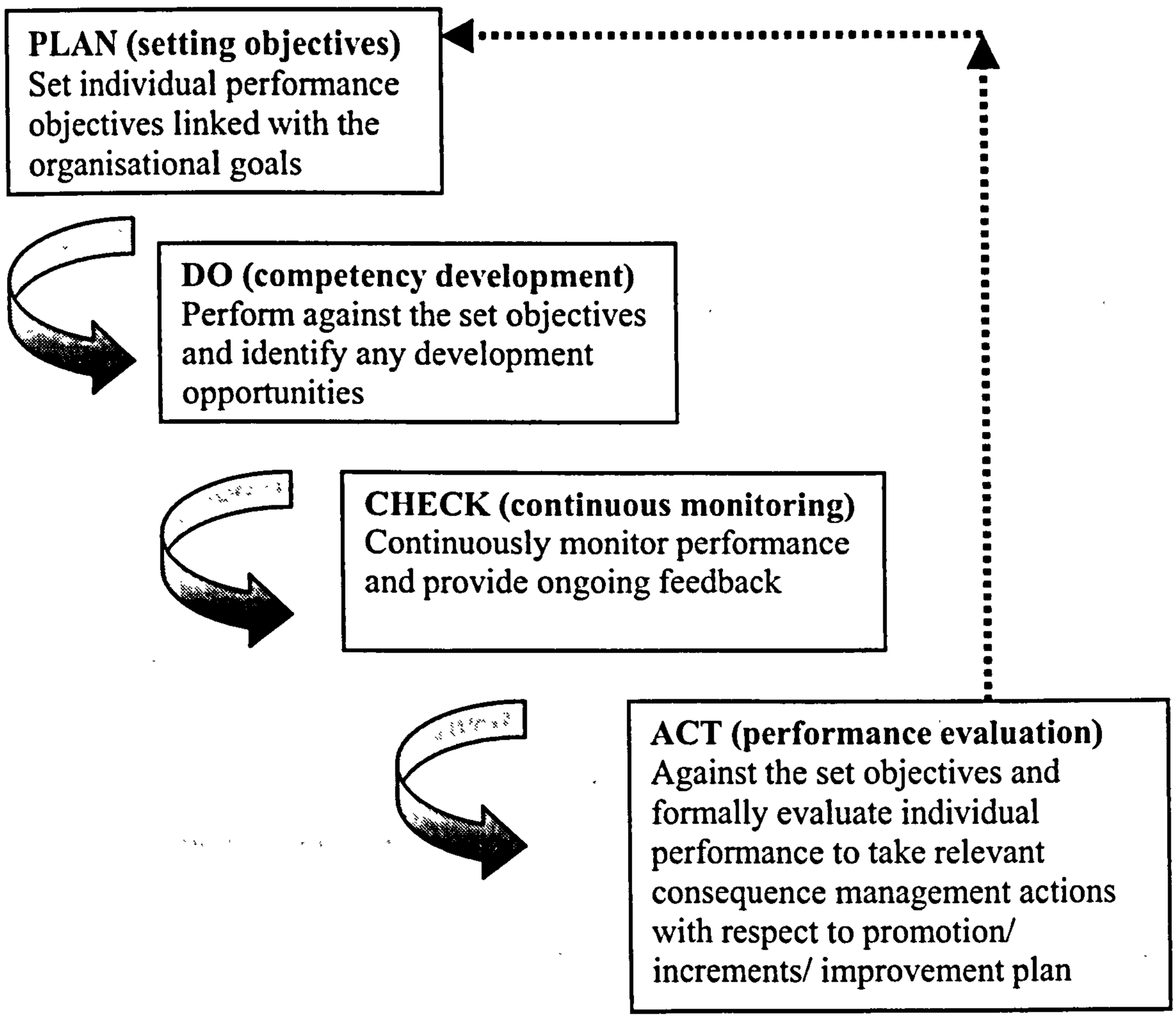

Figure 7e.3: Performance Management Activities at CSC
Source: Computer Sciences Corporation (2006)

7e.5.1 Innovations driving Performance Management System:

The performance management system at CSC India is governed by Specific, Measurable, Achievable, Result –oriented and Time-bound principles (SMART), enabling the employees to develop greater self-awareness, role clarity by providing them with the opportunity to plan developmental needs using the available resources in the organisation. The following activities form an integral part of the performance management systems at CSC India *(Computer Sciences Corporation, 2006):*

1. Capturing and tracking employees' individual developmental plans (IDPs) through a database system to enhance visibility about their development plans.

2. Ongoing performance feedback to employees on their progress towards reaching the set goals.
3. Defining shared Key Result Areas (KRAs) to align employees' work efforts in line with the organisation's objectives.
4. Linking the competency framework with performance management to enhance visibility and perform an objective assessment of employees' readiness for next role.
5. Sustainable awards and recognitions like Employee of the Year (EOY), Employee of the Quarter (EOQ) and cash prize to high contributing individuals ensuring motivation.
6. Plan for Requisite Performance Process (PRP) that addresses unsatisfactory work performance issues and allows the organisation to look beyond employees as mere resources.
7. Global Performance Planning and Review tool that facilitates objective evaluation of CSC's worldwide employees on common organisation wide ethics and performance parameters.

7e.6 Innovation through training and development:

Development of employees is an important factor and one of the top three values of CSC. The company strongly believes in and works towards employee development as an essential part of organisational success. Progress and improvement in necessary employee competence to enhance their current performance future role as per the objectives and strategies of the organisation is considered critical to the success of the organisation. Training programs are conducted every month to meet the needs of employees. These are identified through *(John, 2006):*

- Competency analysis;
- Individual development Plan;
- Career development;
- Role based and project specific requirements;
- Business unit specific induction;
- Communication training; and
- New employee celebrations that help all new employees to fit well into the CSC culture.

CSC (India) has a dedicated team that manages not only the technical, behavioural and industry framework but also employee health/welfare (fire drill, stress management) and business continuity programs (disaster recovery). The team works in accordance with the following objectives *(case study material and www.csc.com):*

- To continuously add value to the employees by looking after their current demands and career development needs;
- To enhance the skill sets of the employees to cater to customer needs better; and
- To create multi skilled resource pool that allows the company to be equipped for any potential business opportunity.

7e.7 Summary:

As a pioneer in Innovation and Business Process Outsourcing, CSC offers wide range of innovation possibilities that not only add value to the business of the company and its clients but also gives an opportunity to each and every employee to continuously develop and gain knowledge in their own respective fields. A summary of innovation activities carried out by CSC is given below *(CSC Case Study material and www.csc.com, accessed on 14/01/2007):*

1. Alliances: CSC's alliance program develops and maintains a strategic relationship with the world's leading business and technologically advanced companies hence, ensuring that the clients get the 'Best Total Solution' as a result of this fusion (CSC's industry experience and consulting, systems integration and outsourcing expertise in conjunction with partner's proven technology). The key advantages of CSC's global Alliance program are:
    - Together, CSC and its partners deliver innovative solutions that enable to anticipate and lead changes in technology;
    - The program promotes continuous infusion and use of latest technology and best practices from the alliance partners into CSC developed solutions. This facilitates exchange of ideas and best practices throughout CSC and expanding the deliverables of the company and also help in bring innovation to the market place.

- CSC and its partners work together to develop an integrated business environment and approaches including technical, sales and marketing activities and focus on innovation for profitable business results.

2. Centres of Excellence: These centres depict the advanced technological working of the company and offer the clients with numerous ways to explore and test the state-of-art facilities and solutions with minimum investment and maximum innovation and beneficial results. The Centres of Excellence are called the 'Hotbeds' of innovation, which allow CSC to learn about new technological developments, trends and breakthroughs before they come into the market. Centres are often used for beta testing of emerging technologies, enabling experts in CSC to stay ahead of others and also at times influence the rapidly changing technology and business environment. Organisations worldwide are adapting to a changing competitive business environment. Outsourcing, global expansion, national security, rapid changes in information technology and fierce competition between existing and emerging companies in the commercial and government sectors are all elements of this new changed environment and a challenge to the society. CSC through its innovation centres helps both its clients and employees to face these challenges. CSC owns 17 Centres of Excellence, each unique in their own way and are designed to help clients succeed and add value to their business through innovative IT solutions and strategies. Each centre is encouraged to communicate and share knowledge (best practices) with each other to achieve more profits.
3. Industry-Academia Integration: CSC, India works closely with numerous academic institutions (technical and management institutions) in India to ensure that the academia is conversant with the new and constantly needs of the industry. As part of this program, CSC (India) promotes:
    - Internships;
    - Seminars and Workshops for Faculty Development;

- Promotion of CSC Innovation Centres; and
- CSC Guest Faculty

4. Innovation Centre: CSC employees and guests who utilise the Innovation Centres are able to conduct intelligent prototyping of IT solutions in order to lessen risks and also help in accurate assessment of investments made by CSC before they are allocated. Among the numerous capabilities and advantages of the Innovation Centres' are:
   - Executive briefing centre – State-of-art facility designed to support the conferences, meetings, audiovisual, multimedia requirements of the customers.
   - Innovative solutions showcase – This is designed and developed by CSC to boast all new and existing technologies developed by its customers and partners.
   - Prototyping Sandbox: This serves as an outlet for sharing knowledge about new products, thereby encouraging and giving a platform to the leaders in the industry to share knowledge (best practices) and work together for success.
5. Innovations at Work Programme (I@w): The I@W programme is vital for all innovation activities carried out at CSC (India) and forms an integral part of all its innovation initiatives. It offers each and every employee with a platform to not only present their ideas but also work out of the conventional environment, hence adding value to the business and to the business of the client.
6. RISKMASTER Business Intelligence: Allows interactive web access to claims and loss reports and database information as well as other business information. It unites all forms of information and applications from existing systems into a single, collaborative environment to allow users to focus on the information needed to work effectively and efficiently *(also refer chapter on Business Continuity Planning and Risk Management).*
7. Business Objects Reporter/Explorer: This is an easy to use and powerful business intelligence tool that enables users to access, analyse and share information stored in multiple data sources within

and beyond the enterprise *(refer innovation through Knowledge Management)*.

8. Innovation Community: CSC and its approximately 700 customers created the Innovation Community to help its client's avoid customisation and lower their application management costs. This program allows companies to incorporate custom enhancements into CSC products hence, reducing maintenance costs and simplifying the upgrade process. CSC's Innovation Community process includes the following steps *(www.csc.com, accessed on 14/01/2007)*:

- Business requirement definition;
- Approaches and specifications;
- Function list;
- Mitigation plans;
- Test plans;
- Unit, system, performance and release testing;
- Release documentation; and
- Completion of release checklists.

This process also helps organisations to step out of IT maintenance business and benefits both CSC and its clients by allowing them to foster a long term relationship that drives down the total cost of ownership.

7e.8 Understanding the development of Innovation in Indian Organisations:

Mohanty (1999) explains that innovation ranges from minor variations in current organisational operations to radical and drastic changes calling for major re-orientations. According to *Drucker (1998)* innovation is the means by which the entrepreneur creates new wealth producing resources or endows the existing resources with enhanced potential for creating wealth. *Mohanty (1999)* puts forward the following characteristics of innovation process in Indian organisations:

- Adaptation of management innovation tends to trigger the adoption of technological innovations more readily than the reverse;
- Innovations can also be products or processes that are new and have never been tried before, or they can be new to a particular organisation;

- Innovations within an organisation are not random and occur with respect to the past and present conditions of the organisation;
- Innovations can develop within an organisation or be imported from other enterprises;
- The characteristics of the innovation itself are importance while determining whether to adopt it or not; and
- Participation in the decision to innovate requires strong commitment from each and every member of the organisation.

Three forms are usually found in Indian industries. These are:

1. Programmed innovation that is planned through research and development;
2. Non-programmed innovation during organisational slack (more resource availability than what is presently needed), these spare resources are then used for innovative activities; and
3. Distressed innovation: when it is forced in the organisation. This can be during a crisis or when new actions are taken.

According to Mohanty (1999), the various other factors that illustrate the evolution of innovation with respect to value, in Indian organisations are:

Innovations are more likely to be adopted if they are generated within the organisation;

- The economic factors and the internal politics of the organisations involved affect how the innovations are adopted within the organisation;
- The more compatible the innovation is with the existing system, more likely is it to be adopted, implying that organisations are likely to be conservative in their innovation or technological policies. In some cases, innovation is only worthwhile if it is adopted at a particular time or in a particular sequence in the organisation's operations;
- If an innovation is likely to be disruptive to interpersonal relationships, it is less likely to be adopted;
- The adoption of one innovation or the development of a technological policy is likely to lead to the capacity to involve the organisation in additional similar actions;

- Innovation activities within an organisation determine connectivity between different functions within the organisation as well as with other outside organisations;
- One of the most important characteristics of innovation is the integration of the individuals' knowledge and vitality into organisational mission and visions; and
- Innovation characteristics interact with the organisational characteristics embedded in an environmental situation.

Mohanty (1999) concludes that for any nation and economy to achieve superior status and success, it will have to pioneer a culture of innovation, change and discipline in organisations, defined by knowledge management and knowledge workers. Organisations don't improve it is the people and processes which change and people will act only when policy makers go beyond speeches, documents and reports to provide an enabling environment thriving actual deeds and involvement.

7e.8.1 Barriers to innovation with respect to Indian organisations:

Following are some of most commonly experienced barriers to innovation found in Indian organizations *(Mohanty, 1999)*:

- Power politics within the organisation;
- Low investment in human resource development;
- Negligible investment in research and development;
- Lack of emphasis on creating learning organizations;
- Governmental policies towards providing economic incentives;
- Short term interests of business leaders;
- Quick fix expectations and shallow thinking of managers;
- Emphasis on superiority of administration over innovation; and
- Non-existence of performance measurement techniques, systems and metrics.

Montes et al (2004) also state some of the barriers to innovation and explain that employees resist innovation because they wish to avoid redistribution of income and have doubts as to whether to invest time and efforts in supporting the new requirements of innovation when the payment of investment is uncertain. *Mohanty (1999)* describes that the generic issue of successful

growth lies in how companies perceive and work towards value innovation, which is not about surpassing domestic rivals in the market or financial manipulations but is related to creation of industry breakpoints, developing new frontiers in business, technological development, new product development and exploiting new markets. Value innovation also includes acquiring new knowledge, strategically using it across the organisation and utilising the knowledge gained across and between the companies, not only setting the agenda of competition but also accelerating competition *(an important factor for innovation)*. Value innovation as described by *Mohanty (1999)* is not only concerned with the matters of production operations, structural configuration and market strategies but also encompasses the development of all assets and capabilities within the organisation. It is integrated in numerous ways specific to an organisation operating in an ever expanding and constantly changing competitive business environment bringing profits to all stakeholders. Value innovation brings both qualitative and quantitative changes that have meaning to the welfare of human system *(Mohanty, 1999)*.

India is one of the many developing nations where innovation has emerged as a result of increasing globalisation, privatisation and liberalisation within the country's economy. *Mohanty (1999)* identifies six generic forces that have accelerated this emergence of innovation. These are:

1. Customer power: Most of the organisations focus on their customer group, which strengthens the need for organisations to learn and change itself as per the needs and demands of its customers. An innovative company understands the context of customer power and the importance of supplier – customer relationships.
2. Information power: Growth in information technology has made it possible to transfer large amount of data globally from one organisation to another, hence helping in laying a strong foundation for profitable business partnerships.
3. Global investors' power: Accelerated liberalisation and globalisation has helped organisations in capturing new opportunities and investing in new markets. Diminishing restrictions on making investments in any part of the globe has helped the organisations further in exploring new

market opportunities. Organisations are able to invest in their total development by initiating global searches for all resources.

4. Power of market place: With the above mentioned globalisation and liberalisation also emerges the strong and interlinked economies AND the once clearly defined boundaries of markets are now becoming intermingled. Industry interconnections, coupled with the common use of digital technology, have greatly increased the intensity and magnitude of these inter-linkages and interconnections between the economies and market places.
5. Power of simplicity: Streamlining and simplification of systems and procedures within the organisations has not only allowed the organisations to redesign their business models according to the changing markets and needs of their customers but also at the same time build strong and profitable partnerships with multiple stakeholders, hence eliminating delays in delivery, overlaps and bottlenecks.
6. Power of the organisation: *Mohanty (1999)* insists that the power of the organisation itself rests in its capabilities to transform new market opportunities into profitable and beneficial results and also producing high performing action teams. The quality of leadership and knowledge management helps the organisation to initiate and implement innovations and generating growth to maximise value addition.

7e.8.2 Drivers of Innovation:

Mohanty (1999) enunciates that pressures created by emerging environmental forces such as globalisation and liberalisation coupled with changes in customer demands, increase in knowledge and advancement in technology act as important drivers of change and innovation. Innovation, as described by *Mohanty (1999)* is a complex product of a dynamic and continual interaction of outside-in forces. On this account, the success of innovation depends on the magnitude and intensity of the inside changes, which are carried out to make these outside impacts.

According to *Mohanty (1999)* most of the successful innovative companies undertake the following three types of innovative efforts. These are:

1. Cost improvement;
2. To achieve to be best in class; and

3. To effect a break point.

These efforts are driven by one of the following three business goals *(Mohanty, 1999):*

1. Process improvement leading towards extreme cost reduction in non-core processes as compared to what can be accomplished through traditional cot cutting efforts;
2. Within the core business process, the innovation effort is usually aimed at reaching the "best in class" and attaining competitive advantage with those who have in the past set standards and made the rules of the competition; and
3. An attempt is made to find and implement breakpoints, to change the rules and create a new definition of the best in class for all others to emulate.

It is imperative for the management to scrutinise all of these business goals at the time of determining the direction of innovation efforts. This is because of a number of reasons. Some of them are mentioned below:

1. Not all companies will find breakpoint opportunities in their operations, where breakpoint is achieved in the attainment of superior performance in one or more value metrics. To achieve breakpoint it is extremely necessary to manage the core business processes in both their operational aspects and the way in which the organisations connect the customers and suppliers to the internal operations within the supply chain *(refer figure 7e.4)*.
2. Not all companies will feel it is appropriate to put in their time, effort and the cost of trying to achieve the breakpoint.
3. And because there are almost always opportunities for cost reduction in improving non-core business processes and increases competitiveness by improving core business processes.

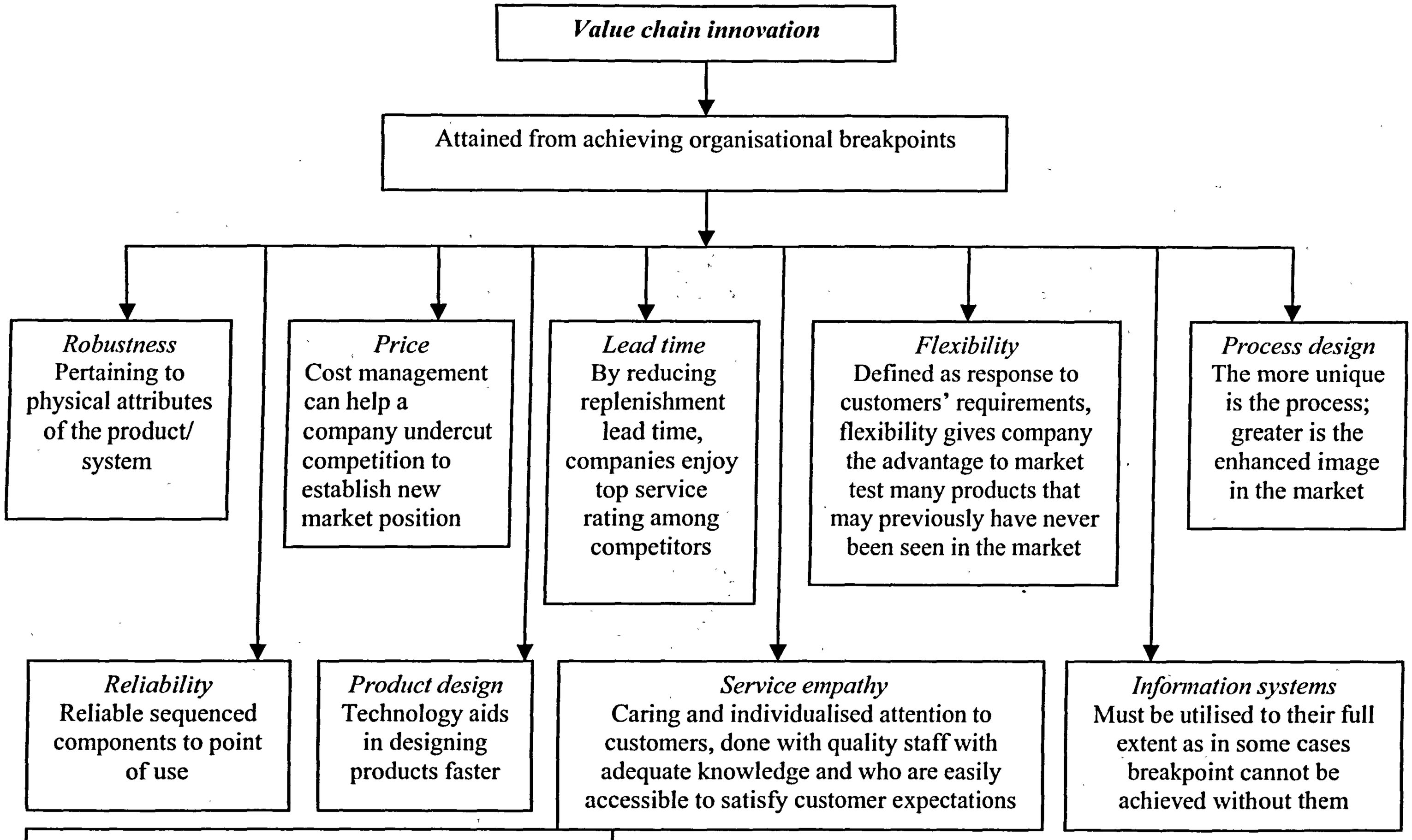

Figure 7e.4: Few definitions of breakpoints in an organisation
Source: Mohanty (1999)

SECONDARY CASE STUDY: INNOVATION AT IBM

7f.0 Introduction:

IBM has been in the information technology (IT) industry since its initiation. The company's portfolio of capabilities ranges from services that include business performance transformation services to software, hardware, fundamental research, financing and the component technologies used to build larger systems. These capabilities are combined to provide business insight and solutions for enterprises. The company operates in the IT industry, which comprises of three main categories of business value, infrastructure value and component value[1] *(refer figure7f.1) (Palmisano, 2006).*

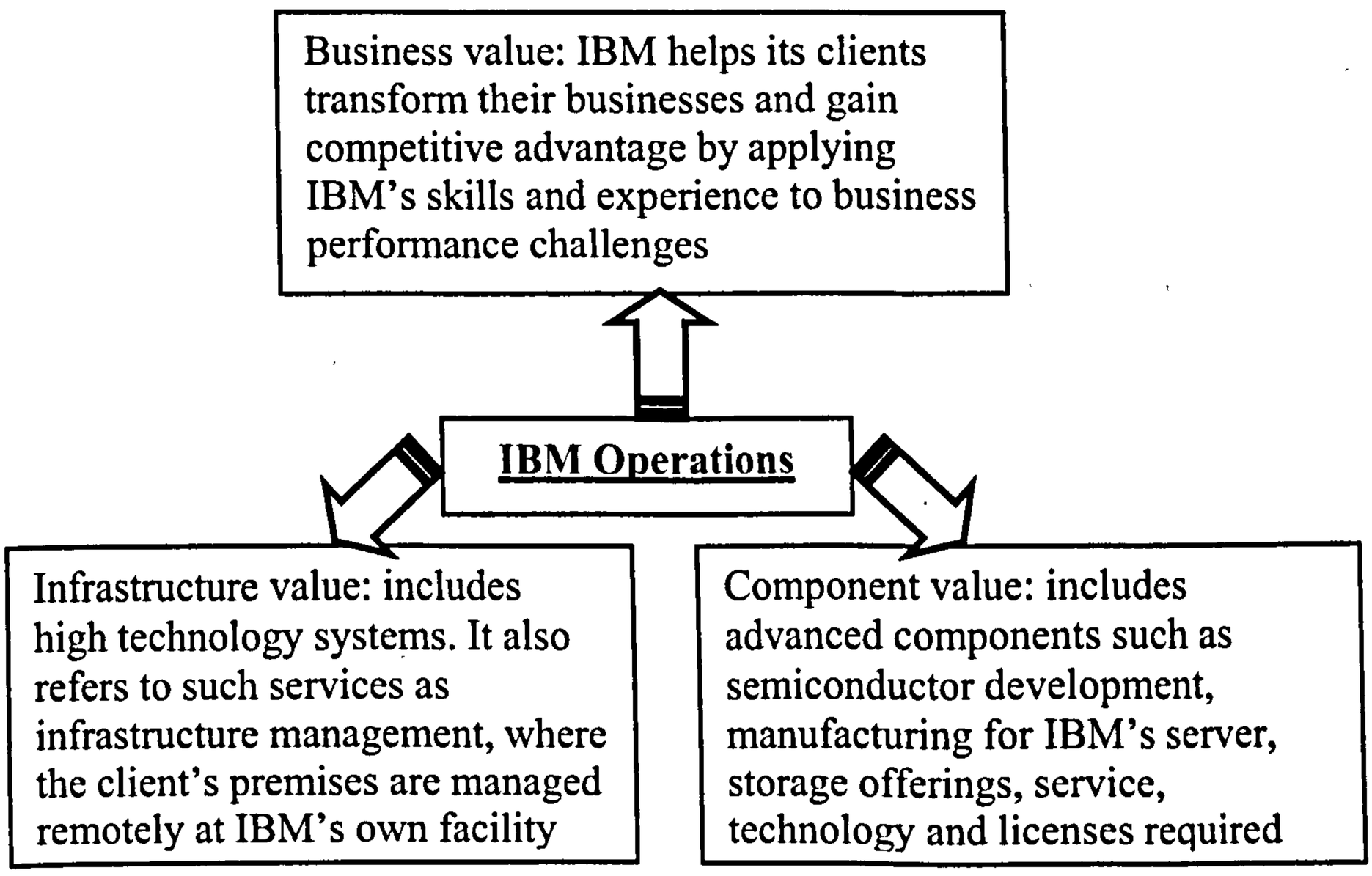

Figure 7f.1: Categories of IBM operation
Source: Palmisano (2006)

IBM Business Consulting Services provides support and expertise in more than 160 countries, providing its clients with deep business process and industry expertise across 17 industries. IBM extensively uses innovation principles to identify, create and deliver value faster. IBM follows the principles of fusion by mixing business strategy with technology insights to not only help organisations develop and align their business vision across four strategic

[1] Comprehensive information about the company, its financial results, lines of business & operations are available online in the IBM annual report (Hwww.ibm.com/annualreportH)

dimensions but also ensure survival and growth in this highly competitive business environment. These four dimensions according to *IBM (2006)* are:

1. Business strategy;
2. Operating strategy;
3. Organisation change strategy; and
4. Technology strategy

7f.1 Values of IBM:

IBM has been an innovative company since its inception nearly a century ago with the belief that innovation that matters requires both personal responsibility and partnership *(refer innovation through partnering – chapter 3).* The company and its employees lay emphasis not only on inventing technology but also applying their inventions and insights to solving meaningful business and societal problems. *Palmisano (2006)* accentuates that innovation has become a priority for the fast changing business world today, because it creates systematic, sustainable and meaningful value and at IBM, innovation is not only a priority but also a responsibility of each and every individual.

Following are the values, which are deeply ingrained in at all levels within the organisational hierarchy:

- Dedication to every client's success;
- *Innovation that matters- for the company and the society;* and
- Trust and personal responsibility in all relationships (partnerships)

7f.2 Methodology:

The results of the survey are based on interviews conducted by IBM and the Economist Intelligence Unit (EIU) amongst 765 chief business executives and public sector leaders from twenty different industries and 11 geographic regions, including both mature markets and important developing markets such as China, India, Eastern Europe and Latin America. The *IBM (2006)* Global CEO survey on innovation recognises that increased globalisation in the past decade together with rapid changes in technology has given enterprise competition a new face altogether leading to a vicious circle where the financial markets demand ever faster growth, which depends on innovation.

7f.3 Innovation Management at IBM:

IBM is a company driven and managed by values, which are the responsibility of each and every employee (approximately more than 300,000 employees). The executives are held accountable for implementing IBM's values into core business strategy and the company aspires to follow a specific and detailed innovation business model. *Palmisano (2006)* explains that IBM's business model is based on innovation, which is also defined as the intersection of invention and insight. This allows the company to change and mould itself into various ways such that it provides value not only to customers but also long term benefits to all stakeholders. The innovation model followed by IBM is extremely flexible and allows redesigning according to changes in services and technology.

According to the findings from the survey conducted in 2006 *(IBM, 2006)*, strong collaborations and external partnerships enjoy healthier revenue growth and average operating margin over their competition. With technological advances and globalisation presenting numerous opportunities and threats, CEO's of today are giving more importance to business model innovation, giving it a prominent place on their agendas as products/services/markets innovation and operational innovation *(IBM, 2006)*. The survey highlights that companies that are working towards business model innovation are showing faster growing operating margins than their competitors. However, many feel that internal barriers to innovation act as major obstacles, rather than the external. On describing their current status on innovation, many of the respondents of the *IBM (2006)* survey stated common operational issues such as

- High cost;
- Slow response;
- Inefficient; and
- Antiquated

7f.3.1 New approaches to business controls:

IBM followed a new approach to business by placing its systems under numerous tests to assess whether the company was ready to meet the demands of the new requirements and customer expectations. The idea

behind this system examination was to deliver greater efficiency for IBM, showcase technical innovation followed by the company and demonstrate trust and accountability. For example, IBM created an on demand environment for its controls structure. The hub is an online data-base that stores documentation and data and also at the same time serves as the medium in, which test results and the current status of controls, are reflected. For control and measurement an on demand scorecards-by country, by process and by organisation are used, which provide real time monitoring of the effectiveness of IBM's internal controls through a well managed and well defined matrix system *(IBM, 2006)*. Palmisano (2006) explains another good example that reflects on IBM's new approach towards business to add value is the simplification of its long standing semi-annual control assessment (SACA) by line management, eliminating detailed surveys that were originally sent to thousands of employees and hereby, reducing assessment cycle time by approximately 50%.

7f.3.2 Innovation with suppliers to constantly improve the relationship:

IBM owns an extensive wide-ranging global supply chain in more than 80 countries the management of, which requires an attitude of extreme care and attention from all its employees. IBM strongly believes in holding the company and its suppliers to very high standards of behaviour, complying with all applicable laws and regulations and also promoting strong commitment to work with suppliers to encourage sound practices that lead to the development of strong global markets and also drive improvements in suppliers' practices wherever necessary *(refer figure 7f.2)*.

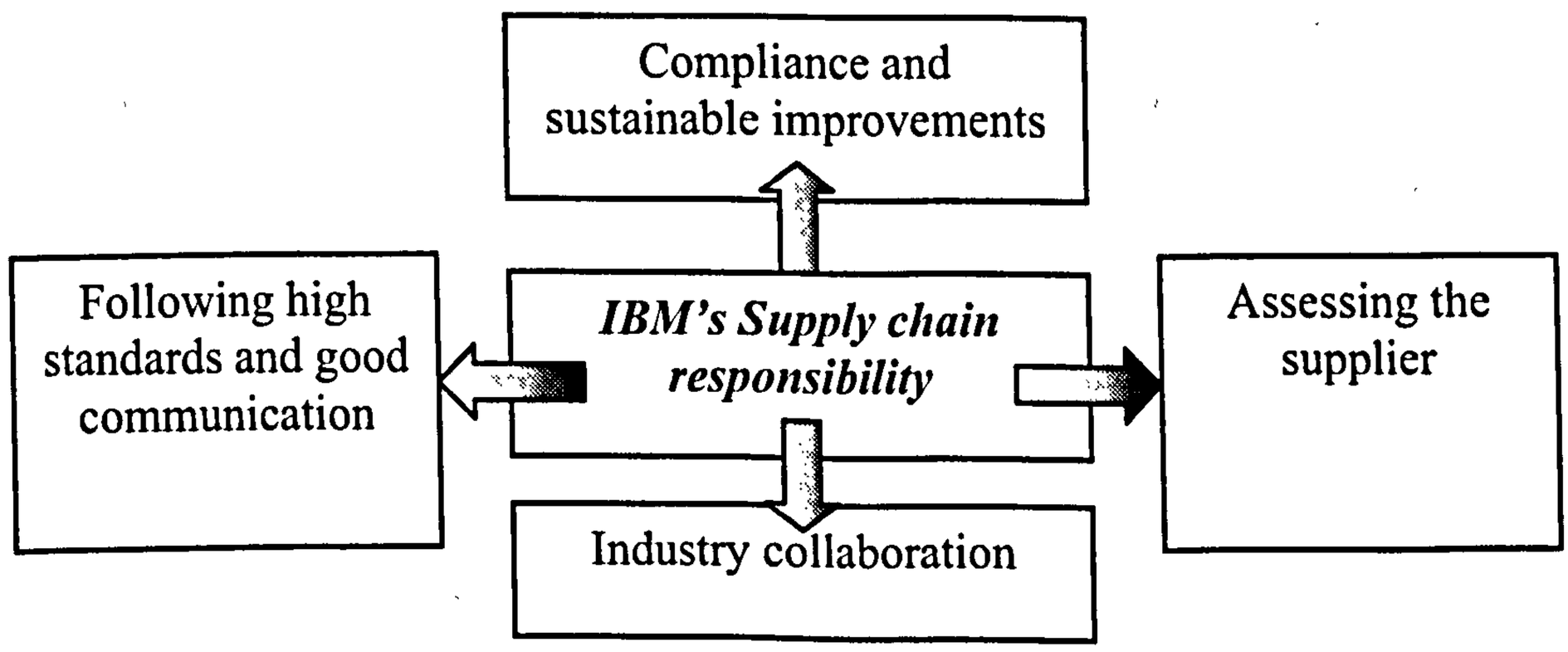

Figure 7f.2: IBM Supply Chain Responsibility
Source: adapted from www.ibm.com

Efforts made by IBM has ensured the company with suppliers, who are not only making constant remediation and improvements but also ensuring good quality of life and work environment improvements that exceed IBM's code of conduct. In the year 2004, the company released its Supplier Conduct Principles[2], which formalised its commitment to corporate responsibility requirements for suppliers. The document includes examples of compliance and non-compliance for suppliers, which can be used by them in viewing and assessing their own operations and also gives prominence to company's expectations on the following areas of practice *(Palmisano, 2006)* and *(IBM, 2006)*:

1. Forced labour;
2. Child labour;
3. Wages and benefits;
4. Working hours;
5. Non discrimination;
6. Respect and dignity;
7. Freedom of association;
8. Health and safety;
9. Protection of the environment;
10. Laws and regulations;
11. Ethical dealings;
12. Communications; and
13. Record keeping.

IBM follows a strict assessment and outcome procedure and has engaged the help of a firm that specialises in the field of corporate responsibility audits. This has been done by using trained local professionals to conduct audits at IBM's suppliers' factories, offices and distribution hubs, review of timekeeping, payroll record review. IBM shares the outcomes of the audits with its suppliers' management team. This helps in gathering information on how a

[2] For more information on IBM's supply chain, its commitment to diversity among suppliers and its expectations for responsible conduct can be found on its global procurement website (Hwww.ibm.com/procurementH)

facility operates and also helps to solve problems if any through a common supplier-generated corrective action plan.

7f.3.3 Innovation through Employees:

Palmisano (2006) explains that IBM succeeds in the global market place mainly because its earliest leaders believed that employees of the company are fundamental for innovation. The company seeks opinions of all its employees to shape significant developments in policy and innovation through the use of special web technology that brings the global workforce together on a common platform, encouraging strategic discussions about the company, its values and concerns. From the day employees join the organisation; they are given the opportunity for training and support to advance their knowledge and career.

7f.3.4 Linking diversity to market place potential:

IBM was one of the very few first companies to make diversity a moral imperative and a leader in making diversity a strategic imperative. Its competitive advantage lies in its employees and in multiplicity of thought, culture, race, gender and geography that leads to an assortment and unique combination of ideas being brought in within the company. IBM believes that individual differences, skills and backgrounds are extremely valuable and key to gaining competitive advantage. Following this principle, the company also works closely with local governments on its initiatives to improve workplace equality and productivity such that the results benefit the people in countries where business is done.

7f.3.5 Employees at IBM give their managers the tools to listen-and learn:

Employees at IBM have the luxury to access plenty of learning solutions and knowledge databases that provide just-in-time learning wherever they are and whenever they need (this is useful in knowledge transfer for multi-site projects). It has been found that globally, employees spend approximately 17 million hours annually in formal training either online (e-learning has helped IBM in saving money and meeting the needs of an increased mobile workforce), in a collaborative space, through experiential learning activities or in a traditional classroom. Employees are also given tools to provide feedback on their manager's strengths, as well as areas of improvements.

7f.3.6 Taking the professional ethics personally:

In late 2003, IBM began the work of reshaping its programs and policies to align with its understanding of the current values, such as *(www.ibm.com and IBM, 2006)*:

- Dedication to every client's success;
- Innovation that matters, for the company and for the society as a whole; and
- Trust and personal responsibility in all relationships.

All IBM employees are given prior training of what is expected of them and are asked to certify annually to the IBM Business Conduct Guidelines. The employees are constantly reminded of the issues involved in maintaining high ethical standards and financial integrity through the use of simulations, case studies and other available learning and training activities. It is extremely essential for each and every employee to completely understand the financial and compliance repercussion of their responsibilities. They have the freedom to raise queries to their managers and senior team as per requirement *(demonstrating the concept of easy access to top management, which is a major factor promoting innovation and healthy work culture)*. The business conduct guidelines are regularly reviewed to determine their reflection on the current issues and situations, which could possibly arise in the business or might have already been occurred for other enterprises in the industry.

The *(2006) IBM* CEO innovation survey, which was conducted through case studies and personal interviews with approximately 756 CEO's, business executives and public sector leaders from around the world (20 different countries and 11 geographic regions), brought forward the phenomenal challenges faced by the society today and the importance of innovation in solving these issues. The survey also captured the current views of various CEO's on innovation. Approximately 80% of interviews were carried out personally and rest were telephonic interviews carried out through collaboration with the Economic Intelligence Unit. Following are the key issues in innovation raised by majority of the CEO's and top management executives in the *IBM (2006)* innovation survey:

- Business model innovation matters: Competitive pressures have pushed business model innovation much higher than expected on CEO's priority lists, which at the same time does not defy the need to focus on products, services, markets and operational innovation.
- External collaboration is indispensable: CEO's today stress on the increasing importance and need of collaborative innovation beyond the boundaries of an organisation. Business partners and customers were thought of as top sources of innovative ideas, with CEO's realising that their organisations need to work more on collaborative innovation *(refer partnering and outsourcing)*
- Innovation requires orchestration from the top: In the *IBM (2006)* innovation survey, CEO's admit that they have the primary responsibility for introducing and fostering innovation in their organizations. However, successful innovation depends on a more team based environment, better integration of business objectives with advancements in technology and employee reward systems.

The *IBM (2006)* innovation survey proposes several considerations that can help other organisations to sharpen their own innovation agendas. These are:

- Think broadly, act personally and manage the innovation mix: creation and managing a broad mix of innovation, which stresses more on business model change.
- The company's business model should be significantly different: organisations should find alternative ways to change how value is added in current industry or in another.
- Promote innovation through business and technology integration: use of technology to drive innovation by combining it with business and market insights.
- Defy collaboration limits: collaborate on a massive geography-defying scale such that there are numerous possibilities.
- Force an outside look: pushing the organisation to work more with outsiders and making it as part of the organisational culture

Innovation is a process of using new ideas or applying current thinking in fundamentally different ways to effect significant change

(IBM Innovation survey, 2006)

7f.4 Focusing on the business model innovation:

It is vital to combine the different types of innovation-products/services/markets, operational and business model to meet particular business objectives and help establish sustainable differentiation. Business model change should be an integral part of the innovation agenda

(IBM Innovation survey, 2006)

Results from *IBM (2006)* CEO Innovation survey highlights the importance and use of innovation business model in any organisation. Many CEO's and top management people who are now using business model innovation to preempt threats and create them insist that the business model chosen by an organisation determines the success or failure of the company's strategies. Four out of every ten-business model innovators were afraid that changes in a competitor's business model would upset the competitive dynamics of the entire industry *(IBM Innovation survey, 2006)*. Today, many CEO's feel that companies must innovate in areas where competition is not present and does not act by developing competencies and alliances, global connectivity further enhanced through telecommunications (global connectivity reduces transaction and collaboration costs). This is made easy as IT infrastructure and open standards allow easy approach to new skills, employment of workforce and gaining partners, hereby allowing entirely new forms of collaboration and thus, latest and advanced business models, cost basis and innovation, allowing the companies to take advantage of the expertise and scale that lies hidden in their own organisations and across the globe *(IBM Innovation survey, 2006)*. When asked about the success rate of partnering, many CEO's stated that progress and profits in strategic partnering has a prerequisite of first the company specialising in the appropriate area and then working towards mutually beneficial value creation in this era of specialisation *(refer partnering, chapter 3)*.

The survey results exposed the strong correlation of business model innovation with operating margin growth when compared to relation between operating margin and innovation in operations or innovation in products and services. Companies innovating through strategic partnerships enjoy the highest operating margin growth. Various benefits stated by CEO's who

stressed on business model innovation are as follows *(IBM Innovation survey, 2006):*

- Cost reduction;
- Strategic flexibility;
- Focus and specialisation;
- Exploitation of new markets and product opportunities;
- Share or reduce risk and capital investment; and
- Move from fixed to variable cost.

Organisations need to develop a business model based on strategic partnering that creates value not just for the company but also for the industry as a whole

Study participant in (IBM Innovation survey, 2006)

7f.5 Partnering for Innovation:

Survey results from the IBM Innovation survey prove that many CEO's believe that partnering is inevitable for innovation and is the only way to extract maximum value. When asked on most important sources of innovation, many CEO's participating in the IBM Innovation survey (2006) named numerous sources of innovation, indicating that CEO's have expanded their innovation focus beyond products and services *(refer figure 7f.3).*

Most significant sources of innovative ideas as stated in the survey are:

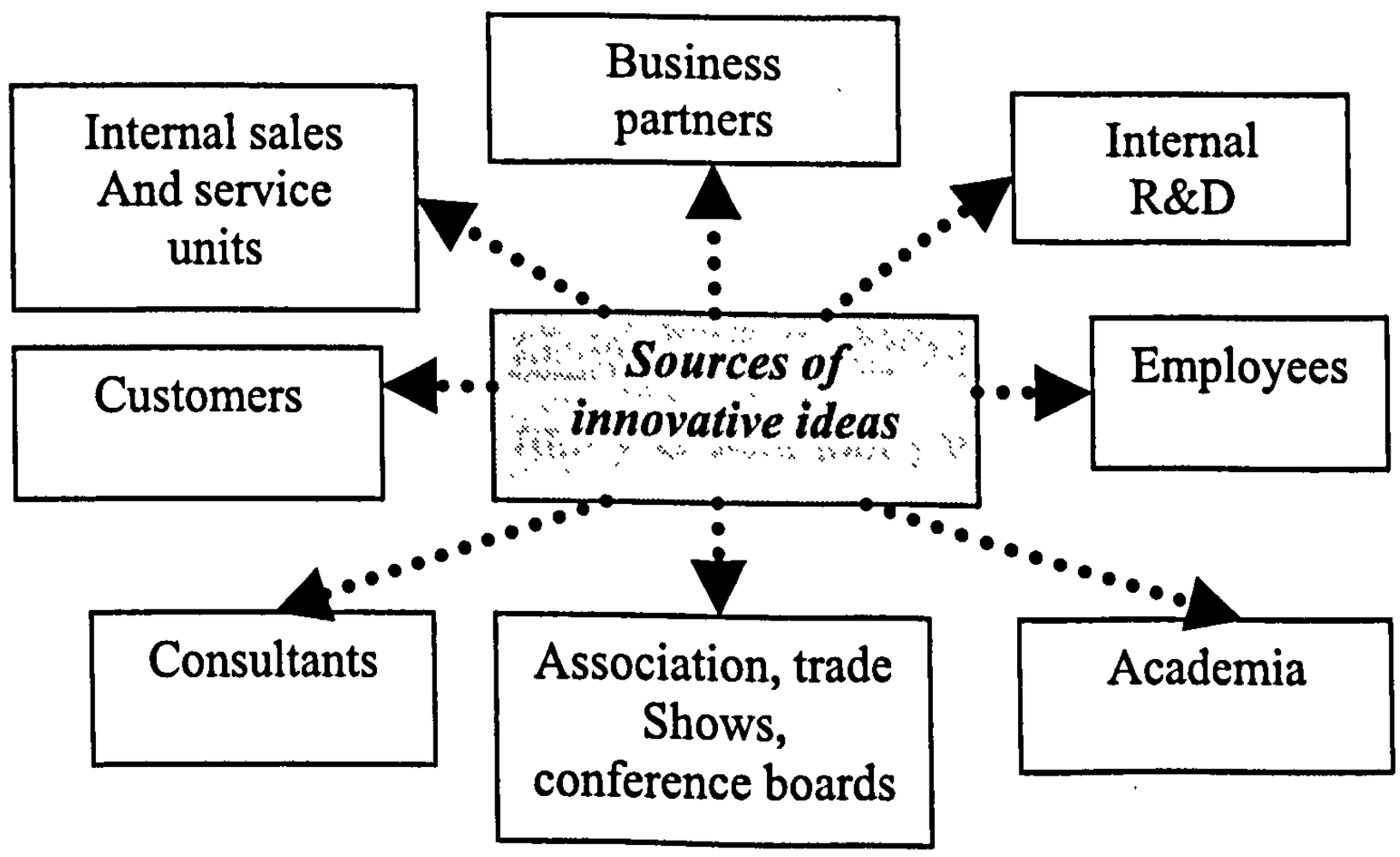

Figure 7f.3: Sources of innovative ideas
Source: IBM Innovation survey (2006)

Collaboration is stated as discipline by many study participants who accentuate that partnering for innovation is easier said than done and involves extreme hard work from all the organisations involved. Participating CEO's also stressed that organisations should constantly work towards gaining the required skills and expertise needed to collaborate and partner externally.

The huge gap between the need for collaboration and the ability to do so is clearly a significant roadblock to innovation that CEOs need to address. And since so many ideas come from outside, leaders need to pay particular attention to strengthening collaborative capabilities at the perimeters of their organisation.

(IBM Innovation survey, 2006)

Citing a lack of the skills and expertise needed to partner externally, many CEO's refer to partnering as "theoretically easy" but "practically hard" to implement *(IBM, 2006)*. The results of the *IBM (2006)* Global Innovation survey illuminated the importance of strategic partnership, which topped the list of significant business model innovations. As global connectivity reduces the cost of collaborations, partnerships and transactions, many companies are taking advantage of the expertise and scale beyond the boundaries of their organisation by combining internal expertise and scale through shared services centres with the capabilities of specialised partners to create truly differentiating business designs *(IBM, 2006)*. The survey highlights that external sources such as business partners and customers are prevalent in the ranking of CEO's most significant sources of innovative ideas. This trend was found more in organisations that have performed well financially.

7f.6 Top management support for innovation:

The survey results show that many CEO's today realise the importance of top management support for successful innovation. CEOs candidly understand the need to play a prominent role in establishing an innovative culture within their own respective organisations *(IBM Innovation survey, 2006)*. However, many CEOs are not always certain on how to go about innovation even if they realise the importance of their role in it, keeping this in mind the IBM innovation survey results propose two major factors, which can help CEOs to harmonise innovative activities and achieve greater results. These are:

- A culture that is accommodating, supportive, harmonious and team-oriented but still rewards individual contribution;
- Increased consistent integration of business and technology, which is integral to innovation and has a strategic impact on all areas of business;

Further recommendations for CEOs are:

1) CEOs need to develop and manage a bold innovation strategy that spans the main three types of innovation, namely:

- Products/services/markets innovation;
- Innovation in operations; and
- Business model innovation

2) CEOs need to ensure that a truly differentiated business model is created that adds value into the business, delivers superior value to customers and individuates the organisation from its competitors.

3) CEOs need to set the scope and pace of innovation to ensure that the organisation accepts the responsibility of all risks and works towards success.

4) Understanding the internal and external capabilities of the organisation that might have a fundamental impact on the value chain. Attending to particular ignored areas in the value chain, where no one is actively innovating.

5) CEOs need to conceive the alignment of technology investments with business operations to help make better judgments about future investments.

6) Partnering arrangements should be such that they encourage innovation and not just focus on cost cutting.

It is extremely essential for every CEO today to not only lead innovation but also lay grounds for an organisational culture that stimulates and promotes it. Nearly 80 percent of the CEOs interviewed in the IBM innovation survey (2006) state that growth and survival depends on innovation. The respondents also regard external collaboration and business technology integration as of great importance. The survey results conclude that being innovative is very similar to implementing a corporate strategy where deliberate choices have to be made, which include making the right choice from the numerous options available and concentrating on key actions that can actually make a difference.

CEOs must drive the changes required to create an innovative culture. Leading innovation requires an unwavering commitment to a team-oriented environment that also recognises outstanding individual contribution and business and technology integration that is implemented across the organisation.

(IBM Innovation survey, 2006)

7f.7 Challenges faced by IBM:

1. One of the main challenges faced by IBM today is to accelerate global integration of the company with management systems to support IBM's innovation business model. This includes integration of business and technology as technology acts as catalyst both to drive and enable innovation and plays a vital role in the development of new products, services, channels, market entry strategies, operational transformation and industry-altering business models.
2. Maintaining industry momentum and increased participation in the Industry Electronic Industry Code.
3. Maintaining a high standard of diversity.

7f.7.1 Barriers to innovation:

CEOs who participated in the *IBM Innovation survey (2006)* state that there exist similar amount of barriers internally as they do externally. These barriers, which complicate and increase the challenges faced by CEOs should be resolved by controlling and changing the organisational culture and working environment. The following are some of the many innovation barriers faced by organisations *(refer table 7f.1), (IBM Innovation survey, 2006):*

Table: Significant obstacles to Innovation

Internal barriers to innovation	External barriers to innovation
Unsupportive climate and organisational culture	Government and other legal restrictions
Limited funding for innovation investment	Economic uncertainty
Workforce issues	Inadequate enabling technologies
Process immaturity	Workforce issues arising externally
Inflexible physical and IT infrastructure	
Insufficient access to information	

Table 7f.1: Innovation barriers
Source: IBM Innovation survey (2006)

7f.8 Conclusion:

The *IBM Innovation survey (2006)* concludes that unlike invention, which comes from effort, experimentation and element of luck, innovation builds upon skills and leadership, choosing the appropriate areas to focus innovative activities on and creating an optimal organisational and work environment where innovation can work systematically and flourish *(refer figure 7f.4)*.

7f.8.1 Fostering Innovation in an organisation:

1) Focusing on innovation business model:

- Driving down costs
- Business model innovation need not be in the organisation's core business but also a new business in another industry.

2) Partnering for innovation:

- Consider options far beyond basic shared service centres, outsourcing or in-sourcing –for example partnering with a competitor to gain mutual advantage over the rest of the industry, or participating in a common industry wide utility that lowers everyone's cost.
- Third party involvement could add value or technology, which could introduce entirely new ways of doping business.

3) Top management support:

- Increased speed and flexibility

4) Platform for employees and customer group-Inspiring great ideas through friendly debates:

- Greater employee and customer satisfaction

5) Incentives and rewards to innovative individuals:

6) Promoting team work and a harmonious work culture:

- Think broadly, act personally and manage the mix of innovation

7) Integrating business goals and strategies with advancements in technology-strategic impact on business:

- Increase in revenue
- Consider new approaches to defining and evaluating the business components, their strategic value and the best possible way of implementation.

7f.8.2 Case study analysis – Innovation Model:

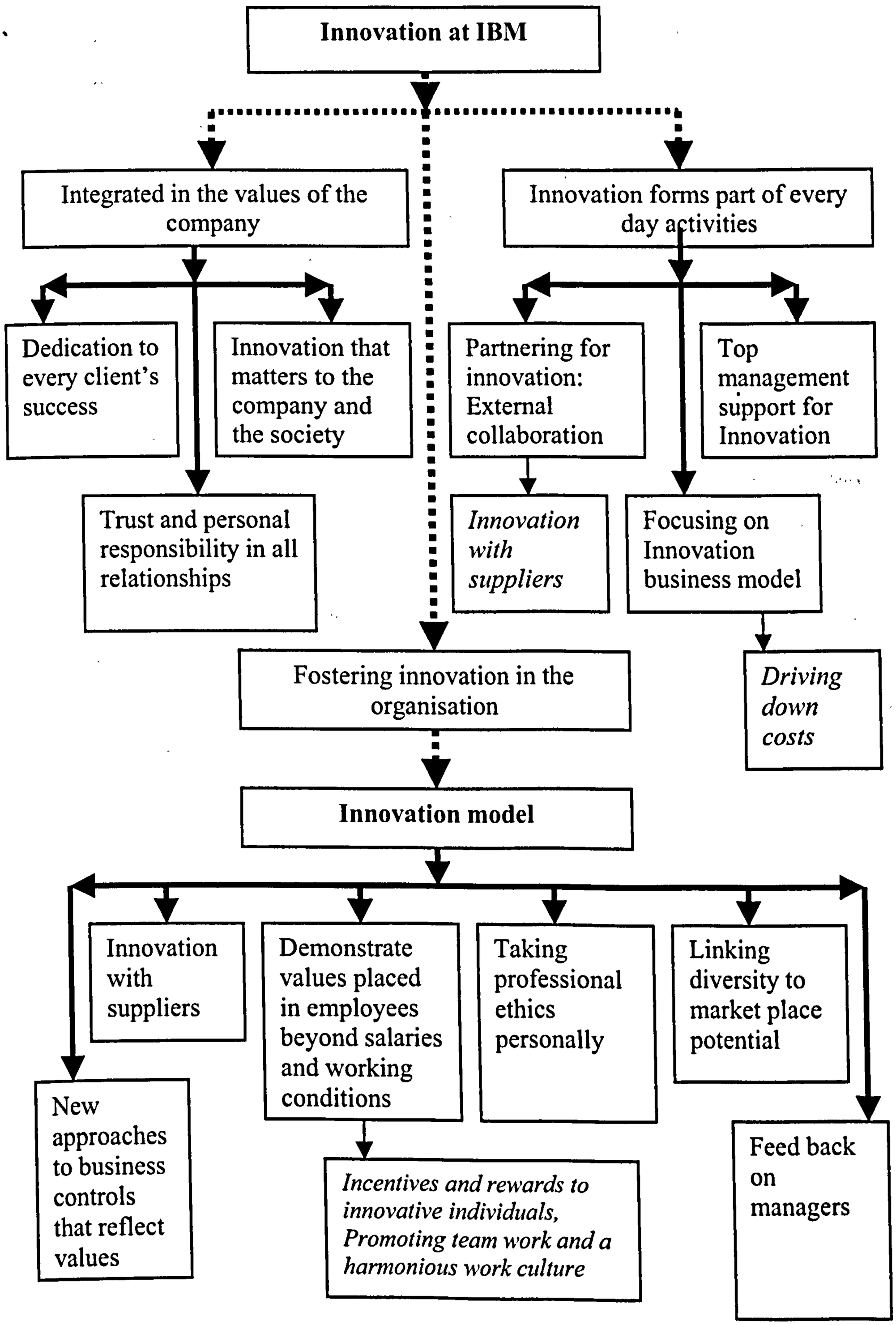

Figure: 7f.4: Innovation at IBM
Source: Self Analysis from case study material

The *IBM (2006)* survey concludes that there is an increasing change in managerial priorities. These, as listed by the respondents of the *IBM (2006)* survey are dependent on numerous factors out of, which the most commonly listed are:

1. Intensified competition in the industry
2. Increasing customer expectations and changing demands
3. Unexpected shifts in the market
4. Employee demands
5. Fast Advancement in technology
6. Regulatory concerns
7. Globalisation

7f.9 Summary:

The *IBM (2006)* Global Innovation survey proposes the following considerations, which will assist the managers of today to think more deeply in to their innovation agenda *(also refer 7f.5)*:

- Creation and management of a broad mix of innovation that stresses on a business model change;
- Continuous changes in business models that display substantial change in how value is added in the industry;
- Aligning technology with innovation such that continuous changes in technology are used as innovation catalyst, done in combination with business and market insights;
- Collaboration on a massive geography-defying scale *(using the effect of Globalisation, exploiting new markets)*, which opens more opportunities towards innovation; and
- Encouraging the organisation to work more with outsiders and making it as part of organisational culture *(refer Partnering and Outsourcing)*.

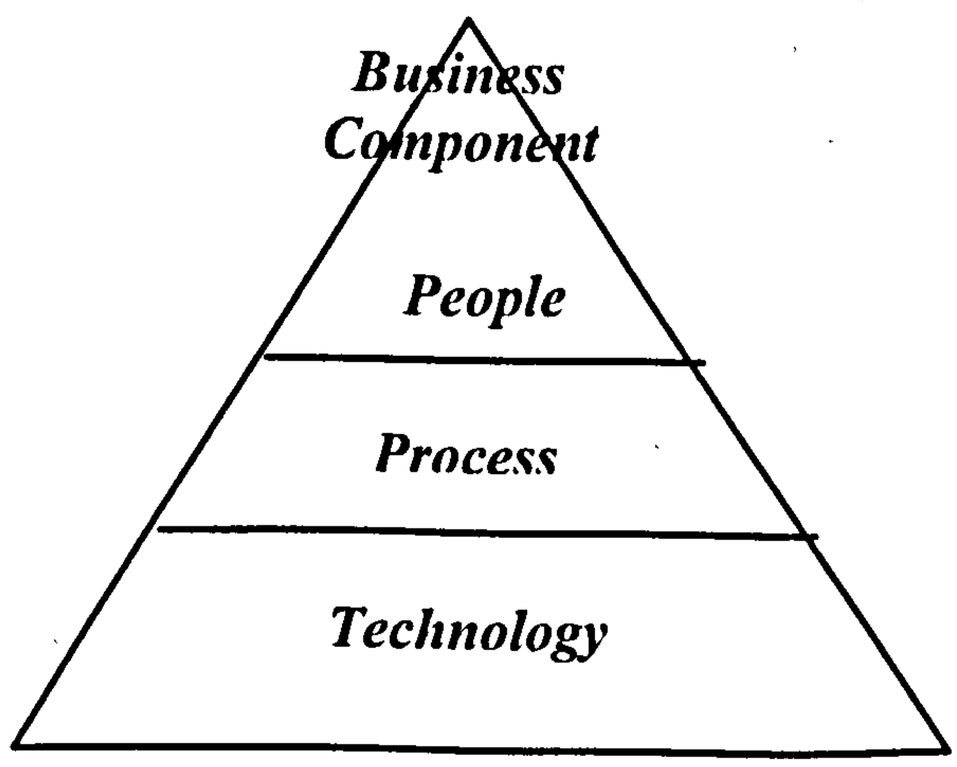

Figure 7f.5: Identifying basic building blocks of the business. Source: Adapted from www.ibm.com and IBM (2006)

SECONDARY CASE STUDY: INNOVATION AT BOSTON CONSULTING GROUP (BCG)

7g.0 Introduction:

The following case study has been analysed on the basis of data published by the *Boston Consulting Group (2005) & (2006), Andrew and Sirkin (2004) and Andrew (2006)*. The Boston Consulting Group (BCG), founded in 1963 is a general management-consulting firm that is a global leader in business strategy. BCG has helped companies in every major industry and market to achieve a competitive advantage by developing and implementing winning strategies. The company now operates 60 offices in 37 countries and focuses on helping clients achieve competitive advantage. BCG believes that best practices or benchmarks are rarely enough to create lasting value and that positive change requires new insight into economics, markets and the organisational capabilities to chart and deliver on winning strategies.

7g.1 Survey methodology:

The *BCG (2006)* senior management survey on innovation was distributed electronically to executives worldwide in early 2006. In total, 1070 executives and managers participated, representing 63 countries and all-major industries. Participation was voluntary and anonymous. The responses broke down are shown in the tables below *(refer table 7g.1, 7g.2, 7g.3):*

7g.2 Key findings from the annual innovation survey:

The BCG annual surveys on innovation conducted in (2005) and (2006) brought out number of insights on companies' efforts to foster innovation, with most companies being strongly committed to innovation and considering it critical to organisational success. Most companies are willing to pay for innovation but seriously doubt the returns on their investment *(refer 8g.4).*

The (2006) innovation survey conducted by the BCG prior to the innovation measurement survey (2006) revealed that companies globally are attaching increasing strategic importance to innovation by proportionately increasing the innovation spent and budget *(Andrew & Sirkin, 2004)*. However, the critical element of metrics and measurement was still missing in almost all the companies surveyed. The survey exhibits that even though companies realise the importance of measurement, few of them actually, in practice, thoroughly track their respective innovation efforts from start to finish. Among those,

which do try to measure innovation carefully, only few are confident of doing the right thing. This coupled with the organisations' concern and dissatisfaction on their respective return on innovation spending raises an issue that needs to be addressed and researched.

The *BCG (2006)* survey recognises three distinct but relatively related components, which should be rigorously measured but are hardly done by organisations presently. These three components are:

- Inputs or resources: such as people and money;
- Processes: act on and transform the inputs; and
- Outputs: The end results including cash returns and returns for shareholders.

Table 7g.1: Survey Methodology of BCG (2006) Innovation survey

Country	Number of responses
United states	450
India	71
Germany	66
France	42
United kingdom	39
Portugal	30
Switzerland	25
Australia	23
Spain	22
Canada	20
Mexico	20
Italy	19
Brazil	19
Netherlands	18
Chile	18
Singapore	17
China	15
Other	156
Total	1,070

Table 7g.2: Survey Methodology of BCG (2006) Innovation survey

Industry	Number of responses
Technology	191
Consumer products/retail	140
Industrial goods	114
Health care	112
Financial services	111
Media/entertainment	68
Education	39
Telecommunications	37
Automotive	29
Energy	27
Government/non profit	18
Other	184
Total	1,070

Table 7g.3: Survey Methodology of BCG (2006) Innovation survey

Position	Number of responses
Chairman/CEO	217
Business unit leader	92
Director of strategy	88
Vice president of sales and marketing	57
Vice president of strategy	50
Manager of new product development	46
Director of R&D	46
Product manager	39
Chief operating officer	34
Technical specialist	34
Researcher	29
Chief technology officer	16
Chief financial officer	15
Chief information officer	13
Other	294
Total	1,070

Table 7g.1, 7g.2 &7g.3: Survey Methodology of BCG (2006) Innovation survey
Source: BCG Innovation Survey (2006)

Table 7g.4: Key findings from the BCG Innovation survey (2005) & (2006)

Annual innovation survey 2005	Annual innovation survey 2006
Seventy four percent of the executives surveyed said that their companies will increase spending on innovation in 2005, up from 64% in 2004	Innovation remains a top strategic focus for many companies, with 72 percent of the executives surveyed by BCG ranked it a top-three strategic priority versus 66 percent in 2005
Approximately 90% of the executives surveyed said that generating organic growth through innovation has become essential for success in their industry.	72 percent of respondents said that their companies will increase spending on innovation in 2006
Less than half of the executives surveyed said that they were satisfied with the financial returns on their investments in innovation	Half of the executives surveyed remain unsatisfied with the financial returns on their companies' investments in innovation
Globalisation and organisational issues were cited as two of the biggest challenges facing many companies in 2005.	Globalisation, organisational issues (Such as metrics and measurement, structure and people) and leadership remain three of the biggest challenges facing companies that are seeking to become more innovative

Table 7g.4: key findings from annual BCG innovation survey
Source: BCG Senior Executive Innovation Survey (2005) and (2006)

7g.3 Innovation measured:

Along with the annual global *Senior Executive Survey in Innovation (2006)*, the Boston consulting group invited approximately 269 senior executives to complete a separate survey on innovation metrics and measurement. The key findings from this survey are as follows (*Andrew, 2006 & BCG, 2006):*

1. Innovation is widely under measured and few firms, even those that attempt to track innovation rigorously are confident that they are doing it right.
2. The majority of companies that do use metrics typically use only five or maybe even less than five metrics to track and measure their performance
3. The three metrics considered most valuable as per the executives who participated in the survey are:
    - Time to market;
    - New product sales; and
    - Return on investment on innovation.

4. Few companies tie employee incentives to innovation metrics.
5. The potential for most companies to improve their measurement practices and as a result boost their return on innovation spent is sizable.

7g.4 Using the metrics:

It is common belief that companies measuring innovation would be using a large number of metrics to achieve the desired results. However, the BCG survey shows otherwise. Majority of the organisations (approximately 63%) said that their companies track five metrics or maybe even less than that, which is very less to get a true picture of innovation. The survey suggests that companies that apply metrics are most interested in capturing and measuring the innovation outputs. 78% of respondents said that their companies use metrics to measure innovation outputs, employing the following criterion:

- Number of products launched;
- Changes in market share; and
- Incremental sales and profit growth.

At the same time many companies admitted that they do an infrequent job of measuring an important driver of output performance: the post launch impact of their support activities. About 47% of the respondents revealed that they apply post launch metrics infrequently and 8% said that they don't apply them at all. Innovation inputs measurement was at a lower priority amongst the respondents of the BCG survey, with 60% actually measuring the innovation inputs. Commonly used metrics here are:

- Operating expenses;
- Capital expenditure; and
- Number of full time employees dedicated to specific functions.

And only about 50% of the organisations that took part in the survey admitted to measuring the efficiency of the innovation processes. The commonly used metrics here are:

- Cycle times through specific parts of the process; and
- Difference between the initial expected financial value of an idea and its ultimate realised value.

This according to the BCG survey results explains the dissatisfaction with the financial returns on innovation spend as most of the companies have no idea on how well their innovation processes (if they have any) are performing. From a list of given metrics in the survey, the respondents identified, '*total funds invested in growth projects*' as the one, which was regularly tracked by most of the companies. The three least popular on the list were:

- The number of projects killed or tabled at each milestone;
- Percentage of innovation ideas funded; and
- Cannibalisation of existing product sales by new offerings.

The BCG research also conveyed that the three most popular metrics, which caused people to act differently with regards to innovation, were *(also explained below)*:

- New product sales;
- Time to market; and
- Customer satisfaction.

The respondents also listed various areas in which the metrics have the most impact on behaviour, amongst them the top three were:

- Idea selection;
- Optimisation of return on investment; and
- Minimisation of time to market.

Innovation is successful only when it is tracked and measured properly. The three most popular metrics used by organisations today to measure the company's innovation performance, were referred to be as *(Andrew, 2006):*

1) Time to market (process metric): In the opinion of many respondents of the *BCG Survey (2006)* the time between an idea and its introduction in the marketplace is an indication of efficiency. Long delays may mean that there is a problem in the innovation structure. Time to market is an important issue and largely affects product lifecycle profits as ideas in pipeline are of no use *(BCG, 2006).*

2) New product sales (output metric): This is regarded as the second most important metric that organisations use to measure their innovation performance. Respondents feel that new products are much more profitable than old ones and if they sell well, the objective is achieved. Data collected on

new product sales (Output Metrics) also provides necessary feedback to R&D to help the organisations improve their interfaces with marketing, sales and customers.

"Incremental sales are the measure proving that the innovative process was followed and a success."

Survey respondent (BCG, 2006)

3) Return on investment (output metric): Placed as the third most important amongst the metrics used to measure innovation performance on the BCG innovation survey results, the return on investment ensures that the project will create value and allows organisations to compete for capital.

"Innovation is an investment with high costs. It should be expected to have a return."

Survey respondent (BCG, 2006)

7g.5 BCG Innovation Survey recommendations:

The 2006 innovation survey conducted by the Boston consulting group from a sample size of approximately 1070 organisations from different market sectors concludes that measuring innovation is a challenge. However, measuring an organisations' innovation performance is also indispensable for long-term organisational success and profitable innovation activities. Given the rising sums most companies are investing in innovation and the competitive implications of earning poor return on that investment. The survey also confirms that only few companies today are tracking their respective innovation efforts and processes with a sufficiently high degree of thoroughness, rigor or accuracy. The survey suggests that aligning metrics with innovation strategy and focusing on a suite of measures that covers all three components of innovation namely; inputs, processes and outputs could help the companies improve upon the lack of innovation measuring techniques. This also helps in understanding the performance more efficiently and hence, reducing the dissatisfaction on financial returns.

7g.5.1 Aligning metrics with innovation strategy:

The BCG Innovation survey *(2005 & 2006)* concludes that measuring innovation requires more than just using a number of metrics. Successful

innovation measurement happens only when the right or the appropriate metrics are chosen, which is usually based on the organisation's innovation objectives and eventually on the company's overall business strategy. Understanding which type of innovation is needed by the company to meet its strategies, business objectives and obligations with shareholders and customers will help in deciding the type of metrics needed to measure innovation. The design of an optimal measurement system thus requires a high degree of business understanding and linkage *(BCG, 2006).*

Innovation according to the *BCG survey (2006)* can come in three forms or degrees. These are *(refer figure 7g.1)*:

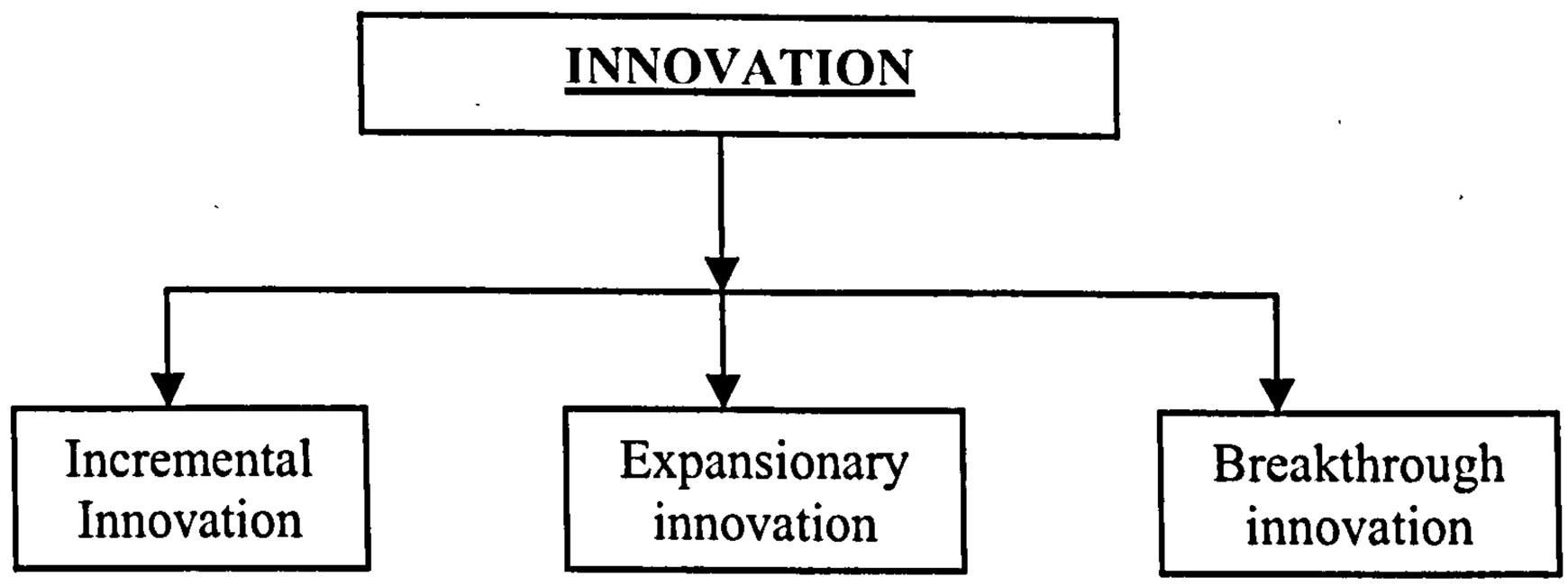

Figure 7g.1: The three forms of innovation
Source: BCG (2006)

Incremental innovation: This is defined by the BCG surveyors as the relatively small, ongoing, logical improvements and changes to the existing products and may also include, new product launches in certain occasions. Such type of innovation, which has been described as key to successful strategies for many companies, allows:

1. A company to maintain its market share;
2. Is critical for maintaining cash flow and market position;
3. Can act as a powerful lever for growth in new and expanding markets by allowing the company to remain an effective and viable player in the growing environment; and
4. Can lead to gain in shares when competitors are losing shares and falling behind.

Expansionary innovation: This is defined as a type of innovation that is mostly designed to allow an increase in market share. Such type of innovations, according to the innovation research done by *BCG (2006)* allows:

- Increase in revenue;
- Gain in shares;
- Increase in the range of products and services offered by the company; and
- Increase in the number of customers, who might be attracted to the new offerings in comparison to companies who only offer incremental innovations.

Breakthrough Innovation: This type of innovation as described by the (2006) BCG survey is capable of putting a company in an entirely new business. The author suggests that breakthrough innovation is not common in the today's business scenario, where companies are afraid of failures and risks involved and are not satisfied with the return on investment (ROI) on innovation spending. This type of innovation is extremely important for any organisation and it is necessary that it is tracked and measure with appropriate metrics. The *BCG (2006)* survey brings out the importance of innovation metrics in breakthrough innovation by suggesting that companies that face significant gaps between their current situation within the market and their aspirations, shareholder/customers demands should concentrate more on linking their activities and metrics to breakthrough innovation. This would also involve being prepared to take more risks and being more focused on absolute performance than on efficiency.

It is extremely important that all components of innovation (inputs, processes and outputs) are measured based upon the company's situation, business strategies and innovation objectives. The balance between the different metrics, both within and across the three categories, remains the most important factor *(BCG, 2006) (refer figure7g.2).*

"Innovation is all about cash payback. Drawing and discussing cash curves can help keep the focus there".

Survey respondent, (BCG, 2006)

"Innovation flourishes under and requires strong leadership. The most innovative companies have a leader who wants to make a difference and leave a legacy around innovation". *Survey respondent, (BCG, 2006)*

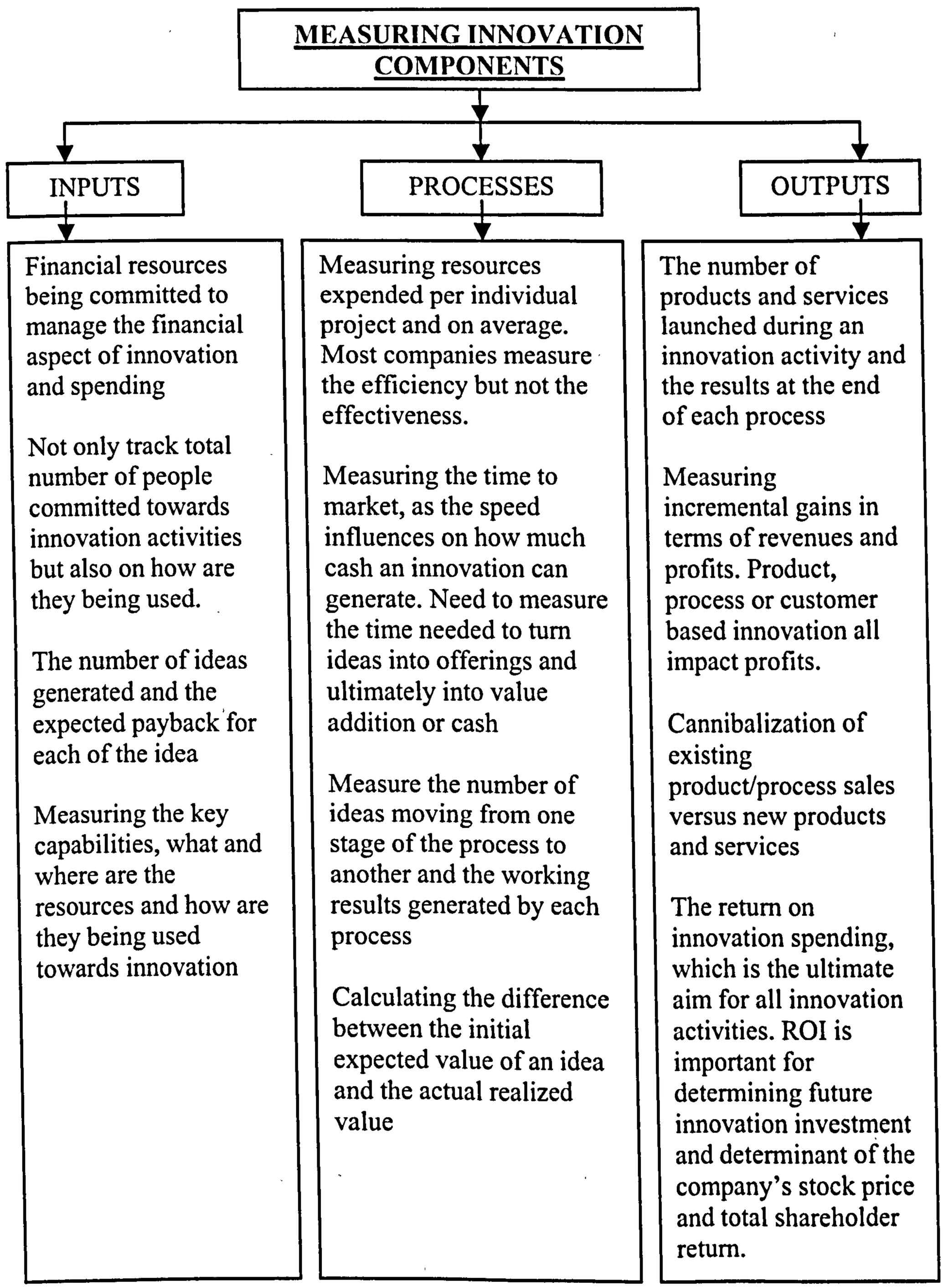

Figure 7g.2: Findings from the BCG (2006) Innovation Survey
Source: BCG (2006)

7g.6 Improving Innovation:

Organisations adopt a mass of levers for respective innovation improvement. However, the *BCG (2006)* Innovation survey brings out the three most common factors, which are seen in almost organisations that strive for improving innovation and continuous development. These are *(refer figure 7g.3):*

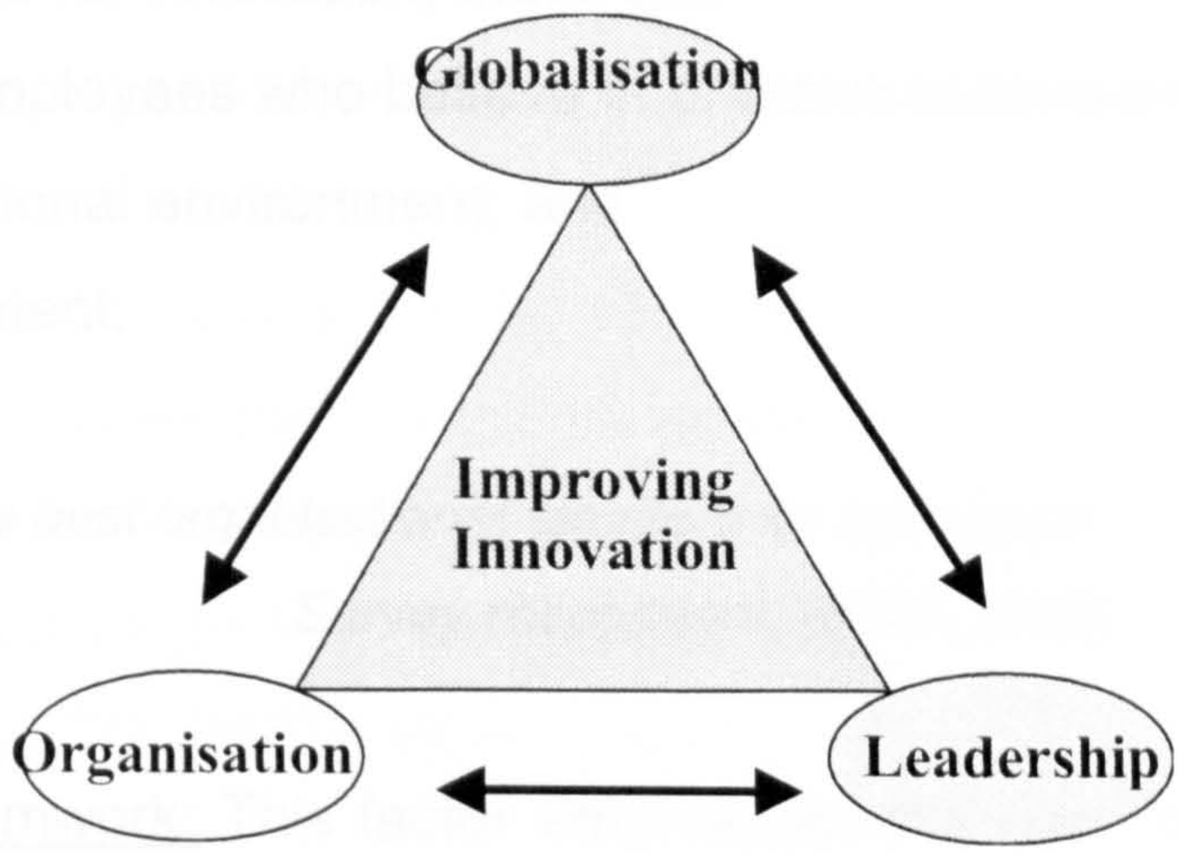

Figure 7g.3: how to improve innovation
Source: BCG (2006) Innovation survey

Globalisation

Approximately 70% of the respondents of the *BCG (2006)* Innovation survey stated that globalisation rules the innovation processes and is continuously having an impact on how their respective companies approached innovation. The survey recommends that companies need to expand their thinking on what the recently developed economies (RDEs) skilled labour pool can accomplish for them and their innovative aspirations. The survey accentuates that many companies are increasingly utilising the resources from the recently developed economies (RDEs) for their innovation activities mainly due to accessibility to vast, high quality, low cost technical labour and talent and better access to the local markets, which according to the survey are among the fastest growing sources of demand in the world.

Organisation

Almost all organisations from the wide of range of firms that participated in the innovation survey conducted by the Boston Consulting Group *(BCG, 2006)* confirm that any company/organisation can be innovative regardless of its

size, shape, culture or hierarchical structure. However, what is most important is the alignment of their respective innovation objectives with the organisational strategy and goals. This as stated in the findings of the *BCG (2006)* survey involves having the entire organisation on the same page concerning objectives, tactics and ultimately commitment to innovation. The survey brings out three key areas that help companies create the degree of alignment needed for innovation, these are

- People/employees who believe in effective team work;
- Organisational environment; and
- Measurement.

"There is no single best organisational structure for innovation".

Survey respondent, (BCG, 2006)

People and Teamwork: This factor emphasises the need of an efficient team and teamwork capabilities within the employees of the organisation. Organisational alignments require people/employees who understand the value and importance of working together and have the skills and temperament to do so *(BCG, 2006)*. The survey concludes that a good team can be achieved through not only empowering and rewarding the strongest/key players but also at the same time identifying those individuals who come up short and work with them.

Measurement: The survey concludes that innovation that is not measured gets superimposed with activities/processes, which are measured, tracked and recorded. The issue of measurement and the techniques that should be adapted to gauge the returns on innovation investment was cited as one of the major obstacles by the respondents of the *BCG (2006)* survey. This also included:

- Long development time;
- Lack of coordination within the organisation;
- Not enough insight into customer demands;
- Difficulty in selecting the right idea and shortage of great ideas; and
- Organisations not ready to take risks

Despite the many uncertainties, it is important to continuously assess the likely impact of different approaches to managing the innovation to cash process and the cash curve analysis is found to be the most popular way to assess the impact by most of the organisations. Companies should thus institute and use a range of measures to evaluate all key aspects of their innovation processes *(BCG, 2006)*:

- Inputs (staffing, capital, operating expenditures);
- Performance (cycle times, success ratios at different process gates);
- Cash paybacks; and
- Indirect benefits (impact on brand)

Environment: Listed as the third most important area for the companies to focus on, the organisational environment ensures conditions that help people/employees to be more innovative, especially in the idea generation phase, such as *(BCG, 2006 & BCG, 2005):*

- Motivation;
- Space to explore;
- The opportunity to develop deep domain knowledge; and
- Time to think (innovative companies allow and encourage their employees to spend more time thinking about new products and processes).

7g.7 Summary:

- There are indirect, non-cash generating outputs that are also important to track and measure.
- The number of patents filed or number of scientific articles/papers written by staff can help in tracking the gain in knowledge.
- Impact on brand can be measured by in-house marketing or third party studies.
- Not using too many/or too few metrics (ideal number of metrics being 8-12 between all the three components of innovation) but important is to use the appropriate metrics that aligns well with the business objectives and strategies and ultimately the innovation objectives of the company.

- Most companies pursue innovation activities with growth and success in respective industry as primary objective.
- Most organisations consider breakthrough innovation as most important and consider it imperative to win.
- The most innovative companies according to *BCG Innovation Survey (2006):*

1. Apple computers
2. Google
3. 3M
4. Toyota motors
5. Microsoft
6. General electric
7. Proctor & Gamble
8. Nokia
9. Starbucks coffee
10. IBM

7g.7.1 Converting Innovation into Cash:

It is essential for all organisations to realise that 'innovation" or being innovative is not an idea but an act. Successful innovation or profitable innovation is highly dependant on numerous actions that are carefully planned and are required to turn an idea into cash returns: innovation-to-cash (ITC). The survey explains that management of the ITC process can be achieved by examining the "cash curve" of an innovation. It is also vital to align investments explicitly with the overall strategy and ensure that someone is actually responsible and accountable for the performance of the entire process. The "cash curve" depicts the cumulative cash investments and returns for an innovation over time and runs from the beginning of development until the point at, which the product or service is removed from the market *(Andrew and Sirkin, 2004).*

According to the survey, there are three main ITC approaches to consider and it should be kept in mind that these three approaches have different strengths, weaknesses and requirements, therefore each is better or worse suited for

different innovations, situations and companies. The three approaches talked about are; the integrator, the orchestrator and the licensor.

By carefully modelling the impact of different choices on the cash curve of an innovation, managers have insight into the relative impact of key drivers of value *(Andrew and Sirkin, 2004).* The innovation to cash process as explained by *Andrew and Sirkin (2004)* is a process that cuts across the organisational boundaries and puts forward diverse and difficult choices. However, it is important to plan, manage and monitor it. If not managed properly, it damages the company through lost profits, wasted results and little or no growth *(BCG, 2005 & BCG, 2006)*. The survey deduces that because decisions about innovation shape a company's future therefore, management must successfully handle the entire portfolio of cash curves in order to achieve higher and beneficial results from innovation spending and also link it to strategic goals rather than managing it in a random manner. Management must also decide on the right balance of spending across a range of initiatives, namely; maintenance projects (keeping market share), incremental projects (gaining share) and breakthrough projects (entering completely new markets). For successful innovation, management must also understand how different investments in different types of innovation (breakthrough versus incremental versus maintenance) match with the overall business strategy and make sure that there is someone to manage it and be accountable for it *(BCG, 2005 & BCG, 2006).*

Andrew and Sirkin (2004) also stress that companies must make a basic choice about their innovation efforts and activities and understand the difference between being "innovative" and being an "innovative enterprise". Innovative enterprises must use their ideas to produce competitive advantage, high shareholder returns and most importantly cash as profits and benefits. The innovation to cash process (ITC) must be managed aggressively and well and make their innovation efforts pay *(Andrew and Sirkin, 2004).*

No one can do it all, like any major investment, innovation needs to be focused on clearly defined objectives.

Survey respondent, (BCG, 2006)

CHAPTER 8

TOWARDS THE PROCESS DRIVEN COLLABORATIVE ASSESSMENT MODEL FOR INNOVATION

8.0 Introduction

8.1 Innovation in Facilities Management

8.2 Designing Facilities Management Innovation

8.3 Facilities Management Innovation - Key Points

8.4 Proposed Innovation Model

8.5 Innovation forms an important part of Business Strategy

8.6 Summary

8.7 Scope for Future Research

Chapter 8

TOWARDS THE PROCESS DRIVEN COLLABORATIVE ASSESSMENT MODEL FOR INNOVATION

8.0 Introduction:

Business Innovation allows enterprises to satisfy the ever-increasing demands of customers and offers greater value satisfaction. However, any innovation would be successful only if it has a beneficial return on investment (ROI) and brings financial gains to the business of the organisation and also adds value to the business of all involved stakeholders. Value additions together with low costs results are the ingredients that most company strive for *(Goyal, 2006).* Innovation is a complex process, one that can be easily identified as being of critical importance for organisational success but is still not efficiently measured and managed. As international competition intensifies and product/process life cycle shortens, the pressure to innovate heightens. Successful innovation has become critical to adjusting and adapting to changes in technology, markets and competition *(Ahmed, 1998).*

Robson and Ortman (2006) state that the percentage of firms that regularly employ innovative activities in day-to-day business deliverables, vary considerably across industrial and commercial sectors. Product related effects are often more cited than process (cost) effects, with quality enhancements as most commonly reported. This confirms a stronger customer focused approach to innovation. The effects of meeting regulatory requirements and increasing value added in the business were widely reported in the 2005 innovation survey carried out by the Department of Trade and Industry

8.1 Innovation in Facilities Management:

Innovation in facilities management (FM) can occur in an in-house or outsourced operational context. *D'Aveni (1994)* stresses that companies today should focus more and even harder on being innovative especially because of the unending and increasing stream of knowledge that keeps the marketplaces in incessant motion. Innovation today should be treated by all organisations as highly critical and vitally important for most firms to embrace in order to create and sustain competitive advantage in the industry in, which they are operating. FM service providers need to be in a process of continual innovation and improvement in order to meet the demands of the client or

client group. Hence, competition within the FM field may be defined as aspirations originating within the client group that are passed on as demands and requirements. The pivotal role of innovation to entrepreneurship and business success within the increasingly knowledge based and hyper competitive environments has made it even more necessary for all to understand and adapt innovation *(Johannessen, 2001)*.

It is essential for the established supplier companies to prepare themselves for a future that brings with it immense competition and increasing market pressures. According to *Trott (2005)* organisations must be ready to face these market pressures and realise how powerful forces are aggregating once-distinct product and geographic markets, enhancing market-clearing efficiency, and increasing specialisation in the supply chain. Today's business environment offers a platform for all companies to explore new opportunities and markets, giving them a chance to regenerate and mature to face the increasing demands and needs of customers. The changing market environment, governed mainly by globalisation also allows executives to realise the importance of change and innovation and acknowledge that the time for slow change is over and that to accept changes is in their own best interest. To survive, it is essential that companies must be able to both adapt and evolve and should operate with the knowledge and realisation that their competitors will inevitably come to the market with a product that will change the basis of competition and organisation's ability to change and adapt will be fundamental for its survival in the constantly changing business environment.

Desbarats (1999) explains that to achieve a high level of integration, the innovation process needs to be seen as a knowledge supply chain. This requires that business units should focus more on developing and enhancing their definitions of virtuous working culture and environment and also increase their knowledge of beneficial methods of innovation. *Kotabe & Swan (1995)* acknowledge that one of the greatest obstacles to understanding innovation is the absence of a meaningful structure and measures, which impede the theory development process making it hard to encourage and promote applicable and relevant interventions for firms seeking to pursue innovations and changes. The wishful thinking of having immediate results and no failures hampers the want to innovate and change. Important is to determine whether

those innovative techniques or methods are appropriate for their own company or organisation or not. The success of an innovation therefore, is determined more by the extent of its adoption than by what / who originates it or how technologically advanced it is, what makes it innovative is its newness *(Johannessen, 2001).*

8.2 Designing Facilities Management Innovation:

Design in facilities management is about the production of processes that often link into but are independent of the built asset. As FM becomes known as an integral business function of the property sector so the need for greater understanding and clear interface grows. The FM is interested in blending business efficiency of workplace function with accessibility for maintenance while embracing cost as an overall finite parameter *(Pitt, 2005). Drucker (1985)* describes innovation as "the specific instrument of entrepreneurship" that also poses as the most critical success factor in most firms. However, it is also imperative to understand how to measure innovation by focussing more on the common denominator of innovation: newness as an essence to innovativeness *(Johannessen et al, 2001).* Innovation if applied with a structured format in the areas of process reengineering or organisational design permits to distinguish between changes that are actually beneficial and original and those, which are mere alternatives or copies. Business management systems such as:

1. Strategy;
2. Goal setting;
3. Structure;
4. Process design;
5. People management systems; and
6. Culture

All of these impact innovation performance of an organisation and the effect it has on the business of all stakeholders.

Christiansen (2000) emphasises that specific innovation management systems such as idea generation methods, funding systems and project management methods also have a profound impact on the performance of innovation and innovative ideas, including the impact due to final intervention of the senior management in specific projects and overall service delivery.

Various studies done on the future of innovation also propose that the profitability of innovators may be questioned in the long run to that of imitators, for example, the research done by *Nelson and Winter (1982)* questions the price to pay for being the most innovative. The argument, which still remains unanswered, is that can a firm focus on the newness aspect of innovation without jeopardising its profit margins? *Hargadon's (2005)* affirms that various firms pursue innovation strategy termed as *'technology brokering'*, because it aligns three interdependent organisational factors, which are:

1 A firm's innovation strategy;
2 Its work practices; and
3 And its people.

Rather than chasing wholly new ideas, these firms focus on assembling old ideas in new and better ways from the existing work of the operating divisions; they extract extensively from the divisions; and develop strong social networks both within and outside their groups. This has led to many technological revolutions in the past century and produced a steady stream of growth opportunities for existing businesses. Hence, the pursuit of technology brokering means taking the management of innovation seriously *(Hargadon, 2005).*

Several revolutions have taken place in the professional field of facilities management over the last decade. It has now grown to be more business focussed with an aim to add value to the whole business rather than just being a group of essential services. *Cardellino and Finch (2006)* asset that in the last three decades facilities management (FM) has established itself as a key service sector, with a diverse and highly competitive market of FM contractors, in-house FM teams, FM Suppliers, FM consultants and professional FM institutions and given its growing competitiveness, innovation is becoming key to the differentiation of players not in the market but also within the field of facilities management.

8.3 Analysis – Findings from Case Studies:

The following analysis has been done on the basis of data collected during case studies and questionnaire survey combined with knowledge gained from literature review in the area of facilities management innovation. The primary aim of analysing the above-mentioned data, as part of the research work was

to identify the weaknesses and strengths in current industry practices and establish the advantages, which the proposed PDCA model for innovation has over what is presently followed in the industry.

8.3.1 Advantages of the PDCA model over current industry practices:

Following are some commonly seen current industry practices as studies and analysed during through chosen case studies. The proposed Process Driven Collaborative Assessment model for innovation is therefore an attempt to move a step forward from the existing innovation practices towards a more cohesive and integrated innovation management process *(refer figure 8.2):*

- In the area of facilities management, innovation still takes a back seat as people are more oriented towards construction, hence requiring reconstruction of the department – the PDCA model proposes innovation activities to be carried out within all functional departments in an organisation, each with their own innovation objectives and goals, which are then integrated with the overall business goals and strategy. This involves measuring the value added by the innovative activity first at the functional department level and then aligning it with the performance measurement and management of the organisation.
- Calculations and performance metrics are based on assumptions that tend to raise false hopes and are not real measure of the value addition; cost benefit analysis is taken as most important metrics: the PDCA model highlights that innovation is not only about cost effectiveness but should be regarded as an valuable asset for organisational learning, because its not the organisations that improve but the people. If employees were given a healthy organisational environment conducive for innovation, then it would positively affect the organisational performance. The model stresses that all innovation activities in an organisation should be simultaneously measured and evaluated using self assessment techniques, performance measurement metrics, value scorecards and benchmarked against industry best practices both at functional department level and then at organisational level. This also involves measurement and assessment of the post launch impact of innovation that helps is judging the value

added to the business and to the business of clients and customers and all stakeholders involved.

- Unsupportive climate and organisational culture including limited funding for innovation investment, insufficient access to information and knowledge databases and lack of infrastructure – this is one of the most important and commonly seen innovation drawbacks. According to the proposed PDCA model for innovation, successful and long-term innovation is highly dependant on the leadership style, organisational environment, research and development facilities provided to employees to increase their knowledge about current and new systems and technologies and various other opportunities given to the employees to incorporate innovation in their day-today activities. Innovation should be considered as an organisational learning process and not a one-off event that would bring radical changes, especially in facilities management, which deals with day-to-day operational activities of the client. Innovation in facilities management is about small, incremental changes on a day-to-day basis, leading to overall value addition. The PDCA model also accentuates that both organisation and employees should be prepared to take the associated risks involved in carrying out the innovation activity and also evaluate it simultaneously so that corrective measures can be taken.
- Lack of integration between best practices/benchmarking and new insights into economics, markets and the organisational capabilities to deliver winning strategies and lasting value – the proposed model supports acceleration of integration between business management systems and technology supported by appropriate research and development, which would act as a catalyst in not only driving innovation but also but also in playing a vital role in the development of new products, services, market entry strategies, operational transformation and best practice business models.
- Lack of structured system for employees to innovate, including easy access to top management that allows effective communication across the organisational hierarchy – the PDCA model for innovation breaks

this barrier by proposing various opportunities to be given to employees that help them to amalgamate the innovation culture in their everyday work and operational functions. This supported by appropriate and adequate research and development facilities, innovation funding, motivating leadership and access to top management for effective communication provides with long-term organisational success and profits.

- The PDCA model for innovation emphasises on the need to understand, which type of innovation is needed and would be beneficial for an organisation to meet its strategy, business objectives and obligations with stakeholders and customers. It was observed during the course of the study that most organisations today venture into every type of innovation, be it product, process or organisational based without analysing that which type of innovation would actually add value to their business and to that of their clients. Understanding the type of innovation to be followed also helps in deciding the suitable performance measurement metrics needed to evaluate the innovative activities carried out in an organisation.
- The PDCA model puts emphasis on three related components that should be rigorously measure but are hardly done so. These are:

  Inputs or resources: such as people, money, leadership style, organisational issues and effect of globalisation on the working of the organisation;

  Processes: that act on and transform the inputs and performance measurement metrics used (integrating employee incentives with performance measurement metrics); and

  Outputs: the end result including cash returns, return on investment in innovation, return for all stakeholders, time to market, new product sales, post launch impact.

The PDCA model for innovation stresses that all innovative activities carried in an organisation should be measured right from the initiation stage to completion and through to post launch impact to judge the real value added in the company. Data collected by measuring outputs provides with necessary

feedback for effective future research and development and helps organisations to improve their relationships and interactions with marketing, sales and customers.

8.4 Conclusions:

8.4.1 Facilities Management Innovation - Key Points:

The following key points are summary of some of the important issues in facilities management innovation, analysed through literature review, case study analysis and other research work done during the course of study:

1) Facilities management innovation is best experienced through outsourcing or partnering as these activities allow an organisation (and all parties involved in a partnering agreement) to make profits, innovate to gain competitive advantage over other companies and continuously improve their services. This also includes:

- Improvement in both internal and external business environment;
- Being open and sharing of ideas (Knowledge Management) as secrecy stifles innovation; and
- Work standardisation and innovation

Many chief executives/business leaders now see collaboration or external partnering as key to success and recognise that organisational growth and development including organisational learning is not possible if they totally depend on internal resources. Partnering also brings dissimilar skills and experiences of people within the team thereby fostering innovation. However, important is to realise that partnering relationship takes time to develop and mature and is fundamentally based upon trust, honesty and open communication.

2) The metrics that business unit executives/facilities managers etc. consider as most valuable in measuring innovation performance and service delivery are:

- Time to market;
- New product scales;
- Return on investment on innovation; and
- Customer satisfaction

3) Employees should be given incentives and rewarded appropriately for their inputs and ideas and should be encouraged to employ innovation more as an attitude than a task in their day- to-day work.

4) Dissatisfaction with the financial returns on innovation spent explains why many companies that have no proper and systematic measurement metrics and have no idea on the effectiveness and efficiency of their innovation processes (if they have any).

5) Aligning metrics with innovation strategy and overall business goals is imperative for long-term success through innovation.

6) It is suggested that integrating innovation metrics that focus on the three main components of innovation namely;

- Inputs;
- Processes; and
- Outputs

With the overall business objectives (including various functional departments) could help the companies improve upon the lack of innovation measuring techniques and generic innovation knowledge thereby, helping them to understand the performance more efficiently and hence, reducing the dissatisfaction on financial returns.

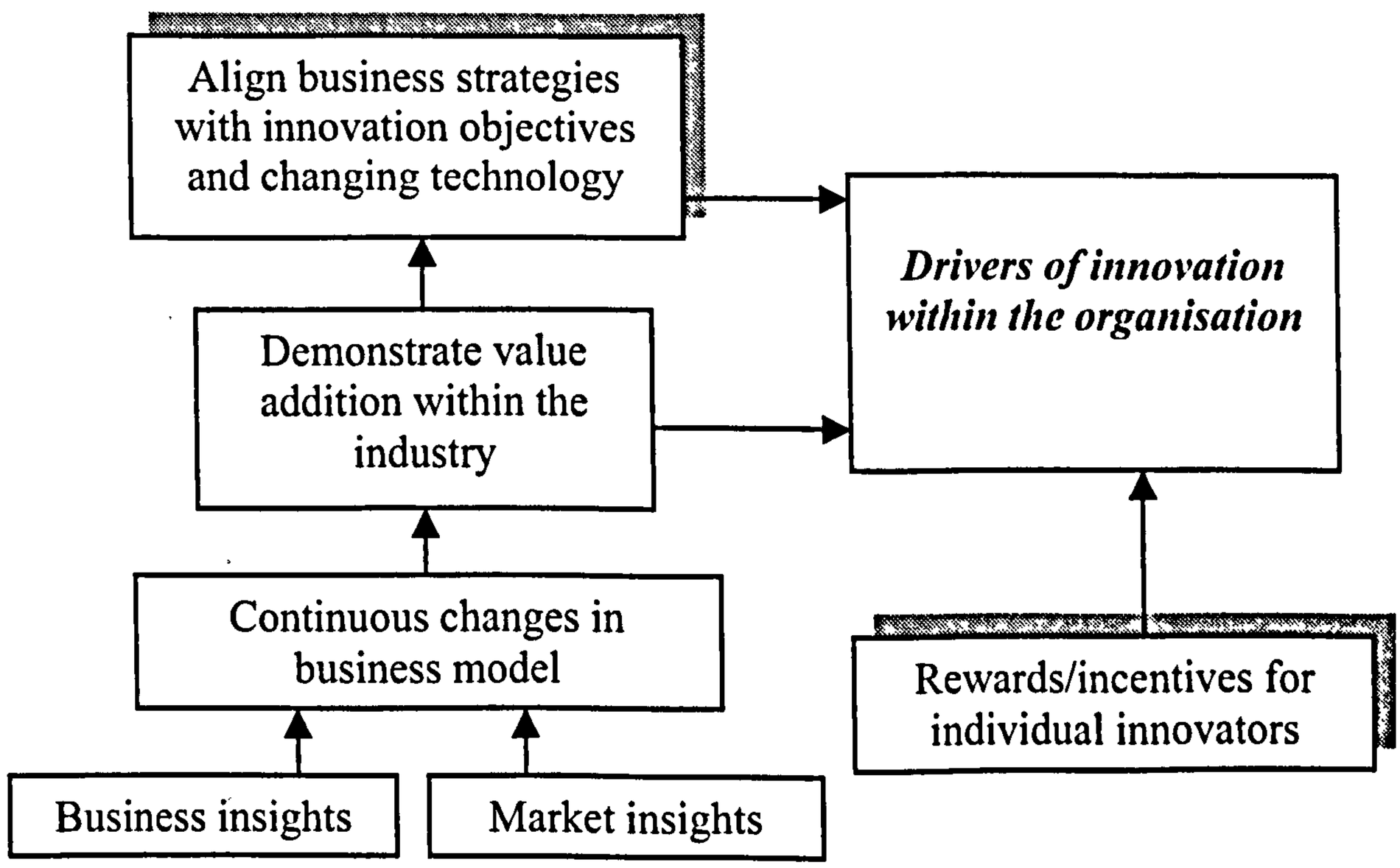

Figure 8.1: Innovation Drivers
Source: Adapted from Naughton (2004) and Mohanty (1999)

7) Advantages of aligning innovation objectives with overall business goals and objectives allow an organisation to achieve *(also refer figure 8.1)*:

- Success in highly competitive/global market/key to survival;
- Higher profits, which leads to more dividends to employees;
- More investment in terms of capita and knowledge;
- Access to knowledge increases labour productivity;
- Changes in the internal business environment;
    1. High employee satisfaction
    2. More ideas produced by them
    3. Increased efficiency
    4. Profits and gains

8) Organisations need to identify factors that interfere and hamper the speedy implementation of innovation. These factors are organisation specific and can be either of the following:

- Lack of leadership and top level commitment to innovation process;
- Lack of innovation objectives within the organisational strategy;
- Lack of knowledge/organisational learning regarding best practices and appropriate innovation techniques;
- Streamlining the approval process for innovation initiatives; and
- Not measuring the value added through innovation-lack of appropriate innovation metrics.

9) Innovation forms an important part of business strategies as it allows improvement of general business goals such as:

- Increase in profit;
- Increased employee satisfaction;
- Increased market competition;
- Reduce overheads;
- Increase in productivity; and
- Improvement in efficiency and effectiveness of business operations.

8.4.2 The Process Driven Collaborative Assessment (PDCA) model for Innovation - The Proposed Innovation Model:

Innovation is not a diversion or a task but a necessary part of the business process, which above all else can and does produce added value to the core

business function. The added value is revealed moving away from demonstrating the efficiency with, which services can be delivered towards a measure of what it can deliver in terms of enhanced income potential for the business. It is only when the perception of facilities management as a collection of services provided in an ad-hoc manner changes towards the view of a coherent service provided on a logical and strategic level, is when success (in terms of value addition) would be achieved *(Pitt, Goyal & Sapri, 2006).* In science and technology driven modern business world, being innovative happens to be the most important business strategy and factor for the success of any business. To be able to survive and flourish in a highly global market place, it becomes crucial that innovation becomes the driving force in all areas of business; be it capital raising, capital structure, investment strategy, input for products, production strategy, products range and features, production levels, marketing strategy, customer awareness and education about products, product pricing and above all after purchase customer support.

In order to survive, succeed and flourish, organisations have to aim at creating and fuelling demand for their products and services, rather than just taking care of the supply side. New technologies bring in new products and services that create demands in new markets and if today, we are fast moving towards the creation of all the markets across the globe as a single global market, it is all due to innovation in products, processes and company profiles etc. to satisfy the requirements of the varied customer group across the globe *(refer case study on CSC, India- chapter 7)*. This new environment of demand and supply generated by the immense flow of knowledge and customer awareness acts as an engine of growth in any economy by the ripple affect created by it.

However, the need and importance of innovations does not begin and end with one-self. As industries and service providers are now preferring to outsource more and more of inputs and subsidiary services, it has become extremely important that innovations and 'being innovative in day-to-day business activities' be given equal and high significance by all. This also includes the end product industry, ancillary industries across the supply chain and the subsidiary service providers etc. In fact, promoting innovation as a

regular and continuous effort across the entire supply chain has almost become an up key managerial function for all organisations.

The relevance and significance of innovations is not limited to industrial products and processes alone. It surely extends to environment & facilities relevant to organisational workers and employees as well as the buyers of products and services *(refer case studies on Wates Group & 2020 Liverpool-chapter 7)*. For example, creating healthy and user-friendly work environments for employees, which give them a platform to come together and have fruitful discussions leading to generation of innovative ideas. Accommodating entertainment and recreation facilities like restaurants, food courts, health centres, open office plan, parking places etc. all have added a new dimension to selling, buying and other business affairs. This has not only added pleasure to otherwise mundane routines and jobs, but also the glamour and attraction of these facilities creates demand and results in expansion of industry commerce and services.

Innovation in facilities management and multiple contract management has to be an integral part of the total management system *(refer figure 8.2 & 8.4)*. It is only when innovations are perceived as a culture at all levels within an organisation that an industry can flourish as a whole. For this it becomes elementary that innovation in facilities management be assigned as much significance as it is done in product development and management. Provision of innovative facilities to both buyers and employees and proper measurement and management of these facilities to gauge the value added by them in the organisation is fundamental to organisational success. Innovative facilities management will naturally be required to manage the integral facilities efficiently and thereby achieve success in business and customer satisfaction.

8.4.3 Innovation forms an important part of Business Strategy:

Aligning innovation objectives with overall business objectives leads to *(refer figure 8.2)*:

- Success/survival in global market;
- Survival in a highly competitive business environment;
- Higher profits and margins thereby, ensuring more dividends to all stakeholders;

- More investment by the company both in working capita and knowledge; and
- Access to knowledge including highly skilled labour

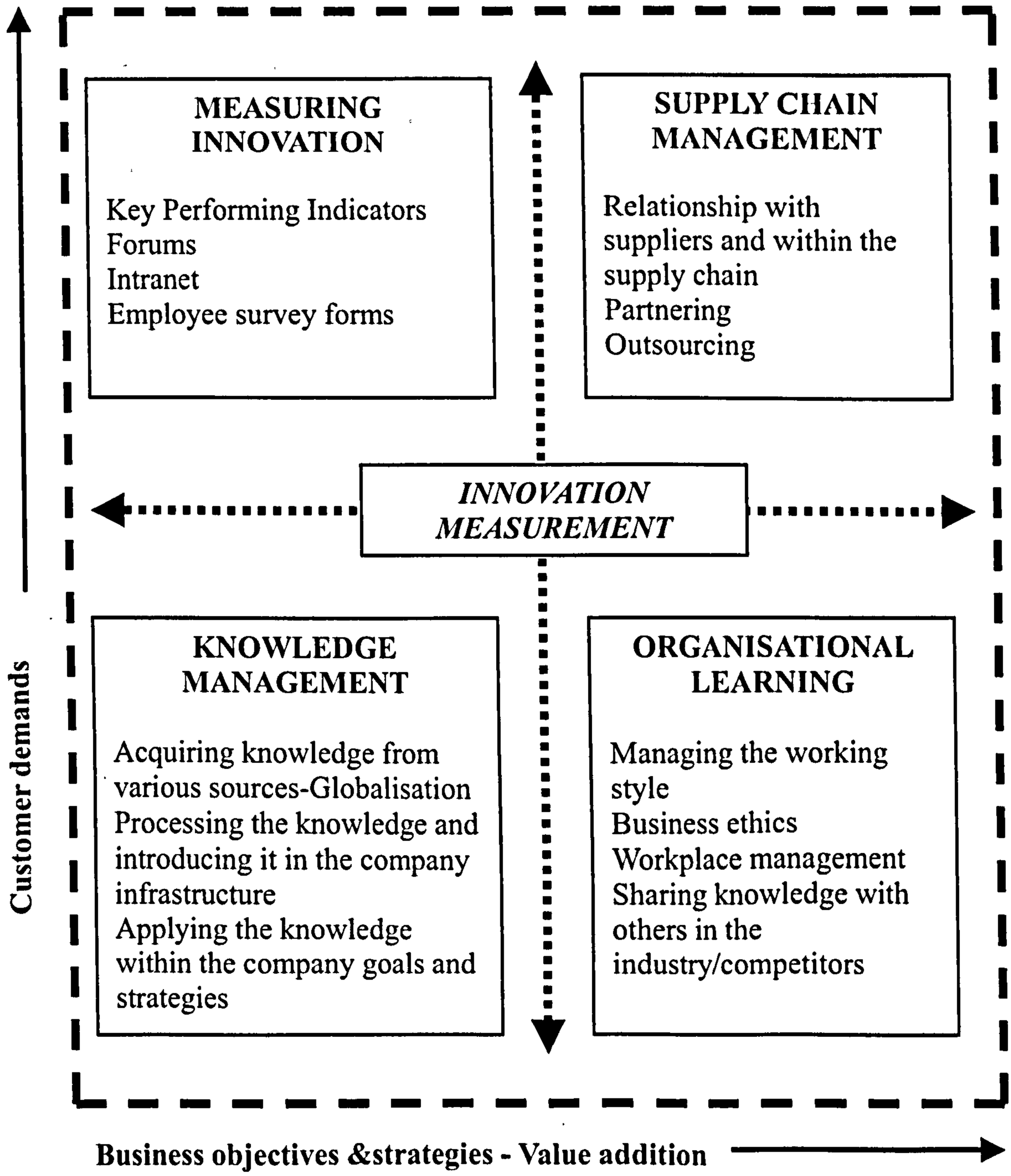

Figure 8.2: Integrating innovation with Business strategy
Source: Self Analysis

<u>Changes in the internal environment of the business (organisational learning)</u>

- High employee satisfaction;
- More ideas produced by employees and stakeholders;
- Increased efficiency; and
- Profit gains

8.4.4 Partnering for Innovation – Transition from Service Vendor to Strategic Alliance:

Innovation with suppliers and creating strategic supply chain partnerships to gain long-term benefits has been identified as one of the most important and beneficial aspect of facilities management innovation. During the tendering process, organisations should not choose suppliers that offer the lowest bid but those whose management style and working ethics match with the goals and strategies of the organisation *(analysis of data collected during interviews in India) (refer figure 8.3).*

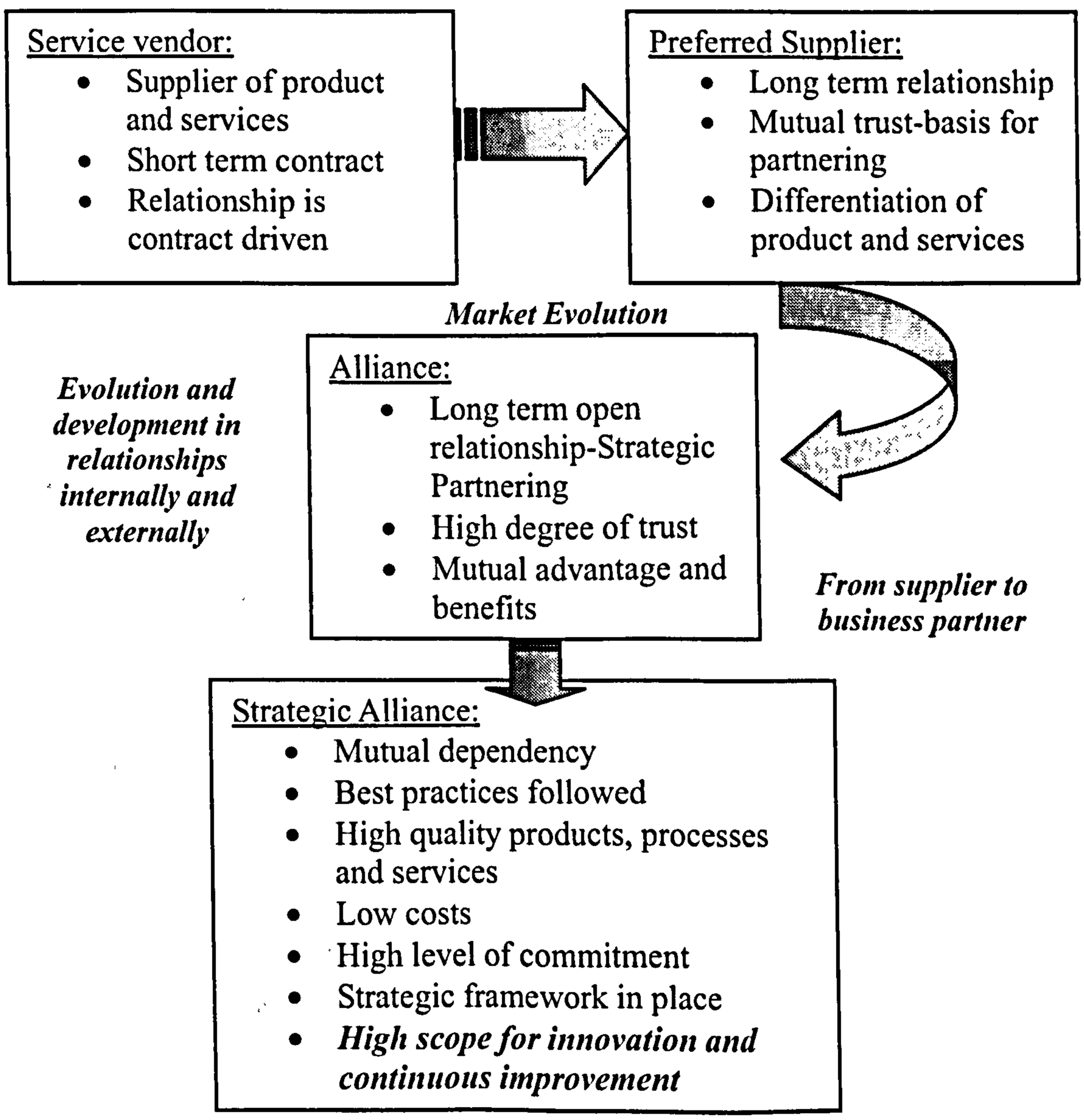

Figure 8.3: From Suppliers to Business Partners
Source: Self Analysis

8.5 Advantages of the Process Driven Collaborative Assessment (PDCA) model for innovation:

- Case study analysis, findings from questionnaire survey and information gathered through personal interviews during the course of the study highlights that though many companies talk about innovation, only few do it the right way. Either, they don't measure their innovation performance, or think of it as only being about introducing new products and services. Organisations do not include the presence of healthy and motivational organisational environment as key to being innovative and certainly do not choose their suppliers with respect to their innovative capabilities, but only for their lowest bid.
- The proposed Process Driven Collaborative Assessment model for Innovation *(refer figure 8.4)* is a stepwise methodology, which if followed by organisations that aim to gain competitive edge, achieve long - term success and flourishing survival in the constantly changing business environment would not only fulfil the increasing and fast changing customer/client business but would also add value to each of their businesses.
- The use of computer aided facilities management (CAFM) techniques and systems allow better management of projects between multiple sites and with multiple service providers, similarly the use of partnering agreements and relationships that are based on the principle of working together for mutual benefits and growth works well in a multiple contract, multi location scenario and allows better service delivery that is not only innovative but also cost effective.
- Innovation as described in the PDCA model for innovation, not only requires simultaneous inputs from all customers, clients and employees but also effective measurement of these by using appropriate performance measurement techniques, key performance indicators and service level agreements, leading to successful innovation that contributes to long-term organisational growth and development. The model highlights the significance of innovating through concurrent inputs from market, customers, employees and strategic suppliers and

integrating the innovation objectives of separate functional departments with the overall business objectives, goals and strategies *(refer figure 8.4)*.

- The propounded model emphasises that if an innovation activity is to be carried out by an organisation, then it should not only be first adopted by every employee and taken as part of organisational learning but also be well synchronised with the working style and management ethics of key suppliers to get the best results. Appropriate and adequate research and development followed by staff training and provision of sufficient resources are imperative for an advantageous and lucrative innovation output.
- Also essential for successful innovation as explained in the proposed Process Driven Collaborative Assessment (PDCA) model for Innovation, is the involvement of appropriate measurement systems, quantification techniques and benchmarking against best practices of organisational innovation activities over a set period of time thereby, helping the enterprises to evaluate the value added within the business and also within the businesses of their clients/customers. The proposed model brings forward the necessity of benchmarking innovation performance, by stressing that benchmarking against industry best practices not only allows an organisation to judge the value of its performance and current practices but also helps it improve and develop holistically to gain competitive advantage over others in the industry. Current industry practices in the field of facilities innovation management as analysed during the course of study reveal the lack of metrics and key performance indicators to measure the value added through innovative activities.
- Much emphasis has been laid on the need to integrate performance measurement with management. Successful long-term innovation can take place only when simultaneously adopted by clients, customers, suppliers and the employees of the organisation itself, and its value enhanced only when it is measured and tracked properly through the use of appropriate metrics and key performance indicators.

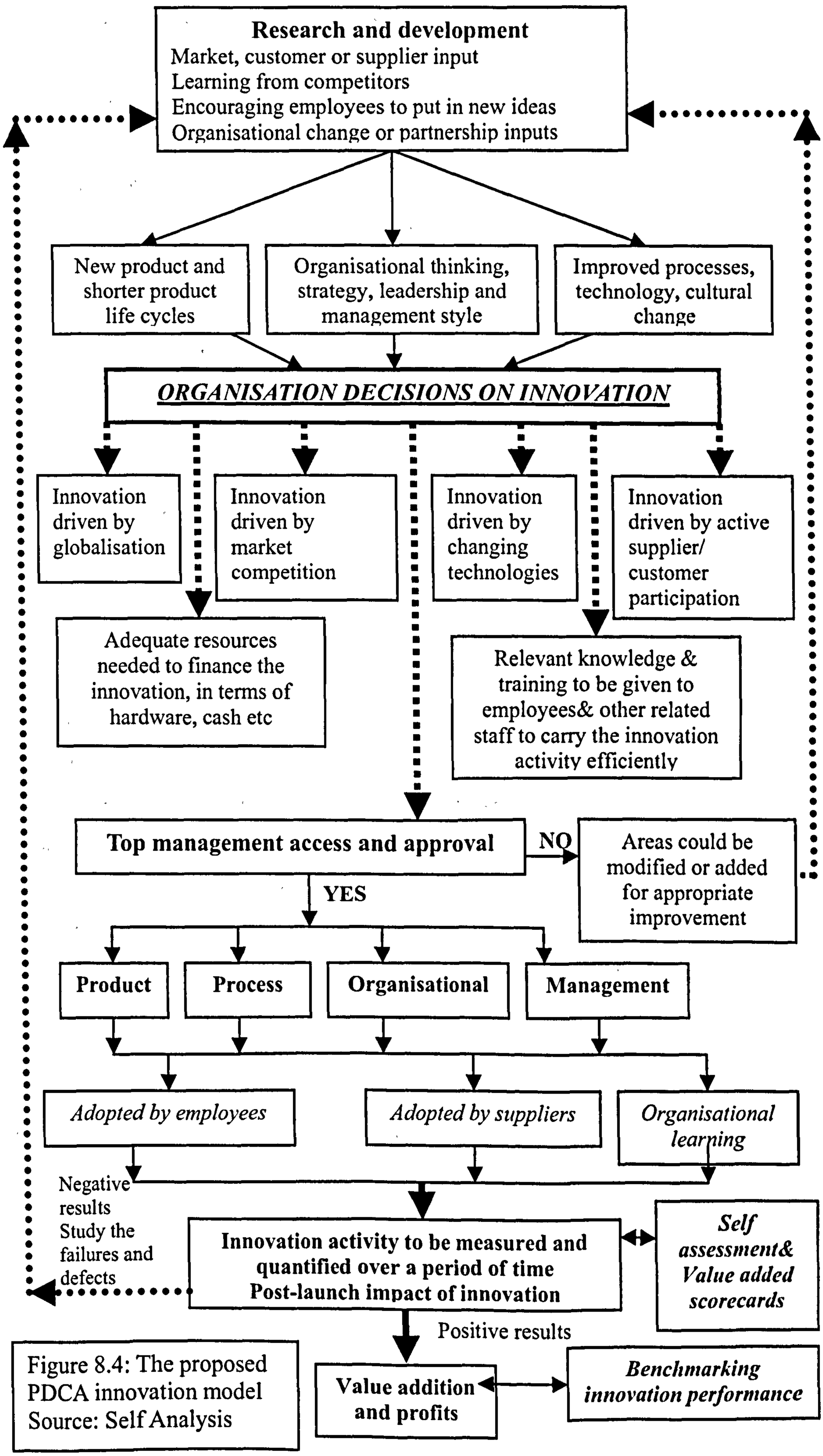

Figure 8.4: The proposed PDCA innovation model
Source: Self Analysis

- The advised PDCA model for innovation accentuates that FM innovation is not a one-off event and that top management should not expect any radical changes. It is an ongoing process that adds value not only within an organisation but also in the businesses of suppliers and clients. Continuous and simultaneous measurement of failures, defects and value addition by means of appropriate self assessment techniques, value added scorecards and benchmarking innovation performance further enhances the process of FM innovation and helps it in being accepted as strategically imperative for long-term organisational success, growth and development.

Given below is the PDCA model for innovation that summarises the above-mentioned points and would help an organisation in not only understanding the type of innovation, which will add value to the business but also help in enhancing the organisational environment that motivates the employees, suppliers and all stakeholders to continuously develop and think and act innovatively to deliver customers 'Value for Money' *(refer figure 8.4)*

8.6 Discussion:

If we fail to innovate we fail to move forwards and to accept any barriers to the movement of the innovation frontier within the business process is unacceptable *(Pitt, 2005)*. In FM the complexities of the management of the interaction between the services provided is as essential as the provision of the service itself, if it is to deliver maximum added value to the organisation. This streamlined core focused approach to service management tends to naturally produce its own innovative solutions, as it is a dynamic operation that changes with the business. FM is not, however, simply a discipline that follows the core operation. Referring to the studies done by *Marx (1954), Goyal and Pitt (2007),* talk about the unique co-operation that takes place within the capitalist system where the focus is not only on creating value but also focuses on the need for capital to expand in order to survive. The need for an innovative approach to service provision has never been great as FM innovation acts as an enabler adding value to the organisation.

- Innovation should be treated as a continuous organisational learning and development process – *Innovation is not Eureka*
- Innovation forms an important part of the organisation's continuous improvement process, leading to successful and healthy relationships with its suppliers and customers – *Innovation is not Rocket Science*
- Innovation should be treated as another form of knowledge gain and management – *it is not just about cost benefit analysis*
- Organisations don't improve until the people working in it and the processes improve. Unless the people (employees, stakeholders, customers) related to the organisation don't adapt to those improved products and processes, organisations will never be able to improve or in other words there will be no value addition.

Integrating users into the total functionality of an integrated disciplinary system appears to be a promising way of supporting users, making use of their strengths while avoiding deskilling. The evolution of the concurrent engineering environment of the future will require much deeper understanding of human factors and cognitive ergonomics issues to enable the effective creation of user-friendly innovative ideas for the FM and businesses of the future *(Pitt et al, 2005)*.

Role of innovation management in FM is not about producing innovative solutions but about the provision of a creative environment, in which solutions can be conceived, developed and applied *(Goyal & Pitt, 2006 and 2006a)*. Current practices such as Knowledge Transfer Partnerships between industry and academia have become popular as companies are now looking for greater research inputs from academia (universities) allowing them with more opportunities to explore new areas and increase their scope to innovate and investigate new markets with the help of knowledge gained through these partnerships.

In this context, it can be concluded that facilities management is not, simply a discipline that follows the core operation. It has the capabilities to effect change in its own right and directly those areas previously regarded as core and with clear management support and co-operation from all stakeholders,

facilities management innovation acts as an enabler adding value to the organisation *(Goyal & Pitt, 2007)*.

8.7 Scope for Future Research:

The vast amount of literature that addresses the increasing significance of innovation as an important entrepreneurship tool has till date not been able to yield a widely held consensus regarding how to define innovation. The wishful thinking of having immediate results and no failures hampers the want to innovate and change. It is essential for the managers wanting to improve innovation performance to not just blindly apply the first technique that they encounter or think to be as a change/innovation, or methods, which have been successfully adopted by their competitors. Important is to determine whether those innovative techniques or methods are appropriate for their own company/organisation/product or not and then set metrics that would measure the value added to the business of all stakeholders, to get the real value from innovation. Future research must be put in FM Innovations that will not only cater to changing customer demands and wants but also create new ones by extinguishing the old. Since businesses today are experiencing tremendous change in customers' concept of value, new ways of satisfying these demands should be researched upon so that it is also possible to offer them even greater value satisfaction, offer 'Value for Money' and also add value to the business of all stakeholders.

8.8 Case Study Analysis Table:

Table (8.1) is a comparative analysis between the case studies done within the United Kingdom based on key points that describe and constitute Facilities Management Innovation. Such a comparative analysis not only helps in establishing current industry practices but also helps in determining the strengths and weaknesses in the area of Facilities Management Innovation measurement and management.

Table 8.1: Case study analysis table

FM Innovation	Taylor Woodrow	AMEC	WATES	Liverpool 2020
Type of innovation	Product and process innovation	Mainly product and technological innovation. Focus also on innovation through organisational learning	Organisational Innovation – innovation through corporate responsibility strategy towards all stakeholders.	Innovation through partnering with suppliers, stakeholders
Existence of preset innovation objectives	Working towards making innovation objectives as an integral part of overall business strategy	Innovation forms an integral part of AMEC's work culture and strategies. Innovation activities at AMEC are supported and guided by numerous preset objectives focusing mainly on organisational learning and continuous process improvement.	Projects rated against the business excellence model but no separate set of innovation objectives followed	Innovative approach (with preset innovation objectives and goals) to managed services provision and consultancy assignments help the organisation to generate supportive and strategic partnering.
Integration of Innovation objectives with overall business goals	One of the weak areas still is the linking FM innovation objectives to the central structure and its effective exploitation to add value to business.	The innovation objectives occupy a central role in the formulation of overall business objectives.	Innovation is carried out in separate sections within the organisation and with suppliers but not regarded as an important factor during tendering process and choosing strategic suppliers.	Separate innovation plan is integrated with the annual business plan review headed by innovation champions and internal innovation group.
Integration of FM with overall business	At present the FM department is not very	In the area of facilities management innovation	FM department still considered as a small part	A separate innovation plan is integrated within the

	well integrated with the business as a whole.	still takes a back seat.	of the whole. FM Strategy forms a very small part of the overall business strategy and needs better integration.	annual business plan headed by innovation champions who work towards enhancing business delivery.
Innovation with suppliers	Taylor Woodrow reorganises its supply chain, firstly by reducing the number of suppliers and then by identifying a number of Preferred Suppliers, with similar business ethos. From within the company's preferred suppliers, the company has created a Strategic Alliance Partnership (SAP) to encourage sharing of knowledge, skilled labour and technology, all directed towards providing an improved customer service and value addition.	AMEC works together with its clients and supply chain partners to create and maintain more productive and sustainable capital assets.	Further improvement required in the management and measurement of performance within the supply chain. Innovation not regarded as an important factor during tendering process and choosing strategic suppliers	The organisation employs rewarding working relationships with its clients and suppliers. The partnership works towards creating lasting value for all its shareholders.
Use of innovation metrics to measure and manage performance	Lack of Key performance indicators and structure to measure the performance	Due to lack of appropriate preset measurement techniques, calculations	No preset innovation measurement metrics	No pre- set standard metrics, KPI's to measure the value added.

	of the company.	and performance metrics are based on assumptions, which tend to raise false hopes and are not real measure of the value addition.		
Aligning metrics with overall business strategy	TW lacks an effective & efficient system to measure the value added through its innovative activities. Though the company is working on standardising of all measurements and formulating a single set of metrics, the Business case and the Innovation strategy has no process that allows measurement and its feedback to management	Need to be further developed	No preset innovation measurement metrics, which are integrated with the overall business objectives.	No pre- set standard metrics, KPI's to measure the value added.
Measuring all components of innovation; Inputs, Outputs; Processes and Resources	T W has a planned system that allows the company to drive innovation both internally and externally. However, what it lacks is an effective and efficient system to measure the	Cost is still taken as the most important form of assessing and measuring the value added. Lack of innovation metrics does not allow the measurement of all innovation	No preset innovation measurement metrics	Needs to be further developed.

	value added through its innovative activities.	components.		
Tying incentives to innovative ideas and metrics	Not much used	Employees encouraged to innovate on a regular basis and are recognised appropriately for their efforts.	In April 2005 the Wates Group became one of the first contractors to receive Group-Wide Investor in People certification. In the same year, the group also launched a 'Business Excellence' award scheme that recognises rewards and publicises outstanding performance and contribution by individuals.	Rewarding working relationships and developing partnerships that mature into long term relationships, including employee suggestion scheme and a reward mechanism
Access to top management-communication as an integral part of innovation	Innovation forms the most important requirement and competency of all TW's employees' job profile, who have full and easy access to the top management.	Full access given to all employees and technicians at all levels to put forward their ideas and thoughts to the top management.	Employees have easy access to top management that allows effective communication and helps in cascading knowledge across the organisation at all levels.	Effective communication and easy top management access to overcome any kind of uncertainties regarding partnering
Use of knowledge management as key to innovation	Internal Innovation and Knowledge Management strategy is integrated with the overall business objectives and goals,	Research & Development along with Knowledge management structured approach followed.	Sharing of knowledge and information with competitors is not considered as an option for organisational learning.	Employees given a platform to share knowledge not only within the partnership but also with other partnerships.

	allowing effective sharing of knowledge with clients, customers and supply chain partners for achieving long-term success and innovative outsourcing solution.			
Use of partnering for innovation.	Taylor Woodrow recognises that business-to-business relationships with key suppliers are a better way of doing business, to achieve industry leadership in supply chain partnering and hence, has formed various strategic alliance partnerships with key suppliers.	The organisation focuses more on organisational learning for innovation rather than partnering. However partnering relationships with suppliers do focus on continuous development and innovation through the contractual period.	Both Wates Construction and Wates Development (land management and development Business) follow partnering in most of their projects to achieve excellence and as a means to add value to the business.	Partners with various organisations to deliver innovative and profitable services in all its deliverables.
Effective use and exploitation of research and development for innovation.	The research and development programmes adopted by T W bring new and innovative thinking to its construction projects through collaboration with Universities, Research Organisations,	Research & Development is key to innovation and growth at AMEC, mainly focusing on technological innovation and new product development.	Needs to be further developed.	Use of company wide intranet system that captures innovative and best practice examples from other companies.

	Professional Institutions, construction organisations, through various Knowledge Transfer Partnerships (KTPs).			
Innovation investment and budgeting.	Separate innovation budget given to the innovation team, led by the Innovation Director.	Separate innovation budgets, profits gained are used as future investments.	No separate budget/financial provision for innovative activities.	No separate budget/financial provision for innovative activities.
Innovation through business and technical integration.	Needs to be developed	AMEC continuously works toward new product development with various suppliers that allow it to innovate by mixing its business goals with technical aspirations.	Needs to be developed	Needs to be developed
Innovation through employees and customers	Innovation forms the most important requirement and competency of all TW's job profile.	Apprentice and technician training is carried out in the Product Development and Training Centre where the next generation of construction technicians. Innovation through employees is given huge importance at AMEC.	Absence of a structures system that allows employees to put forward their ideas. More can be achieved in the area of personal development reviews.	Employees concerned about shift from public sector to private sector, bringing in fear of job losses. However, employees given all opportunities and resources to put forward innovative ideas and work in partnerships to achieve maximum value added.

Table 8.1: Case study analysis table
Source: Self Analysis

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APPENDIX I

FACILITIES MANAGEMENT INNOVATION

PhD. Thesis Questionnaire

Sonia Goyal

Liverpool John Moores University

Liverpool

I am a student of Liverpool John Moores University, Liverpool. For the purpose of PhD thesis, I have taken up research in the area of Innovation within Facilities Management and Multiple contract management.

The aim of the research is to establish how an organisation can strategically manage its position with regard to suppliers of multiple services and to suggest a strategy for obtaining and protecting optimum multiple contract management and performance. Objectives of the study include:

- To explore and understand generic innovation and innovation in multiple contract management
- To propose an innovation strategy, defining best practice in supplier contract management

In order to validate this research, it is necessary, to test the academic study and hypothesis with management experiences. In order to achieve the same, a questionnaire has been compiled. By taking time out to complete this questionnaire you will be assisting me to expand my knowledge in an area where limited research has been directed and in which there exists a potential for more research and understanding. Your responses will not only allow me to complete the final stages of the course, but also have an in-depth knowledge about generic innovation and innovation in multiple contracts as an fast emerging and important aspect of Facilities Management.

May I conclude by pointing out that there is no space to record your name or organisation details and all replies will be disposed after the analysis is done.

Many Thanks

Sonia Goyal

1) Which best describes your level of responsibility?

Level	Please tick	Level	Please tick
Board Director		Management Team	
Director		Member of staff	
Executive level		Other	
Senior management			

2) To whom do you report?

Reporting line	Please tick	Reporting line	Please tick
Director level		Management team	
Executive level		Others (Please Describe)	
Senior management			

3) Which market sector best describes your organisation's FM structure?

Description	Please tick	Description	Please tick
Property maintenance		In house service provider	
Total FM		Contractor (type and length of contract)	
Internal host organisation		Other	

4) How many people does your organisation employ?

Description	Please tick	Description	Please tick
Under 50		500-999	
50-99		1000-2499	
100-199		2500-4999	
200-499		5000 or more	

5) In your organisation does the core business think that innovation management is the responsibility of the FM?

Yes ☐ No ☐

6) Does your organisation have a specific innovation management policy?

Yes ☐ No ☐

If yes then does it apply to FM?

Yes ☐ No ☐

7) Do you think that the primary objective should be innovation in vital business functions?

Yes ☐ No ☐

8) Do you agree that communication and awareness forms an important part of the innovation management process?

Yes ☐ No ☐

9) Do you agree that it is the functional department managers and supervisors who should be the architects of the innovation management plan?

Yes ☐ No ☐

10) Are suppliers / Partnerships/ Subcontractors chosen for their ability to demonstrate an innovative approach?

Yes ☐ No ☐

11) Do you review Suppliers / Partners/ Sub-Contractors innovative processes as part of the pre-qualification tenders?

Yes ☐ No ☐

12) Do you think that the future of innovation and multiple contract management with suppliers rests in the hands/control of facilities managers of today and tomorrow?

Yes ☐ No ☐

13) How important do you think is commitment, for effective innovation?

10 – 30 % ☐

30 – 50 % ☐

50 – 70 % ☐

70 - 100 % ☐

14) Do you agree that access to senior managers forms an important part of the innovation management process?

Yes ☐ No ☐

15) Do you agree that changes in the following have a significant impact on planning for innovation?

- Technology yes ☐ No ☐
- Regulations Yes ☐ No ☐
- Society Yes ☐ No ☐
- Customer expectations Yes ☐ No ☐
- Organisation's reputation Yes ☐ No ☐
- Business processes Yes ☐ No ☐

16) Do you agree that the developments in the political, economic social and technological environment provide important 'push' and 'pull' factors for innovation management?

Yes ☐ No ☐

17) Do you agree that innovation and multiple contract management occupies central role in formulating corporate strategy, through interactive processes and effective communication between all levels of management?

Yes ☐ No ☐

18) Is it necessary for the business planners to be aware of organisational, cultural and national differences for plans to maintain their potential?

Yes ☐ No ☐

19) Do you think there is much scope for innovation in the sector of facilities management?

Yes ☐ No ☐

20) If yes then does this approach towards needs to be planned and formal or an intuitive informal approach on part of facilities manager?

Intuitive approach ☐
Formal approach ☐

21) Do you think that in-house and outsourced FM teams have the same approach to innovation?

Yes ☐ No ☐

22) To what extent are these new and innovative ideas driven by client's/customer's requirements?

10 – 30 % ☐
30 – 50 % ☐
50 – 70 % ☐
70 - 100 % ☐

23) Which of the following is receiving the most widespread attention in the sector of facilities management?

Technological innovation ☐
Product innovation ☐
Process innovation ☐
Business innovation ☐
Organisational innovation ☐
Managerial innovation ☐
Commercial / marketing innovation ☐
Production innovation ☐

APPENDIX II

QUESTIONS ASKED DURING PERSONAL INTERVIEWS

- Is process innovation achievable within multiple contracts?
- How do you deal with innovation/current innovation strategy within the company?
- How do you measure/demonstrate/communicate the value of innovation?
- How would you define your current status on innovation?
- What are the measures used to evaluate innovation performance?

  KPI's

  Benchmarking
- What are the difficulties/barriers faced in innovation? Is cost pressure a major barrier?
- What is the focal point of all innovation activities within the company?

  Product innovation

  Process innovation

  Technical innovation
- Do you partner for innovation? If yes then what is the criterion for choosing partners?
- How the supplier contract management is handled under a multiple contract environment? Is innovation a criterion?
- Is innovation limited to board room level?
- What are the methods used to protect innovation and knowledge management?

  Intellectual property rights

  Patents and copyrights
- What is the FM structure of the company? Who decides the innovation objectives?
- How is knowledge management processed within the company and its linkage with innovation?
- Whoa are the key players for strategy development/innovation and how is innovation placed within the company strategy?
- How is the return on investment (ROI) measured for innovation activities? Measurement of Cost and output on a particular project.
- What is the innovation metrics used to measure the ROI?

- What is assessed by the metrics used?

  Innovation output/ROI/Profit

  Innovation inputs/ R&D/ Resources

  Innovation processes

- How does the company measure post launch impact of innovation?

  Cost

  Revenue

  Qualitative measurement

  No measurement

- Which innovation metrics causes employees to act differently with respect to innovation?
- How is innovation metrics used? Its impact on company behaviour
- Are employees rewarded for their innovative capabilities? Are these reward tied to innovation metrics.

Case study questions on Multiple Contracts

- Does multiple contract system cause difficulties in calculating continuous service for redundancy purposes?

  Yes No

- In which industry do you think multiple contracts are used the most?

  Office

  Education

  Storage

  Finance

  Public sector

  Education

  Transport

- Are all the contracts under multiple contract system for a single employee treated differently?
- How is supplier contract management handled under the multiple contract environment-is innovation a criteria?
- What steps can and should a company take to optimize its innovation spend to ensure that little, if any money is wasted?
- Is process innovation achievable within multiple contracts?

- How effectively are companies pursuing innovation?
- Are there any specific objectives?
- How is innovation measured, any key performing indicators, measurement of return on investment?

Facilities Management Structure:

- What is the FM Structure of the company?
- Does the FM team have its own innovation objectives?
- Who decides these innovation objectives?
- Alignment of innovation objectives with the overall strategy of the company
- Is innovation limited to board room level?

Particular project:

- Who are the key players for strategy development and how is innovation placed within the company strategy?
- Is there a specific innovation strategy/objectives that is followed? How do you deal with it?
- How do you demonstrate/measure the value of innovation activities carried out?
- How would you define your current status on innovation?
- Difficulties/barriers to innovation

  Cost pressure
- Are suppliers chosen according to their innovative capabilities?
- Do you partner for innovation?
- If yes then what is the criteria for choosing partners?
- Performance measurement data including cost and output performance measurement
- Is the Return on Investment satisfactory for innovation activities carried out?

Innovation Metrics:

- Are innovation metrics used? If yes then what are the innovation metrics collected and used?
- What is assessed by the metrics used?

  Innovation output/ROI/Profits

  Innovation inputs/R&D/Resources

  Innovation processes

- How does the company measure its post- launch impact of innovation?

  Cost

  Revenue and profit

  Qualitative measurement

  No measurement

- Which innovation metrics causes employees to act differently with respect to innovation?
- How does the innovation metrics used have an impact on company behaviour?
- Are employees rewarded for their innovation capabilities? And if yes then
- Are these incentives and rewards directly tied to innovation metrics?

Knowledge Management:

- Methods for protecting innovation

  Intellectual property rights

  Knowledge transfer /copyrights/patents

- How is knowledge management processed within the company and its linkage with innovation?

TWFM Risk and Opportunity Register
Instructions for the Project Team

A. Purpose of the Risk and Opportunity Form

- To share knowledge between team members and projects.
- To generate, develop and exchange ideas across all FM projects in terms of cost saving and value enhancing initiatives together with ways of risk avoidance.

B. How to submit an idea

Obtaining a copy of the form

1. The Risk and Opportunity form can be downloaded from FM Zone on Tayweb using the following link: [Ian / Paul, please insert hyperlink to form when it has been published on Tayweb]
2. Save a copy of the form to your PC before you begin.

Completing the form

1. Open the Risk and Opportunity Register
2. Review the flowchart for an overview of the process
3. Use the blue "Click here to open the submission form" box on the flowchart, or select the Innovation Submission sheet to access the form
4. Complete the form using clear language to make sure your idea is understandable by others. Avoid the use of abbreviations or jargon unless you are sure they are commonly understood by others.
5. Save the form
6. E-mail the form to risk-opportunity.fm@uk.taylorwoodrow.com

C. What happens next?

1. Your idea will be reviewed by your DCM. Following this review your form will be returned to you by e-mail with feedback provided on the Assessment of Submission form.
2. Your idea will be added to a central register which can be downloaded from FM Zone on Tayweb.
3. If accepted for implementation, further development, or business case – your DCM will advise you of the next steps in the process for your idea.

Taylor Woodrow

TWFM Opportunity and Risk Register

About You

Forename:

Surname:

Other Contributor(s):

BO Number:

Project Name:

Date Submitted:

About Your Innovation

Reason for Innovation:

- ☐ Savings Initiative - Supply Chain Management
- ☐ Savings Initiative: MRT
- ☐ Savings Initiative: Management
- ☐ Identification of Risk
- ☐ Business Development Opportunity
- ☐ Statutory / Regulatory Compliance
- ☐ Potential New FM Product
- ☐ Process Initiative
- ☐ Other (specify)

Summarise the Innovation

Additional Notes

Anticipated Benefits

- ☐ Cost Saving — Annual Saving for Contract (£)
- ☐ Time Saving — Annual Saving for Contract (Hrs) — enter as decimal time: e.g. 1.5 = 1:30
- ☐ Safety
- ☐ Environment
- ☐ Team Satisfaction
- ☐ Customer Satisfaction
- ☐ Other (specify)

TWFM Risk and Opportunity Register
Instructions for DCM and Administrator

A. DCM – Review Submission

1. Periodically check the risk-opportunity.fm mailbox in your list of Outlook folders
2. When a new form is received, open this and review the idea submitted
3. Complete the Assessment of Submission form
4. Save the spreadsheet and forward to Administrator who will update the schedule, and to the Originator as feedback
5. Highlight who has made a valuable contribution in each FM Zone newsletter.

B. Administrator – Update Central Register

1. Open the Central Register spreadsheet
2. Open idea form sent to you by the DCM
3. On the Assessment of Submission form, click the Copy Data for Export button
4. Switch to the Central Register spreadsheet
5. Check that the message "Select destination and press ENTER or choose Paste" is shown in the status bar at the bottom of the screen
6. Press the Paste Data button
7. Send a copy of the form back to originator of idea by e-mail as feedback from DCM.

C. FM Zone Administrator - Periodically publish the Central Register onto Tayweb's FM Zone

1. Check Central Register for problems such as formatting issues, run spell check
2. Upload revision to Central Register on TCMS (Tayweb Content Management System)
3. Notify end users of update as appropriate – i.e. send out an e-mail to all that an updated register has been published.

Index of Forms

Referencing: (F) = Form, (D) = Document, (P) = Procedure

01. SHEQ MANAGEMENT

	Version
Health Safety Procedures	WFM(P)03.01
Project Management Procedure	WFM(F)05.01
Working Operation of CCHS Pool	WFM(F)10.01
(a) Accident Reporting	
Accident Location Register	WFM(F)14.01
(b) Audit	
Appendix 1 - Project Manager Audit	WFM(F)15.01
Coshh - audit	WFM(F)16.01
FM HS Audit Report	WFM(F)09.01
H&S Checklist	WFM(F)29.01
H&S Inspection Form	WFM(F)30.01
Internal Audit Checklist	WFM(F)36.01
Manual Handling- audit	WFM(F)16.01
PPE - audit	WFM(F)16.01
Safety Audit Inspection Regime	WFM(F)20.01
Safety Audit- Inspection Regime Blank	WFM(F)20.01
Site Organisation and Welfare -audit	WFM(F)16.01
Site Safety Checklist	WFM(F)22.01
Waste environmental	WFM(F)16.01
Work Equipment	WFM(F)16.01
Workers & Sub-contractors - audit	WFM(F)16.01
(c) COSHH	
Coshh 02 Guidance Notes	WFM(D)11.01
Coshh Register	WFM(F)02.01
(d) DSE	
Ergonomic Guidance	WFM(D)12.01

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(e) Fire

Bishops Park College Fire Risk Assessment	WFM(F)17.01
Clacton Fire Risk Assessment	WFM(F)17.01
Colbayns Fire Risk Assessment	WFM(F)17.01
Fire Risk Assessment form	WFM(F)17.01

(f) First Aid

First Aid box Register	WFM(F)25.01
First Aid Information BPC	WFM(F)26.01
First Aid Information CCH	WFM(F)26.01
First Aid Information Colbayns	WFM(F)26.01
First Aid notice	0706

(g) General Guidance

Caretakers Maintenance Manual	WFM(D)03.01
Information On a Method Statement	WFM(D)13.01
Ladders Steps and Lightweight Staging General Guidance	WFM(D)14.01
Manual Handling Guidance	WFM(D)15.01
Mechanical Lifting	WFM(D)16.01
Operation and Daily Running Regime of the CCHS Swimming Pool	WFM(D)17.01
Working at Height Guidance	WFM(D)18.01

(h) H&S Induction

Contractors Induction Form	WFM(F)27.01
Contractors Site Induction - Guidance Notes	WFM(F)28.01
Induction form	WFM(F)18.01
Site Based Contractors Induction form	WFM(F)21.01
Staff Health and Safety Induction Form	WFM(F)32.01

(i) Health & Safety

Health and Safety	WFM(D)19.01

(j) Risk Assessment

Risk Assessment Register	WFM(F)32.01
Risk Management Procedure	WFM(P)07.01
Manual Handling Risk Assessment Checklist	WFM(D)20.01

- **Risk Assessments**

Bodily Waste and Needles	0706
Clearing Drains	0706
Furniture Movement	0706
Glass Breakages	0706
Lamp Changing	0706
Litter Picking	0706
Machine Floor Scrubbing	0706
Painting Ad Hoc	0706
Roof Clearing	0706
Spot Welding	0706
Suction Cleaning	0706
Wet Mopping	0706
Grounds Maintenance Work	0706
Internal Windows	0706
External Window Cleaning	0706

- **Safe Systems of Work**

Body Fluid Spillages and Contaminated Items	0706
Bonnet Mopping	0706
Buffing	0706
Carpet Skimming	0706
Chemical Competance	0706
Clean and descale tea urn	0706
Cleaning Baths, Showers, Bidets and Washroom Fur	0706
Cleaning Bin Areas	0706
Cleaning Lifts	0706
Cleaning of Stairs, Landings, Balustrades and Handrails	0706
Cleaning Personal Computers	0706
Cleaning Telephones	0706
Cleaning Toilets, Urinals, Wash Hand Basins	0706
Driving delivery vehicles	0706
Drum Sanding	0706
Dry Foam Shampooing	0706
Dry Powder, or Granules, Carpet Cleaning	0706
Dry Steam Cleaning	0706

Dusting, Damp Wiping, Washing, Polish Application	0706
Graffiti Removal	0706
High Level Cleaning	0706
Hot Water Extraction	0706
Installing - Replacing Luminaires	0706
Litter Picking	0706
Machine Scrubbing and Drying	0706
Machine Sweeping with Battery Powered Sweeper	0706
Machine Sweepng with a Petrol or Propane Powered	0706
Machines Safe Use and Care	0706
Mop Sweeping	0706
Moving funiture etc	0706
Mowing	0706
Prepare for and Re-apply a Semi-Permanent Seal U chemical	0706
Prepare for and Re-apply a Semi-Permanent Seal U concrete	0706
Prepare for and Re-apply a Semi-Permanent Seal U	0706
Pressure washing	0706
Refuelling machines	0706
Safe System of Work Template	0706
Safe System of Work Template II	0706
Scrubbing and Drying with Battery Powered Scrubb	0706
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Spray Cleaning	0706
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Strimming	0706
Strip, Dry and Re-apply Emulsion Polish	0706
Suction Cleaning	0706
Two Solution Mopping	0706
Unblocking of Waste Chutes	0706
Upholstery Shampooing	0706
Ventilation Extracts Grille Cleaning	0706
Vitrification	0706
Wall Washing	0706

Wastes Clearance	0706
Wet Shampooing	0706
Working on Roofs	0706

(k) Training

H&S Training Matrix (.xls)	WFM(F)33.01
Fire Safety Service Training Procedure	WFM(P)02.01
First_Aid	0706
Proposed Training Courses	WFM(F)19.01
Training Plan (.xls)	WFM(F)23.01
Training requirements	WFM(D)08.01

02. CONTRACT MANAGEMENT AND ADMIN

(a) Authority Related Damage

Authority Related Damage	WFM(D)21.01

(b) Best Value Review

Annual Report Template	WFM(D)22.01
Annual Services Report Procedure	WFM(P)08.01
Best Value Review Procedure	WFM(P)09.01
Customer Satisfaction Review Procedure	WFM(P)10.01
Customer Satisfaction Survey	WFM(D)23.01

(c) Communications

Communications Programme Procedure	WFM(P)11.01
Data Protection Procedure	WFM(P)12.01
PR & Release of Information	WFM(D)27.01

(d) Compensation event relief

Compensation and Relief Event Appendix Form	WFM(F)34.01
Compensation and Relief Event Procedure	WFM(P)13.01

(e) Contract Change

Appendix A - Change to Contract Proposal Form	WFM(F)35.01
Change In Law Procedure	WFM(P)14.01
Contract Change Procedure	WFM(P)15.01

(f) Contract Guide

Contract Guide 1	WFM(D)25.01

(g) Energy Management

Bishops Park Energy Reporting Template (.xls)	WFM(F)37.01
Clacton Utilities Usage Report (.xls)	WFM(F)38.01
Colbayns Energy Reporting Template (.xls)	WFM(F)39.01
County High Energy Reporting Template (.xls)	WFM(F)40.01
Utilities Benchmarking Report	WFM(D)26.01
Utilities Management Strategy	WFM(D)27.01

(h) Finance

Insurance Claim Procedure	WFM(P)15.01

(i) HR

Appendix B - Subscription Request Proforma	WFM(F)40.01
Local Recruitment Procedure	WFM(P)16.01
Skills Matrix Procedure	WFM(P)17.01
Skills Matrix Template	WFM(F)41.01

- **CRB Procedure**

CRB Clearance Procedure	WFM(P)18.01

- **Induction**

Appendix A - Clacton Specific General Induction Checklist	WFM(F)42.01
Appendix B - Temp Emp Induction Checklist - Clacton	WFM(F)43.01
Induction Procedure	WFM(P)19.01

- **Training**

Training Procedures	WFM(P)20.01
Appendix C - Training Attendance Form	WFM(F)44.01
Appendix D - Training Evaluation Form	WFM(F)45.01
Appendix E - Individual Training Record (.xls)	WFM(F)46.01
Appendix A - Training Request Proforma	WFM(F)47.01

(j) JSC_TPI Bookings

Facilities Hire Proforma Sheets (.xls)	WFM(F)48.01

JSC Use and Third Party Booking WFM(D)28.01

(k) Lead Out Plan

Lead Out Plan Procedure WFM(P)21.01

Staff Lists for Lead Out Plan (.xls) WFM(F)49.01

(l) Reporting Procedures

Weekly Inspection Report (.xls) WFM(F)50.01

Monthly Head Teachers Report Template WFM(D)29.01

Monthly Services Managers Inspection Report Template (.xls) WFM(D)30.01

Performance Reporting WFM(D)30.01

Service Manager 6monthly check procedure WFM(P)22.01

Service Managers Reporting Procedure WFM(P)23.01

Head Caretaker Business Manager Inspection Procedure WFM(P)24.01

(m) Security

CCTV Procedure WFM(P)01.01

Internal Pass Procedure WFM(P)25.01

Key Log Control Procedures WFM(P)04.01

Security Awareness Procedure WFM(P)26.01

Security Planning Procedure WFM(P)27.01

(n) Unavailability

Unavailability Notification and Reporting Procedure WFM(P)28.01

Appendix B - Schedule 7 to Unavailability Procedure WFM(P)29.01

Appendix A - Unavailability Notification Template WFM(F)52.01

03. RISK MANAGEMENT

(a) Disaster Recovery

Disaster Recovery Plan WFM(D)31.01

DR Plan Distribution List WFM(D)32.01

04. SUPPLY CHAIN MANAGEMENT

Supplier Management Procedure WFM(P)30.01

05. DOCUMENT CONTROL

Document Standards Procedure	WFM(P)31.01
Archiving and Retention Procedure	WFM(P)32.01
Controlled Document Issue Procedure	WFM(P)33.01
Appendix A - Archive Proforma	WFM(P)53.01

06. MANAGEMENT OF FM SOFT SERVICES

(a) Security

CCTV Procedure	WFM(P)01.01
Key Log Control Procedures	WFM(P)04.01
Security Awareness Procedures	WFM(P)06.01

(b) Catering

Catering Procedure	WFM(P)34.01
Catering Reconciliation Procedure	WFM(P)35.01

(c) Cleaning & Waste Management

Cleaning Services Procedure	WFM(P)36.01
Waste Management Procedure	WFM(P)37.01

(d) Grounds Maintenance

Grounds Maintenance Procedure	WFM(P)38.01

(e) Porterage, Caretaking

Caretakers Procedure	WFM(P)39.01
Porterage and Goods In and Out Procedure	WFM(P)40.01
Snow & Ice Management Plan	WFM(D)33.01

- **Car Park Management**

Car Park Management Procedure	WFM(P)41.01

- **Car Park Procedure Notice**

Car Park Procedure - Bishops Park	WFM(P)42.01
Car Park Procedure - Colbayns	WFM(P)42.01
Car Park Procedure - County High	WFM(P)42.01

- **Car Parking Permit**

Car Parking Permit - Bishops Park	WFM(D)34.01
Car Parking Permit - Colbayns	WFM(D)34.01
Car Parking Permit - County High	WFM(D)34.01

- Polite Notice

Polite Notice - Any School	WFM(D)35.01
Polite Notice - Bishops Park	WFM(D)35.01
Polite Notice - Colbayns	WFM(D)35.01
Polite Notice - County High	WFM(D)35.01

- Report Template

Car Park Report Template v1	WFM(D)36.01

- Use Parking Bay Notice

Use Parking Bay Notice - Bishops Park	WFM(D)37.01
Use Parking Bay Notice - Colbayns	WFM(D)37.01
Use Parking Bay Notice - County High	WFM(D)37.01

(f) Churn Management

07. MANAGEMENT OF FM HARD SERVICES

(a) Lifecycle & Variation Works

(b) Maintenance & Repair

Appendix B - Notification of LCM Works Undertaken Form	WFM(F)54.01
Appendix B - Maintainable Assets Maintenance Matrix (.xls)	WFM(F)55.01
Appendix C - Further LCM Works Required Authorisation Request Form	WFM(F)56.01
Maintenance Repair Procedure 280306	WFM(P)43.01
Small Works Procedure	WFM(P)44.01
Swimming Pool Maintenance Procedure	WFM(P)45.01

08. CONTRACT REVIEW

09. HELP DESK

Appendix A - Help Desk Service Request Form	WFM(F)57.01
Help Desk Recovery	WFM(D)38.01
Appendix C - Help Desk Refreshment Request Form	WFM(F)58.01
Appendix D - Help Desk Chase up of Request Form	WFM(F)59.01
Appendix E - Help Desk Meeting Room Bookings	WFM(F)60.01
Appendix F - Help Desk Incident Report	WFM(F)61.01
Fault Rectification	WFM(D)39.01
Appendix B - Help Desk Meeting Room Request Form	WFM(F)62.01

(a) Compliments & Complaints

Compliments and Complaints Procedure	WFM(P)46.01
Customer Feedback Procedure	WFM(P)47.01

BO Number	N247
Tender Number	
Project Name	HEFF
Contact	Ian Hunter
Type of Project	
Division	Infrastructure
Project Particulars / Background	

Reason For Innovation

- [ ] Costs
- [ ] Programme
- [x] Good Idea
- [x] Best Practice
- [ ] Regulation Change
- [x] Construction method
- [ ] Alternative design

Classification

- [ ] Process
- [ ] System
- [x] Product
- [ ] Other - specify

Description

Storm water management - Underground rain water resevoir with outflow pipe only allowing permissable dischage therefore helping reduce flooding during severe storms

What did you start with?

What was produced?

Used Hepworth Drainage GEOlight - Stormwater Management

How did you do it? *identify any particular precautions / special measures required and any disadvantages*

What are the benefits?

- [ ] Cost
- [ ] Programme
- [ ] Safety
- [x] Environment
- [ ] Team Satisfaction
- [ ] Other - Specify

Value in £

Value

Is it project specific?

- [ ] Yes
- [x] No

Comment?

Backup information that can be attached?

Knowledge Management Survey

'Internal' Benchmarking Questionnaire

CONTENTS

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MEASURING THE EFFECTIVENESS OF ASSESSMENTS 12

MEASURING INCENTIVES TO KNOWLEDGE SHARING 15

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END. 18

Note to SIG: Add guidance notes to questions throughout the survey where you think they are necessary.

Introduction to the Survey

Introduction ...
'*Company Name*' is a member of the Construction Improvement Group established in 2001 to provide support for sharing best practices amongst our members. Other companies contributing to this work are '*insert the long list*'.

We collaborate as a group in order to move us towards internationally recognised standards of excellence, with the overall aim of leading to improved business performance.

A Special Interest Group working on Knowledge Management has developed this survey.

For participants who contributed to the first survey ...
This survey is a direct consequence of that first piece of work when we investigated a broad range of KM issues. The results of that work have enabled us to focus down on to a few key aspects of KM that are now the subject of this survey.

Why are we doing this? ...
The outcome of this piece of work will enable us to identify a number of critical success factors to help us improve KM in our own company. We will also identify issues that hold back the effective use of KM. This will help us avoid making the mistakes that others have already gone through.

With the experience of this latest work, we aim to then identify leading companies outside our group and outside our industry sector to whom we will go to discover further examples of best practices.

Define KM ...
Describe KM. Tony to discuss with Richard and forward to Michael.

What is your experience of KM in our Company? ...
Notes form last SIG meeting ...
Give a choice based on 1st questionnaire to get participants to relate to their experiences of KM. Ask the question again at the end of the survey, 'Have you changed your view about KM?' Note: I (MJ) have not been able to access the original survey. This section needs work.

Your role in KM ...
Everyone in our organisation is potentially a **participant** in KM as a user or supplier of information. For example, this could be through sharing knowledge about a particular project success.

In addition, some of our people have a specific **Leadership** responsibility or role in KM. For example, by agreeing the strategy of through leading by example.

There is also a small group who are responsible for defining our KM strategy and then setting up the capability throughout the company to support its implementation. These people are **enablers** of KM.

Q Intro 1: KM Participation:

a) Do you see yourself primarily as a user or supplier of information?				
1 (User)	**2**	**3**	**4**	**5 (Supplier)**

Q Intro 2: Your role in KM:

a) How do you see your primary role in KM?				
1 As a Participant	**2 As a Leader**	**3 As an Enabler**		
b) Do you have any further comments?				

Establishing the demographics of participants

Q Intro 3: Establishing your situation in the organisation:

a) What Company do your work for?
b) What is the title of your position in the Company?
c) Where is you job located (geographic location)?

d) What business unit do you work in?

e) How many years of service do you have in your present Company?

Up to 1 year	2 to 4 years	5 to 10 years	10 to 20 years	More than 20 years

f) What Gender are you?

Female	Male			

g) How old are you?

Under 20 years	21 to 30 years	31 to 40 years	41 to 50 years	More than 50 years

h) How would you rate your IT ability?

1 (Very Poor)	2	3	4	5 (Extremely Good)

Cultural Influences on Knowledge Management

1 Key Question

How frequently do others ask you for your verbal help or advice on how they should do something?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

2 WHO was involved

3 WHAT happened

4 WHERE did it occur

5 WHEN did it happen

6 WHY did it happen (what was the purpose / aim)

7 Key Question

How frequently do others ask for your written help or advice on how they should do something?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

8 WHO was involved

9 WHAT happened

10 WHERE did it occur

11 WHEN did it happen

12 WHY did it happen (what was the purpose / aim)

13 Key Question

How frequently do you learn something new at work?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

14 WHO was involved

15 WHAT happened

16 WHERE did it occur

17 WHEN did it happen

18 WHY did it happen (what was the purpose / aim)

19 **Key Question**

How frequently do others check your understanding of their communication?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

20 WHO was involved

21 WHAT happened

22 WHERE did it occur

23 WHEN did it happen

24 WHY did it happen (what was the purpose / aim)

25 **Key Question**

How frequently do you consider whether your communication is likely to be understood by the recipient?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

26 WHO was involved

27 WHAT happened

28 WHERE did it occur

29 WHEN did it happen

30 WHY did it happen (what was the purpose / aim)

31 **Key Question** How frequently do others talk about the lessons they have learnt from their own experiences, without being specifically requested to, and with the intent to help you do your job more effectively?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

32 WHO was involved

33 WHAT happened

34 WHERE did it occur

35 WHEN did it happen

36 WHY did it happen (what was the purpose / aim)

37 **Key Question** How frequently do others make available the lessons they have leant in written format without being specifically requested to?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

38 WHO was involved

39 WHAT happened

40 WHERE did it occur

41 WHEN did it happen

42 WHY did it happen (what was the purpose / aim)

43 **Key Question** How frequently are you invited to participate in informal information exchanges / networking opportunities within **your own** organisation?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail Considering the most recent time this happened,

44 WHO was involved

45 WHAT happened

46 WHERE did it occur

47 WHEN did it happen

48 WHY did it happen (what was the purpose / aim)

49 **Key Question** How frequently are you invited to participate in informal information exchanges / networking opportunities **with other** organisations?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail Considering the most recent time this happened,

50 WHO was involved

51 WHAT happened

52 WHERE did it occur

53 WHEN did it happen

54 WHY did it happen (what was the purpose / aim)

55 **Key Question** How frequently do those you work with admit 'mistakes' openly (i.e. to any one) ?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

56 WHO was involved

57 WHAT happened

58 WHERE did it occur

59 WHEN did it happen

60 WHY did it happen (what was the purpose / aim)

61 **Key Question** How frequently do you hear/see someone else being blamed?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

62 WHO was involved

63 WHAT happened

64 WHERE did it occur

65 WHEN did it happen

66 WHY did it happen (what was the purpose / aim)

67 **Key Question**

How frequently do your leaders share the mistakes **they** have made and the lessons **they** have learned in front of you?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

68 Considering the most recent time this happened, WHO was involved

69 WHAT happened

70 WHERE did it occur

71 WHEN did it happen

72 WHY did it happen (what was the purpose / aim)

73 **Key Question**

How frequently do office based people visit you in your work area, rather than asking you to their office?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

74 Considering the most recent time this happened, WHO was involved

75 WHAT happened

76 WHERE did it occur

77 WHEN did it happen

78 WHY did it happen (what was the purpose / aim)

79 **Key Question**

How frequently do others give you open recognition for your contribution in the tasks that they undertake?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

80 WHO was involved

81 WHAT happened

82 WHERE did it occur

83 WHEN did it happen

84 WHY did it happen (what was the purpose / aim)

85 **Key Question**

How frequently do others discourage you from using your own initiative to solve a problem?

Most Days	Most Weeks	Most Months	Rarely	Never

Exploring the detail

Considering the most recent time this happened,

86 WHO was involved

87 WHAT happened

88 WHERE did it occur

89 WHEN did it happen

90 WHY did it happen (what was the purpose / aim)

Measuring the Effectiveness of Assessments

Questions have been based around the Plan – Do – Check – Act cycle, and are to be scored on a scale of 1 to 5 as follows:

1	2	3	4	5
No Evidence	Some Evidence, but no formal documentation	Documentation in place but not fully implemented	Evidence, but not universally applied in all locations	Fully defined and documented across whole company

Formulating Strategy:

Q1. Is there a strategic goal relating to Knowledge Management for the company?

1	2	3	4	5

Specifying Plan:

Q2. Is there a strategy document for Knowledge Management in the company?
(e.g. vision, goals, objectives, KPIs, etc)

1	2	3	4	5

Q3. Has the strategy been developed into a series of programmes? (activities/projects)

1	2	3	4	5

Building and Improving Stage:

Q4. Is there a communication process regarding Knowledge Management?

1	2	3	4	5

Q5. Is Knowledge Management covered in employee inductions?

1	2	3	4	5

Q6 Is there any training available in Knowledge Management?

1	2	3	4	5

Implementation Stage:

Q7. What is the usage of the company intranet, extranet or KM system/solution? (use/hits per day per employee)

Q8. What percentage of employees use the KM system more than once a month?

Measurement and Analysis Phase:

Q9. Are there a set of KPI's established to measure the effectiveness of the KM solution?

1	2	3	4	5

If so, what are these KPI's?

Q10. What percentage of Tender Close Out Reports/Reviews are completed?

Q11. What percentage of Project Close Out Reports/Reviews are completed?

Q12. How often are lesson learn from Close Out Reports re-used to improve Best Practice?

1	2	3	4	5

Review Phase:

Q13. Does the company review the Knowledge Management Strategy at Senior/Executive Board level?

1	2	3	4	5

Q14. Does the Executive Board review any KM KPI's described in Q9 above?

1	2	3	4	5

Outcomes:

Q15. Does the company act on the outcome of the reviews?

1	2	3	4	5

Q16. Are the any KPI results (described in 9 above) communicated to the business?

1	2	3	4	5

Measuring Incentives to Knowledge Sharing

Q1: KM Channels:

a) How easy is it for you to use the available channels for sharing knowledge?				
1 (Very Easy)	**2**	**3**	**4**	**5 (Very Difficult)**
b) What channels for Knowledge Sharing are you aware of?				
c) What channels do you use for Knowledge Sharing?				
d) Do you have access to all the Knowledge Sharing channels available for your role?				
e) Have you received training in accessing these channels?				
f) How could the channels be improved to make Knowledge Sharing easier?				

Q2: KM Feedback:

a) How relevant was the information / content / data that was provided to you?				
1 (Not Relevant)	**2**	**3**	**4**	**5 (Very Relevant)**
b) How did the information help you in your role?				
c) How do you prefer to **receive** feedback from others?				
1 (Informal)	**2**	**3**	**4**	**5 (Formal)**
d) How do you prefer to **provide** feedback to others?				
1 (Informal)	**2**	**3**	**4**	**5 (Formal)**
e) How does the degree of formality affect your participation?				
f) How could the content be improved to make it more relevant and accessible?				

Q3a: KM Support (Leadership Team / KM Team):

a) Do you encourage and support the sharing of Knowledge?				
1 (Not at All)	**2**	**3**	**4**	**5 (At All Levels)**

b) How Effective do you consider the encouragement and support you provide?				
1 (Not at All)	**2**	**3**	**4**	**5 (At All Levels)**

c) What measures do you employ to actively encourage Knowledge Sharing?

d) What resources do you provide for participation?

e) How could support and encouragement for Knowledge Sharing be improved?

(additional question for KM Team)

f) Do you have the resources to deliver your Knowledge Management Strategy?

Q3b: KM Support (Employees):

a) Are you supported and encouraged in the sharing of Knowledge?				
1 (Not at All)	**2**	**3**	**4**	**5 (At All Levels)**

b) How effective do you consider the encouragement and support provided?				
1 (Not at All)	**2**	**3**	**4**	**5 (At All Levels)**

c) What measures actively encourage you to participate in Knowledge Sharing?

d) What resources are made available to you for participation?

e) How could support and encouragement for Knowledge Sharing be improved?

Q4 is redundant here as it has been moved to the front of the survey ...

Q4: KM Participation:

a) Do you see yourself primarily as a user or supplier of information?				
1 (User)	2	3	4	5 (Supplier)

Q5: KM Rewards:

a) How important are **monetary rewards** to you in promoting sharing of Knowledge?

1 (Not Very)	2	3	4	5 (Extremely)

b) How effective are **monetary rewards** to you in promoting sharing of Knowledge?

1 (Not Very)	2	3	4	5 (Extremely)

c) How important is **personal growth** to you in promoting sharing of Knowledge?

1 (Not Very)	2	3	4	5 (Extremely)

d) How effective is **personal growth** to you in promoting sharing of Knowledge?

1 (Not Very)	2	3	4	5 (Extremely)

e) How important is **recognition** to you in promoting sharing of Knowledge?

1 (Not Very)	2	3	4	5 (Extremely)

f) How effective is **recognition** to you in promoting sharing of Knowledge?

1 (Not Very)	2	3	4	5 (Extremely)

g) How important is **career development** to you in promoting sharing of Knowledge?

1 (Not Very)	2	3	4	5 (Extremely)

h) How effective is **career development** to you in promoting sharing of Knowledge?

1 (Not Very)	2	3	4	5 (Extremely)

i) How important is **job satisfaction** to you in promoting sharing of Knowledge?

1 (Not Very)	2	3	4	5 (Extremely)

j) How effective is **job satisfaction** to you in promoting sharing of Knowledge?

1 (Not Very)	2	3	4	5 (Extremely)

k) How are you personally rewarded for your participation in Knowledge Sharing?

l) How could rewards to encourage Knowledge Sharing be improved?

Metaprogrammes

Consider introducing some questions – Adrian Malone to review and offer suggestions at the Red Team SIG meeting. I guess the issue will be the overall length of the survey that is looking long at this stage.

Closing

Q1: Closing:

a) Having participated in our survey, has this changed your views about KM?				
1 (Not Very)	**2**	**3**	**4**	**5 (Extremely)**
b) How has this changed your views about KM?				
c) Is there anything else you would like to say about KM that you feel has not been covered in this survey?				

What happens next …
Once all the surveys have been completed in the participating companies we will collate and analyse the results.

These results will be used to help shape our KM programmes in '*name company*' to make them more effective.

We will also communicate back to you our progress at some stage so that you know how your experiences have helped influence our work.

Finally, as mentioned before, we will also use this experience to guide further work on KM so that we identify and benefit from best practices used in other leading companies.

We would like to thank you for your participation.

END.