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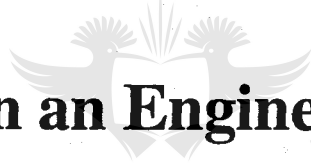


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**A Methodology for
Benchmarking
in an Engineering Business
Environment**



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**A Methodology for Benchmarking
in an Engineering Business Environment**

submitted in partial fulfilment for the degree

Magister Ingenieriae in Engineering Management

Faculty of Engineering

Rand Afrikaans University

Johannesburg



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i) God, Almighty

I will always give thanks unto the Lord; his praise shall ever be in my mouth. (Psalms 34:1)

ii) My Parents

Parents are the bones on which children sharpen their teeth. (Peter Ustinov)

iii) Prof. Leon Pretorius

A professor is a gentleman who has a different opinion. (August Bier)

iv) Bastion Consulting

If two men on the job agree all the time, then one is useless. If they disagree all the time, then both are useless. (Darryl F. Zanuck)

v) My Grandma

For wisdom is more moving than any motion: she passeth and go through all things by reason of her pureness. For she is the breath of the power of God, and a pure influence flowing from the glory of the Almighty: therefore can no defiled thing fall into her. (Bible: Wisdom 7:24–25)

vi) Eugene & Dewald

Those who believe that they are exclusively in the right are generally those who achieve something. (Aldous Huxley)

vii) Karen

Love sought is good, but unsought is better. (William Shakespeare)

viii) Piet Venter

A friendship founded on business is better than a business founded on friendship. (John D. Rockefeller)

Management Summary

Most new generation organisations have management models and organisational performance measurement systems in place. All these new kinds of models and systems will not be enough in the race for survival. Organisations need a clear point of view of where they are going – a vision about tomorrow and what they should do to overcome the gap, from their current situation in order to get there successfully.

It is also important for organisations to have a solid foundation to base such a visioning process on. Reengineering, continuous renewal, total quality management, lean production, downsizing – these all have proven vital to survival. But getting better at what we do is just about keeping ourselves in the race – it's not about winning the race. To win, we will have to know what the strategic intent and business priorities of the competition are (where are they going), in order to make sure we get there first. Charles Handy said about the winners of the race, "...it will be those who invent the world, not those who respond to it."

Benchmarking is a means to ensure the above, where one basically has to say, "Let's look honestly at ourselves and determine what we do well and what we do badly. And where we do things badly, let's figure out what the world standards are, and then find some way to commit ourselves to reaching those standards."

The purpose of this study was therefore to ensure a means for an organisation to get ahead in the race. It is important to note that performance measurement plays an integral role in management and benchmarking, because no process or action can be managed if it can be measured. Organisations are also not solely based on actual detail processes. There are other more strategic as well as "softer" issues of an organisation that will become much more important in the future, than concrete processes. These factors are the visioning processes within an organisation and their impact on change, as well as the creation and mobilisation of certain knowledge for certain purposes.

The end-result of the study was therefore a scientific analysis of an engineering business environment, in order to create a means/methodology to do benchmarking, whilst ensuring a balance between the strategic, operational and knowledge aspects.

Bestuursopsomming

Meeste nuwe generasie organisasies beskik oor bestuurs- sowel and prestasiemetings modelle. Hierdie modelle lê egter slegs 'n grondslag en sal nie die oorlewing verseker van organisasies nie. Organisasies moet 'n duidelike beeld hê van waar hulle in die toekoms wil wees en hoe hulle die gaping tussen die toekoms en die huidige situasie gaan oorbrug.

Dit baie belangrik dat organisasies 'n stewige platform het om hierdie ideale toekomsvisie te kan verwesenlik. Besigheidsingenieurswese, kontinue verbetering, kwaliteitsbestuur, gemarginaliseerde produksie, rasionalisasie – al hierdie konsepte het noodsaaklik geword vir oorlewing. Om egter beter te word in wat ons doen hou ons slegs in die wedloop, maar gaan nie 'n oorwinning verseker nie. Om te wen, sal ons moet weet waar ons kompetisie in die toekoms gaan wees, om te verseker dat ons eerste daar sal uitkom. Om die woorde van Charles Handy te gebruik tov die weners van die wedloop: "...it will be those who invent the world, not those who respond to it."

Normering ("benchmarking") is 'n voertuig om bogenoemde te vermag, deur die volgende te sê: "Kom ons kyk eerlik na onself en bepaal wat doen ons goed en wat doen ons sleg. Wat is die wêreldstandaarde vir die goed wat ons sleg doen, en wat moet ons doen om die standaard te bereik?"

Die doel van hierdie studie was dus om 'n wyse te verskaf, sodat 'n organisasie voor kan kom in die wedloop. Dit is belangrik om te weet dat prestasiemeting 'n integrale rol speel in bestuur en normering, omdat dit onmoontlik is om iets te bestuur wat nie gemeet kan word nie. Organisasies bestaan nie net uit detail prosesse nie, maar daar is heelwat strategiese en ook "sagter" aspekte wat nog meer belangrik gaan word in die toekoms. Hierdie aspekte is die visioneringsproses in 'n organisasie en die impak daarvan op verandering, sowel as die ontwikkeling en mobilisering van intellektuele kennis tov sekere prosesse.

Die resultaat van die studie was 'n wetenskaplike analise van 'n ingenieursbesigheids-omgewing, om 'n metodologie vir normering te ontwikkel, terwyl die balans tussen die operasionele, strategiese en intellektuele aspekte gehandhaaf word.

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CHAPTER 1

INTRODUCTION and DOMAIN



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1. INTRODUCTION and DOMAIN

“In my beginning is my end.”

T. S. Eliot

“The great excitement of the future is that we can shape it.”

Charles Handy

*“What we want is a story that starts with an earthquake
and works its way up to a climax.”*

Samuel Goldwyn

1.1 Exploring the Title

The title of the study consists of a couple of very interesting words. According to the Oxford dictionary, the words can be best described as the following:

- Methodology
 - the science of method
 - a body of methods used in a particular branch of activity
- Benchmark (is described in detail in Chapter 2)
 - a surveyor's mark
 - a standard point of reference
 - evaluate or check by comparison
- Engineering
 - the application of science
- Business
 - one's regular occupation, profession or trade
- Environment
 - the physical surroundings, conditions and circumstances
 - the area surrounding a place

From the brief description of the word the following conclusion can be made about the title of the study:

A science of method for evaluation or checking by comparison in an area, where application of science, will be the regular profession.

1.2 Introduction to the Study

Comparing one's skill level to that of the competition is known as "benchmarking". Companies look for the organisation that is the best in the world with a skill of a process that they would like to measure. A company's Human Resources department might want to compare its performance management system to that of a firm in the same competitive arena.

A training budget for the key managers should be used to buy plane tickets, to go to the world's best business and to see it for themselves. To try and explain to people what's going on in other companies is not always successful, it is better to put them on the aeroplane and let them fly to Europe, for example. The crisis of competition coming into one's market combined with benchmarking takes managers out of their comfort zone, gets the adrenaline flowing and can spur internal functions towards rapid renewal initiatives.

1.3 Domain of the Study

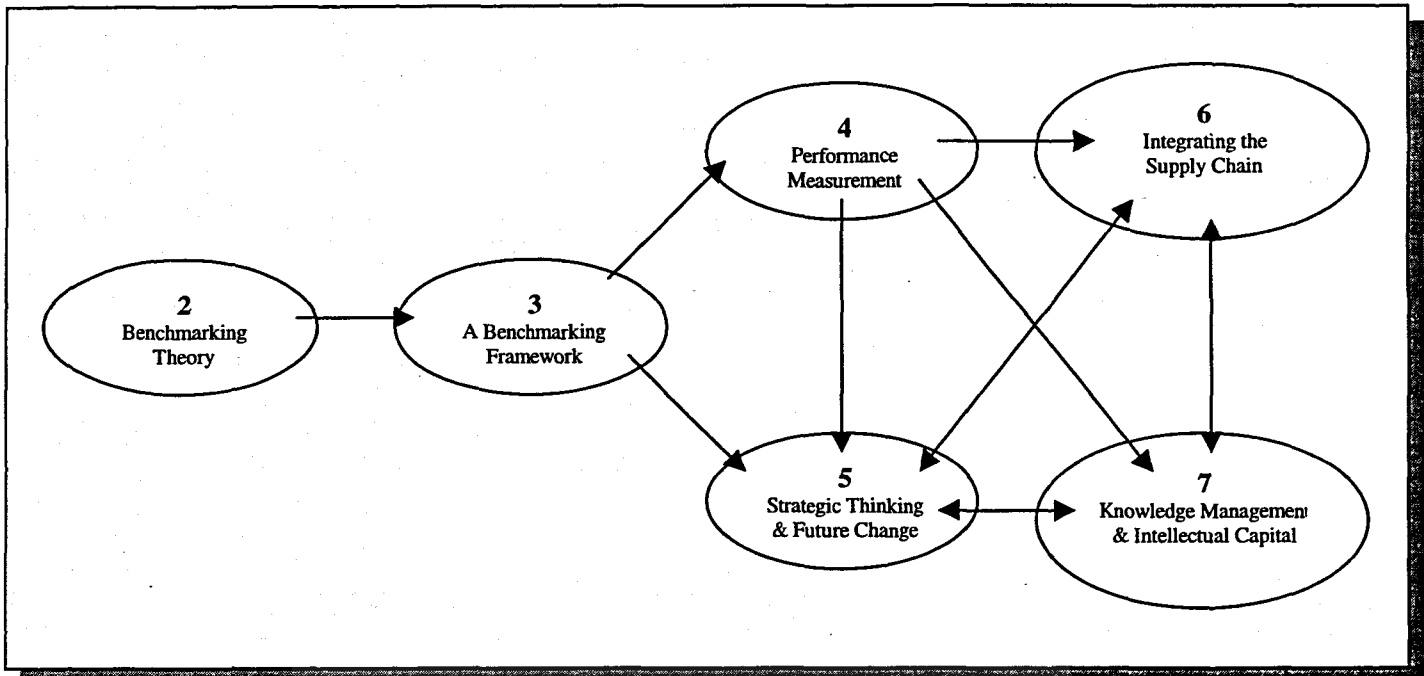


Figure 1-1 Scope of Study

Benchmarking is such a powerful renewal concept that should be in each and every manager's suite of competencies. The reason what benchmarking is acknowledged as such a powerful concept, is because it is believed that benchmarking can be used throughout the whole organisation; from strategic to operational level; covering "hard" and "soft" issues.

It was therefore decided to investigate the whole spectrum of an organisation and to determine the relevance of benchmarking in every domain. *Figure 1-1* shows the flow of study. As can be seen, the strategic (chapter 5 – strategic thinking and future change) and operational (chapter 6 – integrating the supply chain) levels are both investigated, as well as the "hard" (chapter 5 and 6) and "soft" (chapter 7 – knowledge management and intellectual capital) issues. The role of performance measurement in all the above mentioned will also be investigated (chapter 3).

This whole study will show that business people, especially in South Africa, have to start "thinking value-added, performance and action", because they suffer from analysis paralysis. Benchmarking is a concept that should be unpacked and exploited to its full potential, otherwise one's company is only going to be one of the crowd, and not be the one to reinvent the future.

CHAPTER 2

BENCHMARKING THEORY



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2. BENCHMARKING THEORY

“You know very well that unless you’re a scientist, it’s much more important for a theory to be shapely, than for it to be true.”

Christopher Hampton

“Those who are enamoured of practice without science are like a pilot who goes into a ship without rudder or compass and never has any certainty where he is going. Practice should always be based upon a sound knowledge of theory.”

Leonardo da Vinci



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“Give me a firm place to stand and I will move the earth.”

Archimedes

2.1 Introduction

Benchmarking is changing the perspectives of executives and managers around the world. It is showing them how good, bad or mediocre their company is in aspects of their own business as compared with world-class companies. Benchmarking continuously challenges the best practices of modern management. The principles of benchmarking apply equally to manufacturing or services industries, and to large and small organisations.

The growth of benchmarking has been so rapid, and the experience of its use so diverse, that there is confusion as to what the term covers. Some see it merely as an extension to traditional competitive analysis. In truth, however, benchmarking can provide realistic measures and goals for every process in the company; and in addition, benchmarking reveals the practices behind company performance.

Benchmarking has indeed become a very valuable tool for most leading corporations to make substantial changes and improvements to their operations. It is not an exercise on their part, rather it is ingrained as part of their culture - it is how they work.

2.2 Defining Benchmarks

Robert Camp^[5] defines a benchmark as follows: “*a benchmark is an industry standard*”. Benchmarks may be descriptive, as in the description of a best industry practice or they may be transformed to some kind of measurement that shows the effect of endorsing the method/system/practice. Camp also states that the following type of benchmarks exists:

- Descriptive benchmarks of best practices - Any work process made up of inputs, a repeatable set of steps based on a set of practices or methods, and outputs. If the practices are the best in the industry, they will deliver the outputs that will completely satisfy customers.
- Quantitative benchmarks or performance measurements - Benchmark measurements are the conversion of benchmark practices to operational measures. There can be benchmarks for all goals or objectives, such as the following: customer satisfaction, employee motivation satisfaction, quality a cycle time and business results.

Benchmarks ensure that different goals can be set by different organisations. It depends on the need of the company. The benchmark is therefore a target that

defines performance levels. The goal that a company is striving for can be defined as one of the following^[41]:

- what the customer wants today or in the future;
- what is industry best; or
- what is world-class performance.

Benchmarks define one's current performance and how well one should perform to become market leader. Benchmarks enable one to set stretch goals for any vital performance measure – defect rate, time-to-market, unit cost, productivity, etc.

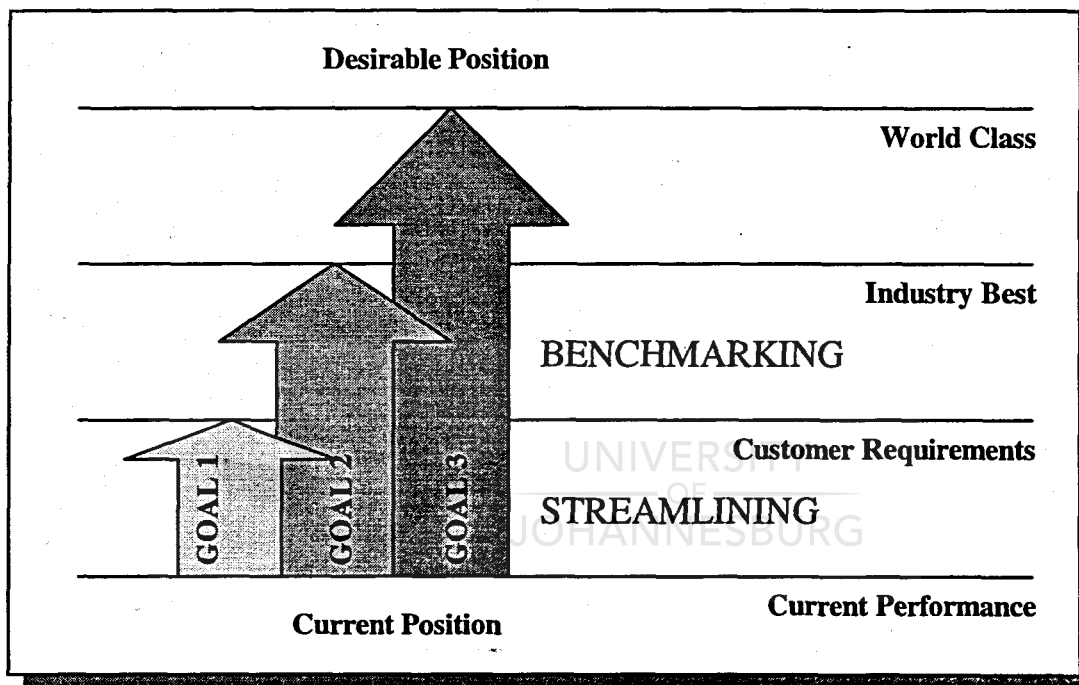


Figure 2-1 The Benchmark Objective (Source: Camp^[41])

As seen in *figure 2-1*, benchmarks helps one to do a current status assessment of the business (current position). One can then see where one are situated against the rest of the market. It also shows one how good one have to be to become the market leader – determine the ideal state of the business (desirable position). When these two states (current position and desirable position) are compared, certain gaps in the business armour are exploited for renewal. There is always vulnerability to being blindsided and the question is how to achieve this ideal business state.

Figure 2-2 shows the danger of outside competition. This situation is also very relevant for a place like South Africa, because of the protective environment that

the whole business industry lived in. With the disintegration of sanctions and trade barriers, the local business community suddenly had to cope with international competition as well. The message from this whole description is quite clear – if one’s goal is to achieve “best in local area”, a more innovative competitor is going to leapfrog over the business and gain a commanding competitive edge. This will lead to a sudden death scenario for any business.

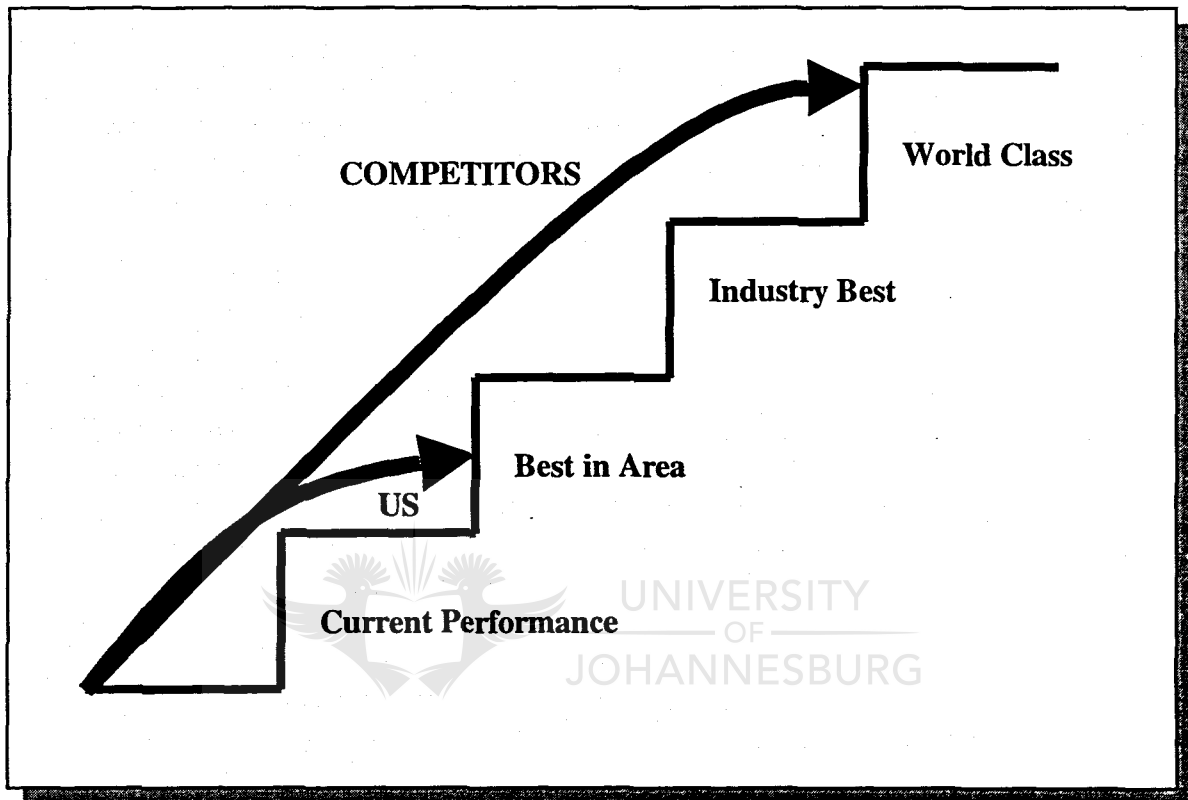


Figure 2-2 The Competitive Leapfrog (An adaptation from Figure 2-1)

2.3 Defining Benchmarking

Most of the traditional target setting methods have failed throughout the world and that led to the fact that managers become blindsided towards competition.^[5] The arrival of world economy also has presented tougher challenges for most organisations. It meant more and better competitors, shorter product life cycles and accelerating technology changes. Business as usual in such market climate could be fatal, even for market leaders. There are very little of the top 10% Fortune 500 companies of the eighties, that are still at the top^[5]. The main reason for this is that the “fat cats” are overconfident and overestimating their abilities

(underestimating the abilities of the competition) and do not continuously look for ways to renew their business.

To stay competitive, organisations must continually reinvent how they do things (in every department and at every level), and also look at what the world-class organisations are doing to find innovative ideas and adopt best work practices. The usual methods of improving performance, like downsizing and cost cutting, do not solve systematic performance problems. To become more productive and competitive requires creating the future, which includes to create a shared corporate vision, redesigning old work methods, scrapping internally-protected agendas, tossing out obsolete work practices and looking outside for innovative strategies and work methods (best practices), wherever they are. It can therefore be said that the only approach that leads to that heads to superior performance is the establishing of operating productivity that is target based on the best practice in the industry.^[9,10]

In the year 500 BC a Chinese general Sun Izu wrote, "If you know your enemy and know yourself, you need not fear the result of a hundred battles." This could as well show a way to success in all kinds of business situations, Other types of war comes to the foreground in business, like ordinary business problems, internal political battles and surviving in the market. Out of the Japanese environment there are two words that can be connected to benchmarking. The first is the word "dantotsa", meaning striving to be "best of the best". This meaning is the core of what benchmarking stands for ... to be the best of the best. The second word was the practice of "shukko", or the loaning of employees to other organisations. This job-rotation approach encouraged employees not only to learn all about their own organisations and bring back new processes to help their organisation move forward.^[4]

The practice of emulating world-class practices, called "benchmarking", simply means:

"...finding and implementing best practices that lead to superior performance..."^[3]

Benchmarking can therefore be seen as a positive pre-active process to change operations in a structured fashion to achieve superior performance. The benefits of using benchmarking are that functions are forced to investigate external industry best practices and are forced to incorporate those practices into their organisation. This leads to profitable high asset utilisation businesses that meet customer needs and have a competitive advantage. If you look at Sun Tzu's word you can see that benchmarking is firmly based on this. It an organisation therefore assess not only internally, but also the external market it can be ready to changes. The highly volatile environment can then become a very stable environment for an organisation.

There are several bases on which to define benchmarking as an activity. According to David T Kearns (CEO, Xerox Corporation) the formal definition of benchmarking is as follows:

“Benchmarking is the continuous process of measuring products, services, and practices against the toughest competitions or those companies recognised as industry leaders.”^[5]

It one looks at the above definition there are a couple of considerations that required further description:

- Continuous process: Benchmarking is a self-improvement and management process that must be continuous to be effective. It cannot be done once and disregarded thereafter on the belief that the task is done. It must be a continuous process because the industry processes are very volatile. Industry leaders also constantly get stronger. Only organisations that pursue benchmarking with discipline will successfully achieve superior performance.
- Measuring: The term benchmarking implies measurement. Practices on which metrics are based should be pursued first. Benchmarking is not just an investigation to determine what practices are being used to ensure effectiveness and eventual superiority and the practices achieve the metrics. Benchmarking is not just a study of competition by a process of determining the effectiveness of industry leaders by measuring their results.
- Products, services and practices: Benchmarking can be applied to all facets of a business. A study of the business processes and their methods and practices will be the main objective of the benchmarking approach.
- Companies recognised as industry leaders: Benchmarking should not be aimed solely at direct product competitors. In fact it would be a mistake to do so since they may have practices that are less than desirable. Benchmarking is often mistaken for competitive analysis. An example of what is really meant by Benchmarking is that of the coal-mining company that performed as study using Disney World in Florida as a partner. It is difficult to think of two companies with more divergent interests. What the coal company was studying was the way in which Disney maintained the pneumatics within their animated characters. Clearly, Disney cannot allow their attractions to loose their life like appeal, so they have developed world class maintenance techniques.^[3]

The Oxford dictionary's definition is also informative. It defines a benchmark as: *“A surveyors mark... of previously determined position ... and used as a reference point... a standard by which something can be measured or judged.”*

Both definitions serve to reinforce the benchmark as being a standard for the comparison of other objects or activities. It is a reference point form, which others are to be measured.

2.4 *The fundamental reasons for Benchmarking*

Business success is no longer guaranteed based on product quality and cost. Factors such as service and cycle time are now just as critical to a customer's perception of superior performance. Benchmarking is the cornerstone of business performance management, because one can not manage what is not measurable. It, therefore allows organisations to:

- understand their competitive position;
- influence organisational behaviour;
- create reasons for change; and
- motivate a culture of continuous renewal.

In the past most organisations set performance targets based on what they did the previous years. Typical exemplary comments experienced on specific target setting have been:

- "OK, last year we hit 100, so this year let's up it to 105."
- "Let's see...last year we've hit 100, but now we have higher inflation, and two new competitors. But we also have a new production plant, so let's make it 107."

That worked fine in the past, but today it's certain to lead us to disaster, because it not based on specific strategic initiatives and a thorough analysis of the environment. Companies can no longer be glib in believing that they can stay competitive in a world economy by incrementally improving operations by 3%-5% per year. That's how organisations get blindsided. Many operations need quantum improvements to stay competitive. Whilst incremental change can only provide 3%-5% performance improvement per year, process improvement can boost performance by as much as 50%. However, if quantum gains are required, benchmarking can provide the change needed (see figure 2-3).^[6]

In the last decade benchmarking has been used to regain lost market share in traditionally strong American industries – office equipment, automobiles, microchips, electronics and household appliances. Benchmarking has achieved impressive gains in product quality, worker productivity, market share and profitability. Companies world-wide, like Xerox and 3M, are using benchmarking to streamline internal methods and workflow, tighten cost control, strategically align themselves regards their market, restructure the organisation and literally reinvent their operations. Benchmarking has been extended beyond manufacturing

to all areas of the business. In fact, benchmarking is now an important criterion in the Malcolm Baldrige awards.^[1]

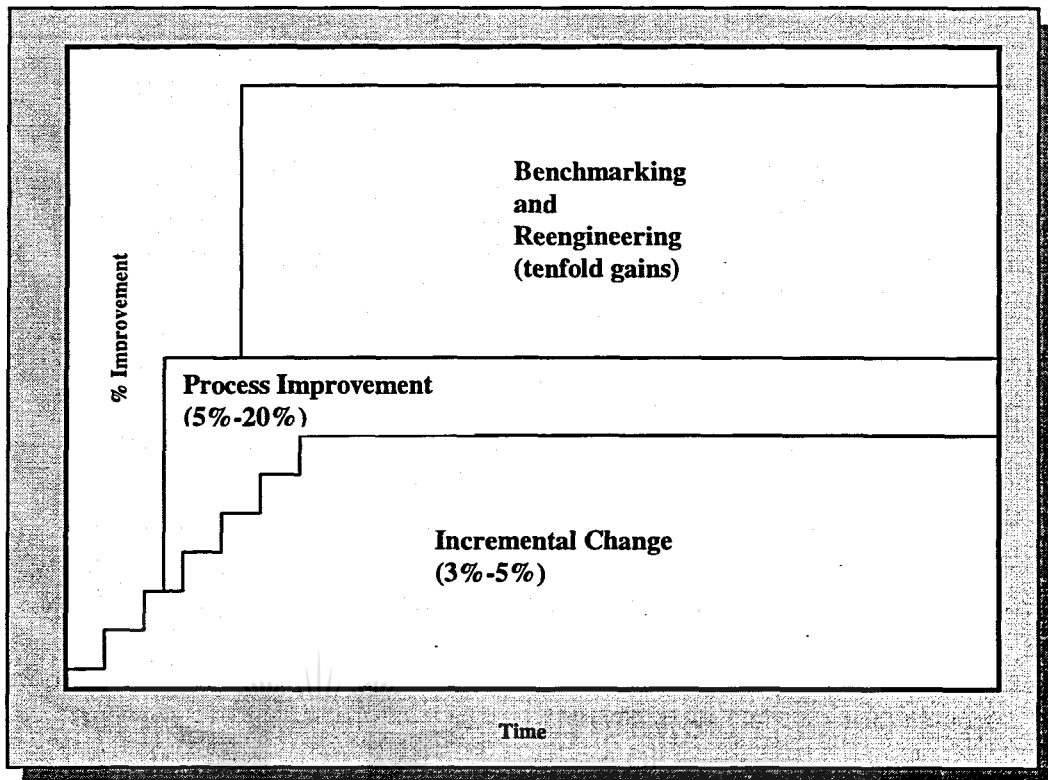


Figure 2-3 Benchmarking and Process Improvement

(Source: Johansson et al^[6])

Benchmarking allows an organisation to create a balanced scorecard based on performance measurements. It provides senior management with critical information on customers, business processes, financials and continuous renewal (see chapter 4). This is the virtuous cycle that creates the learning organisation and leads to business excellence.

A business must change to stay ahead or to get ahead. If a business does not keep up, then its only option is to fall behind its competitors. As Deming succinctly pointed out, "You do not have to do these things. Survival is not compulsory".^[4] The question now is – how do we manage the change that is necessary? The act of benchmarking must be carefully managed. Teams get excited about the fun aspects like visiting other companies and learning about their businesses. It is important to channel the energy of this team interest into positive experiences to have significant payoff for the organisation.

Benchmarking studies start by focussing on what are the key improvement needs for the organisation. Once the need for change is understood, an examination of best practices and an identification of the key factors that deliver superior performance follow. This in turn will lead to actions that must be taken. One will also have an idea of the potential for improvement within your organisation, and this in turn will create the desire for change, as one is now able to visualise the result of the future change as shown in *figure 2-4*.

In *figure 2-4* it can be seen that there are four levels of attainment:

- i) The baseline or current performance level.
- ii) The achievable level, which is the best performance that can be achieved using current resources in order to eliminate waste and improve the cycle time.
- iii) The benchmark level, which is the potential level of performance that has been identified from the benchmarking study.
- iv) The long-term goal, which is the future target performance level.

The level of benchmark and the degree of excellence of the process will depend on how far one has conducted the search for the best practice. If the search is limited to one's own company, then the results of the benchmark are likely to be limited too. Similarly, if the search is restricted to one's industry alone, then one can become the leader of that industry only. This may well give you competitive advantage in the short-term, but if a company want to get ahead and stay ahead, then the name of the game is to return a level of performance that can not be easily be caught. This is where benchmarking scores over the other change processes, like business process re-engineering (BPR) and total quality management (TQM), which usually rely on internal rethinking to deliver superior performance. Most processes are improved incrementally – in small bits each year. Often the basis structure is unsound and remains intact. Therefore updating, or automating old systems, may produce disappointing results.

There are many examples of change implementation where the solutions were unimaginable from within the host industry. Spendolini says that the power of benchmarking is that it encourages thinking in a new paradigm and helps with the following (see *figure 5*)^[11]:

- break out of the box/paradigm;
- find alternatives to old ways of doing things; and
- achieve dramatic improvements.

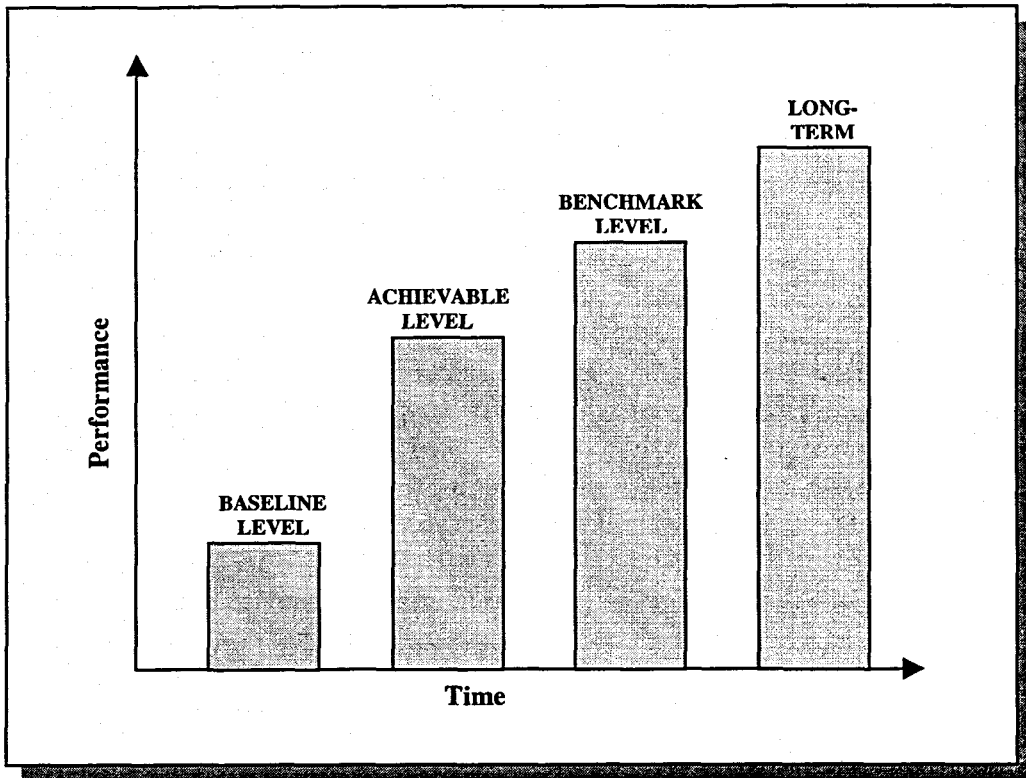


Figure 2-4 Levels of Attainment

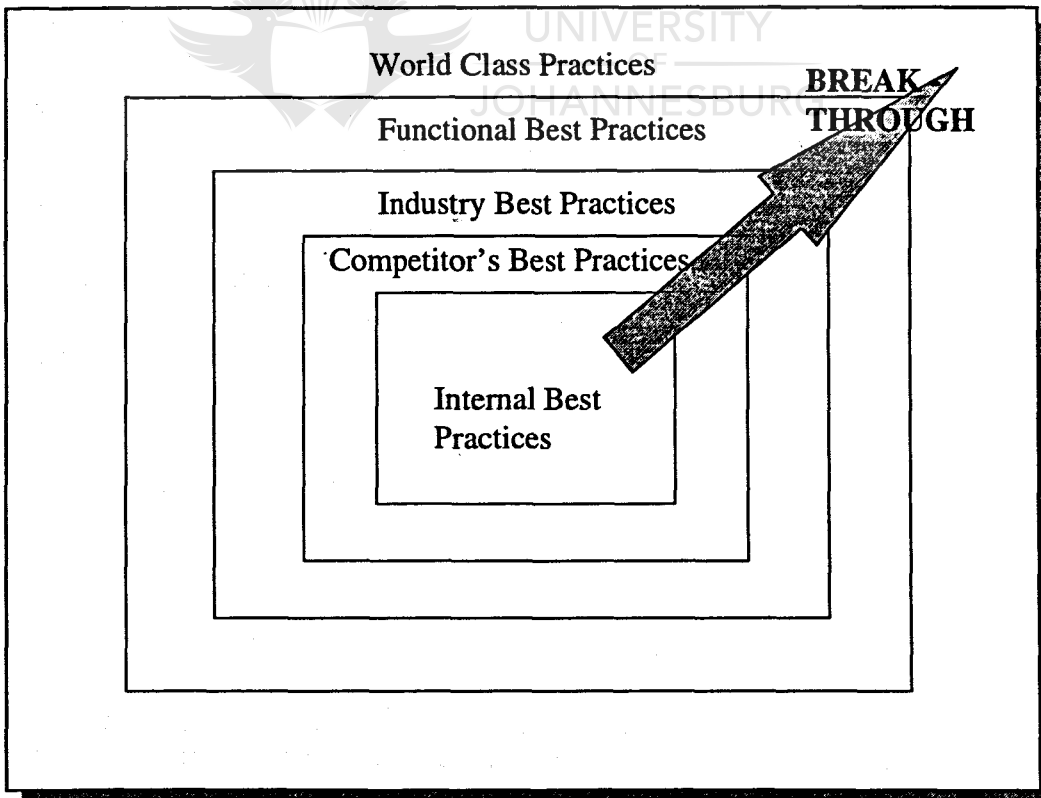


Figure 2-5 Breaking Through (Source: Spendolini^[11])

Benchmarking is a step change process. As seen from *figure 2-4 and 2-5*, the size of the step is dependent on the scope of the search for the best practice. Benchmarking sits side by side with continuous renewal in that an organisation will always be seeking to improve its performance. Benchmarking will “kick” the performance of a critical process up to a higher level (see *figure 2-6*).

There are many reasons for benchmarking, but probably the most important one is that benchmarking helps the business to focus on all the imperatives involved in customer satisfaction, process performance and business results. Any process or practice that can be defined can be benchmarked, as for example:

- Strategic planning – practices for developing short- and long-term plans.
- Product comparisons – comparing with competitors or best practice organisations.
- Forecasting – predicting trends in relevant areas.
- Goal-setting – establishing performance goals in relation to state-of-the-art practices.
- Management models/systems – setting down performance measures and contracting employees throughout the organisation, whilst linking all of this up with the strategic architecture of the company.

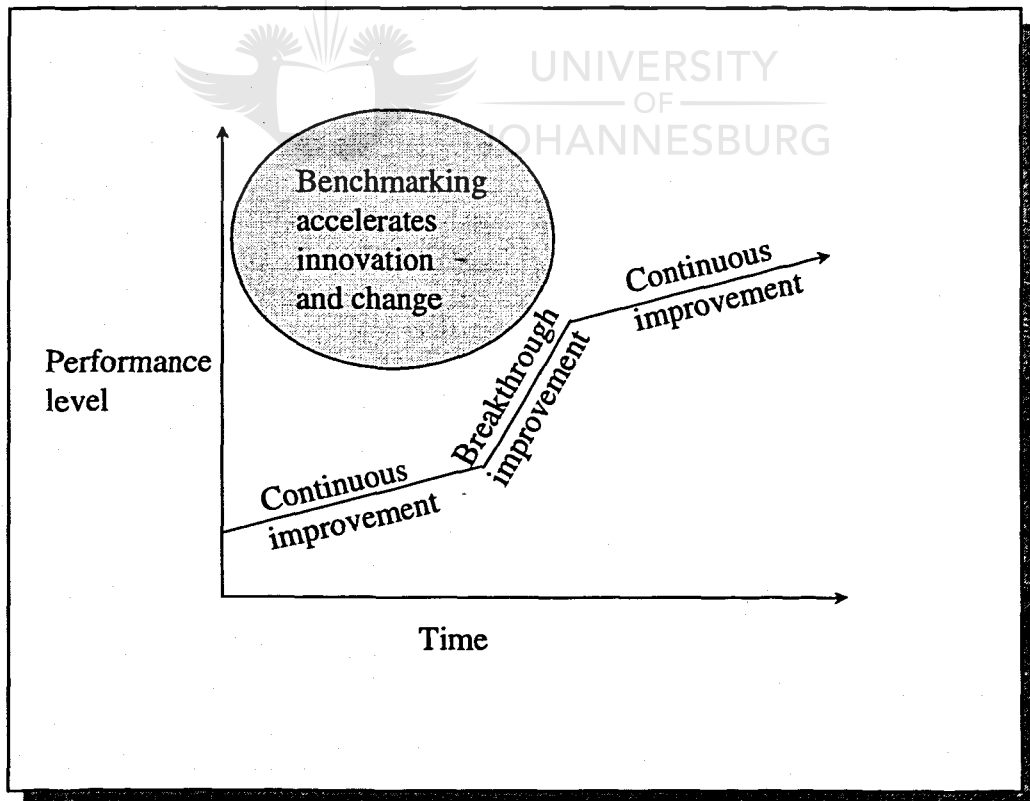


Figure 2-6 The Step Change

2.5 Five important benefits of benchmarking

Robert Camp identified five important benefits for benchmarking^[4]:

- i) End user requirements are more than adequately met.
- ii) Goals based on a concerted view of external conditions are established.
- iii) True measure of productivity is determined.
- iv) A competitive position is attained.
- v) Industry best practices are brought in to awareness and sought.

The key reasons for benchmarking and the contrasting results can be seen below (shown against the 5 benefits) in *Table 2-1*.

Benefit	Without Benchmarking	With Benchmarking
End user requirements are more than adequately met.	<ul style="list-style-type: none"> • Based on history/gut feel • Perception • Low fit 	<ul style="list-style-type: none"> • Market reality • Objective evaluations • High conformance
Goals based on a concerted view of external conditions are established	<ul style="list-style-type: none"> • Lacking external focus • Reactive • Lagging industry 	<ul style="list-style-type: none"> • Credibly, unarguable • Pre-active • Industry leading
True measure of productivity is determined.	<ul style="list-style-type: none"> • Pursuing pet projects • Strengths/weaknesses not understood • Route of least resistance 	<ul style="list-style-type: none"> • Solving real problems • Understanding outputs • Based on industry best practices
A competitive position is attained.	<ul style="list-style-type: none"> • Internally focused • Evolutionary change • Low commitment 	<ul style="list-style-type: none"> • Concrete understanding of competition • New ideas of proven practices/technology • High commitment
Industry best practices are brought in to awareness and sought.	<ul style="list-style-type: none"> • Not invented here • Few solutions • Ave. of industry process • Frantic catch-up activity 	<ul style="list-style-type: none"> • Proactive search for change • Many options • Business practice breakthrough • Superior performance

Table 2-1 Comparison: With or Without Benchmarking

While one can debate the adjectives and descriptions used to highlight between the differences using traditional approaches and benchmarking in each of the five categories, the statements are more correct than not. The comparisons should give the middle management ranks of most large organisations no small amount of anxiety over what they truly have accomplished in attempting to become productive or competitive and attain a leadership position

2.5.1 Conformance to specifications

It is helpful to think about meeting customer requirements by considering a business function as an overall process consists of many smaller processes. A function's effort to satisfy the end user's requirements consists of many distinct internal processes. Each individual process should satisfy its customer's requirements until ultimately the external customer is satisfied. The typical individual words process, whether it delivers a physical process or a service to a customer consists of tree basis steps: input, process and output. The output, either product or service is expected to satisfy the process's next customer and eventually the end user. The output, for example, can vary for providing the features and functions of an office product to the options on an automobile to how customer inquiries and complaints are handled. The end result, the output, is something of value that meets the needs of the next customer in the process or those of the ultimate customer.

If the focus of the organisation were strictly internal, the organisation would attempt to rely on its own perceptions of what the customer wants. This internal focus will not develop practices and strategies that meet the needs of the end user. Only an external focus will ensure that customer requirements are determined, documented, and eventually implemented. Benchmarking is the process for uncovering those needs by searching out best industry practices.

If best industry practices are uncovered, by definition they adequately meet customer requirements. One criterion of widely accepted practices is that customer needs are satisfied. Therefore, understanding the work practices of industry leaders results in close conformance to what customers want. Understanding the work process output and benchmarking it against the best in the industry reveals true customer requirements. Best practices would not exist if users did not prefer them.

Benchmarking confirms the belief that there is a need for change. It does this in the context of seeking to satisfy customer requirements in order to remain competitive - and to do it right the first time.

2.5.2 Combining all the external factors in the establishment of goals and objectives

Benchmarking is an alternative to the traditional way of establishing goals. It is believed to be the most effective way to get results. While goal setting is an on going evaluating process, the concentration on the external environment as the basis for those goals is the only effective way of accomplishing the task. There are other goal-setting procedures, like strategic planning and programme management. Extrapolation of past trends and practices is a common approach. But these

methods have generally failed managers because the external environment was changing at a pace significantly faster than projected. The competitive market place in the past few years has proven the risk of goal-setting exercises.

Benchmarking forces a continual focus on the external environment. It also forces that focus at all levels of an organisation, including the work process level, because all functions and work units need to be focussed to the external world on a timely basis. Not only does benchmarking ensure this focus, but it also constantly validates and adds credibility to the goal-setting process by its concentration on the best in the industry.

There are also behavioural benefits to using benchmarking for goal setting. If performance levels are set to those of the functional leader in a field or profession, then all the energy within the organisation must be turned towards that single focus point. The process of benchmarking will also promote directly or indirectly effective teamwork by concentrating on external practice. The review, sifting of findings, debate about applicability, and modification for implementation is a healthy process that gets everyone to concentrate on what is best for the business. This eventually leads to consensus on what should be done. While the review process might be lengthy, the resulting commitment to common, ambiguous, credible goals makes implementation much easier.

Benchmarking confirms what is wanted and needed to change. It does this in the context of determining the right goals, objectives, and measurements on which to judge performance.

2.5.3 Measure of productivity in terms of quality, time and cost

True productivity is derived when workers at all levels are solving real problems in the business. That is, workers are concentrating on understanding their outputs and how to satisfy the next in-line user or the ultimate consumer. The process comes from an appreciation of what the organisation does well and on understanding of how other organisations do those not-so-well-done things better. Benchmarking is the process of obtaining these basic understandings and converting them to action that will result in true productivity.

Benchmarking is a proactive way to affect change. The organisation understands its strengths, recognises its weaknesses, and knows how the external world best performs those practices that require modification. Benchmarking promotes ownership that ensures customer satisfaction, including quality, cost, and timeliness.

2.5.4 Establishment of a competitive organisation

Benchmarking provides an increased awareness of products, costs, markets, and processes that ensure effective business plans are developed. A constant external focus and continuous testing of ideas, methods, practices, and their incorporation in plans and programs can achieve long-term competitiveness. To become competitive one must understand competition. This is one focus of benchmarking - the focus on direct product competitors. Benchmarking in its most thorough application goes beyond looking solely at competitors and uncovers the best practices, wherever they might exist, in any industry. Canvassing for proven practices and technology across a wide spectrum of industries brings ultimate competitiveness. A competitive leadership position means that process strengths have been capitalised on wherever they have been practised.

The benchmarking process by nature challenges the current way of doing business by bringing in new ideas and practices from the outside. These new practices are used to build functional strategies and business plans. The strategies and plans are later converted into commitments to resources and action plans in the budgeting cycle. This process of external view, finding strategy formulation, and plan commitment is what ultimately results in becoming competitive.

In many cases, industries have not changed until the pain of competition was severe. This approach has proven disastrous, either life-threatening surgery must be performed or the lead-time to change doesn't permit catching the competitor's pace. Benchmarking helps recognise the pain before it occurs. The principle way benchmarking does this is by painting a picture of the desired state based on benchmark finding of industry best practices. Benchmarking helps develop a picture of how the operation should look after the change to attain superior competitive performance. This is a powerful way to become competitive not to exceed the competition.

2.5.5 Moving towards the cutting edge of the industry

The benchmarking process brings about an awareness of the external world. Its greatest value is in learning about practices used by others that are better than those currently in place. The external practices can be used directly, adopted, or used to modify current practices to provide useful internal change and improve efficiency and effectiveness. It is a process to find a better way rather than attempt to re-invent the wheel.

Identifying industry best practices also breaks down the no-invented-here syndrome, since finding proven best industry practices already in operation effectively negates an argument of not being usable. Benchmarking effectively

develops new ways of doing business and challenges the business as usual short-sightedness. It is a structured way to study other organisations and to adopt industry best practice to compliment internal operations and incorporate creative new ideas. The combination of internal review of operations, structured benchmarking, creative innovation, and business judgement leads to improved strategies and satisfied customers.

Uncovering industry best practices through benchmarking is the sure route to superior performance. By not focusing benchmarking efforts solely on one's own industry, there is a greater chance of a breakthrough in business practices and implementation of proven technologies.

2.6 *Benchmarking's Critical Success Factors (CSFs)*

Successful benchmarking projects always go along with the three A's: Adopt, Adapt and Advance.^[2] After going through a couple of chosen processes, a successful benchmarker will adopt the best, adapt them to their own working environments, and advance performance through careful implementation and continuous renewal of the processes or practices. For the three A's to be implemented successfully there are several critical success factors that are needed^[2]. A well designed benchmarking system and performance measurement is needed, but there are also other factors:

- Executive commitment for benchmarking
- A clear understanding of the business processes to be used as comparison with the industry's best
- An openness to innovative ideas in relation to existing processes and a willingness to adapt to change.
- A willingness to share information with benchmarking partners.
- A realisation that you must start building "walls" for competitors and therefore must focus on industry leaders.
- A total focus on benchmarking so that benchmarking became a continuous process of renewal.
- Resources should be made available.

It is important to understand what makes benchmarking successful so that the practices that support benchmarking can be put in place early. The benchmarking investigations can thus be conducted in the most positive environment, and success will be enhanced.

2.7 *Levels of Benchmarking*

Benchmarking has gained tremendous influence and currency in the 1990's.^[2] Correspondingly, front-line employees and operating managers have applied basic

benchmarking skills in scores of different situations. Among these applications three different levels of benchmarking have proliferated, namely process, performance and strategic benchmarking.

2.7.1 Process Benchmarking

Process Benchmarking focuses on discrete work processes and operating systems, such as a customer compliant process, the billing process, the order fulfilment process, the recruitment process, or the strategic planning process. This form of Benchmarking seeks to identify the most effective operating practice from many companies that perform similar work functions. Its power lies in its ability to produce bottom line results. If an organisation improves a core process, for instance, it can quickly deliver performance improvements. These performance improvements may be calculated through increased productivity, lower costs, or improved sales, but their net effect frequently translates into improved short-term financial results. For this reason, managers that seek short-term performance improvements, tend to use process benchmarking.

2.7.2 Performance benchmarking

Performance benchmarking enables managers to assess their competitive positions through product and service comparison. Performance benchmarking usually focuses on elements of price, technical quality, additional product or service features, speed, reliability and other performance characteristics. Reverse engineering, direct product or service comparisons, and analysis of operating statistics are the primary techniques applied during performance benchmarking. The automotive, computer, financial services, and photocopier industries, among others, regularly imply performance benchmarking as a standard competitive tool.

2.7.3 Strategic Benchmarking

In general terms, strategic benchmarking examines how companies compete. Strategic benchmarking is seldom industry-focused. It roves across industries seeking to identify the winning strategies that have enabled high-performance companies to be successful in their marketplaces. Numerous Japanese corporations are accomplished strategic benchmarkers. It is not surprising that Japanese corporations, which characteristically focus on long-term time horizons, should be most interested in strategic benchmarking. Strategic benchmarking influences the long-term competitive patterns of a company. Consequently, the benefits may accrue slowly. Organisations seeking short-term benefits, such as those reflected in quarterly performance reports usually find the process benchmarking produces results more rapidly.

2.8 *Different types of benchmarking*

Competitive analysis is often confused with best practice benchmarking. What is the difference? Competitive analysis will deliver measures against which an organisation can compare its own performance. In this case, however, little is achieved. What an organisation is often performing is competitive analysis to obtain benchmarks against which their own performance can then be compared.

Best practice benchmarking goes beyond competitive analysis in that here the actual processes that deliver the level of performance are uncovered. Best practice benchmarking can be divided into three different categories^[2,11,12]:

- Internal best practice benchmarking
- Competitive best practice benchmarking
- Functional best practice benchmarking

2.8.1 **Internal best practice benchmarking**

This type of benchmarking occurs where a company searches for best practice within its own boundaries. A good example can be found at Kodak, where they have “Kodak Class” benchmarks defined for all key processes.^[12] Through the use of such a system, each location is encouraged to bring its performance up to the level of the internal benchmark, thereby raising the performance of the company as a whole.

Internal benchmarking has the advantage that data is easier to collect, because there are fewer barriers to surmount since everybody is in the same boat. The main drawback is that the level of excellence of the results is determined by the level of performance of the best practice within the organisation only.

2.8.2 **Competitive best practice benchmarking**

It involves identification of products, services and work processes of one's organisation's direct competitors. This type of benchmarking is possibly the most difficult as competitors have a habit of wishing to keep their competitive advantage to themselves. The objective is to identify specific information about the competition's products, services, work processes and business results and compare them against one's own organisation. It is a useful exercise to position the organisation in the marketplace.


2.8.3 Functional best practice benchmarking

One disadvantage of benchmarking against one's competitors is that one will only ever become as good as your best competitor, or will only ever improve as their performance marginally. If an organisation wants to outperform its competitors by a wide margin, than functional benchmarking should be considered. This approach is more difficult since the identification of partners is not as straight forward, but the advantages far outweigh the disadvantages.

Functional benchmarking involves identification of products, services and work processes of organisation's that may or may not be direct competitors. The objective of functional benchmarking is to identify best practices in any organisation that has established a reputation of excellence in a certain area or process.

The most frequent cited example of functional benchmarking is the case of Rank Xerox and LL Beam. Xerox identified LL Beam as the industry leader in order fulfilment and warehousing operations. Xerox then carried out a fractional best practice benchmarking study and discovered that although Xerox and LL Beam had a similar packing process, the LL Beam process three times faster.^[11,12]

2.9 Conclusion



Benchmarking can be viewed as essential concept that each company should have as a core competency. It is important to note that no company can sit back and relax and *wait* for the future, because one cannot look at the future as a continuation of the past. It is important to start "creating the future" and the first step in that direction is by achieving a certain level of benchmarking competence.

It is important to gear oneself for a benchmarking process, by deciding on what level of the business this should be done, to what extent and what the primary measures should be. To get the full value of such an exercise it is important to have a good performance measurement "tool" in place and to measure the "hard" and the "soft" issues concerning the specified benchmarking domain.

CHAPTER 3

A BENCHMARKING FRAMEWORK



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3. THE BENCHMARKING FRAMEWORK

“A journey of a thousand leagues begins with a single step.”

Chinese Proverb

*“The point of philosophy is to start with something so simple
as to seem not worth stating, and to end with something so paradoxical
that no one will believe it.”*

Bertrand Russell



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“Though this be madness, yet there is method in't.”

William Shakespeare

3.1 Introduction

When a process, with such a high impact as benchmarking, business process re-engineering or total quality management is conducted, some kind of a methodology or framework must be in place to guide the process. Quality management, for instance, has the ISO 9000, EFQM (European Foundation for Quality Management) or the Malcolm Baldrige frameworks as a starting point to conduct such a process.

The objective of chapter is to establish a “Roadmap for Benchmarking” with sequential steps to follow when conducting a benchmarking exercise.

3.2 The Roadmap for Benchmarking

When one study the literature, there’s a lot of different frameworks that are being suggested by the various authors.^[1-10] There also is a significant difference between the number of steps that’s been used (from 7 to 14 steps):

The framework that was decided on as basis, is the Rank Xerox format of Robert Camp^[5]. The “Roadmap for Benchmarking” can therefore seen as a sequence of 10 steps (see *figure 3-1*). As mentioned, such a model is essential for a successful benchmarking project

The rest of the chapter will be spent to populate this framework with more detail steps and sequential sub-activities.

3.2.1 Step 1 – Decide what to benchmark

3.2.1.1 Objective

Select a process to benchmark, but not just any process. The process should be one that:

- will achieve a significant performance improvement
- is manageable given the time and resources
- will leverage priority goals and objectives
- will improve process practices and results.

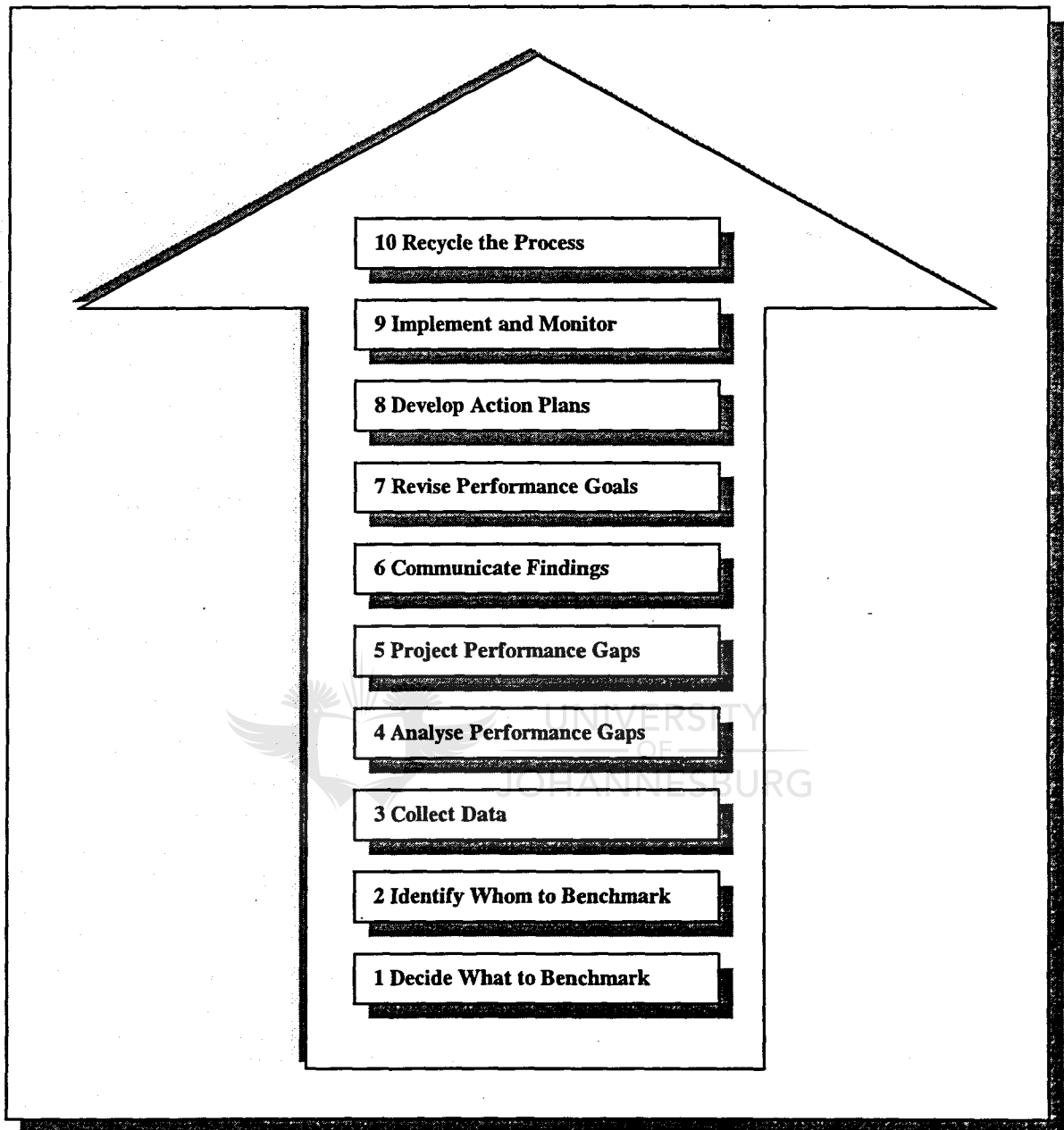


Figure 3-1 The Roadmap for Benchmarking

(Source: Adapted from Robert Camp^[5])

3.2.1.2 Key issues

When conducting this step, there are certain factors that should be taken into consideration and somehow be addressed. These factors are the following:

- What processes are being benchmarked?
- Why was this process selected?
- What do one want to accomplish?
- Have he process been documented?
- How will the process be measures?
- Have the needs for improvement been identified?
- Is this project aligned with the strategic intent?
- Are the right players on the team?
- Is there sponsor commitment to proceed?
- Do one understand the issues that are driving this project?
- Have realistic timetables been set?
- Do one have resources to complete this project?

3.2.1.3 Output

The following deliverables should be derived when conducting this step:

- Functional organisation charted.
- Project aligned with strategic intent (vision, mission, objectives and strategies).
- Process mapped.
- Project topic defined.
- Process flowcharted.

3.2.1.4 Sub-activities

The following sub-activities have been sequentially determined to complete this step:

- i) Review organisation chart
 - See where the team fits in the organisation.
 - Review how related groups' upstream and downstream might be impacted by strategic changes.
 - Review the team composition and the role of the members in the project.
- ii) Create a high-level process map
 - Create/review a macro process map.
 - Identify the external customers, suppliers and functional boundaries.
 - Relate work process to organisation chart and core process.
- iii) Narrowing the project topic to one process by:

- assessing each process and its ability to contribute towards goals
- prioritisation of process outputs.
- iv) Flow chart the sub-processes
 - After project boundaries are drawn, draw a sub-process flowchart.
 - Name the project and identify project milestones, output, next-in-line customers, suppliers and inputs. It is very important to label all work steps, to ensure that the holistic view of the project is not lost.
- v) Analyse the workflow
 - Identify areas where problems/improvement opportunities occur (e.g. huge costs, overstaffing, long cycle time, high error rates, frequent breakdowns, customer complaints, cost overruns, excessive delays, technology trends, fumbled dispatches, etc.).
- vi) Identify the key performance areas in the process:
 - process output
 - customers
 - requirements
 - inputs
 - suppliers.
- vii) Identify critical measures
 - Define critical performance measures.
 - Discuss existing data.
 - Review what else is needed.
- viii) Adjust the focus
 - Decide whether the project scope is too broad or too narrow.
 - Make adjustments so that the project is manageable and produces a high payoff.
- ix) Prepare and present a project description/mandate
 - Confirm the need to do a benchmarking exercise.
 - Summarise project plans in a single report.
 - Presents to project sponsor and obtain buy-in for the project.

3.2.2 Step 2 – Decide whom to benchmark

3.2.2.1 Objective

The purpose of this step is to identify organisations using world class practices who might be willing to become benchmark partners.

3.2.2.2 Output

The following deliverable should be derived when conducting this step:

- Identified benchmark partners.

3.2.2.3 Sub-activities

The following sub-activities have been sequentially determined to complete this step:

- i) Create a preliminary list of names
 - Exploit four sources of benchmark partners.
 - Create a World-Class practice comparison matrix, comparing the companies from literature and publications.
 - Brainstorm a preliminary list of potential partners.
- ii) Expand or narrow the list of names
 - Narrow the preliminary list by:
 - benchmarking fewer steps
 - setting a common constant for comparison.
 - Expand the list by broadening the industry definition.
- iii) Develop additional names
 - Contact a librarian, research assistant or professional researcher and explain the project objectives and what you need. Enlist their help to identify the names of potential partners. Begin networking by:
 - investigating public domain sources
 - contacting research trade associations
 - consulting the *Encyclopædia of Trade Associations*
 - researching other sources (BENSA, The Benchmarking Exchange, Benchmarking Clearinghouse, Strategic Planning Institute, etc.)^[1-10]
 - contacting consultants or other industry specialists.
- iv) Conduct mail and telephone surveys
 - Use mail surveys and telephone calls to identify and qualify candidates.
 - Create surveys and mail/telephone candidates to screen candidates.
 - Identify the most qualified names and send an expanded survey questionnaire to these candidates.
 - Continue this refining process until there are a manageable number of names.
 - Contact these candidates to determine if they are interested in becoming benchmarking partners.

- v) Set down the final list of partners
 - Use a constant for comparison to broaden your list of names.
 - Broaden the industry definition.
 - Add more names to the list.
 - Use exclusion/inclusion criteria to finalise the list.
 - Develop criteria for relevance, accessibility and innovative practices.
 - Refine and finalise the list.
 - Look for partnering matches.

3.2.3 Step 3 – Collect data

3.2.3.1 Objective

The objective of this step is to conduct a well-planned and systematic investigation of world-class operations and identification of best practices for emulation.

3.2.3.2 Output

The following deliverables should be derived when conducting this step:

- The compilation of a site visit questionnaire.
- The compilation of a site visit summary report.
- The best practices identified.
- Competitor product reverse engineering.

3.2.3.3 Sub-activities

The following sub-activities have been sequentially determined to complete this step:

- i) Develop a site visit questionnaire
 - Brainstorm site-visit questions. It is important that questions are:
 - realistic
 - answerable
 - focussed on critical steps and measures
 - not naïve
 - not too broad, but more explicit
 - focussed on the subject and will reveal the superior work practices
 - not too many.
 - Refine and prioritise the questions.
 - Never ask a question unless you are prepared to share the same information about your own work process.

- Test questions internally. Testing the questions internally will:
 - get operational personnel involved
 - reveal deficiencies of your own preparation
 - answer questions about your own operation
 - clarify what issues are most important (prioritisation)
 - identify which questions can not be answered for your own operation, and are not worthy to ask for someone else
 - help gain “buy-in”, which reduces resistance to implementation
 - suggest necessary time for each benchmark visit.
- ii) Reverse engineer superior competitor products (optional)
 - Acquire superior competing product.
 - Tear it down.
 - Study the features and performance characteristics.
 - Evaluate pros and cons.
 - Decide which design features can be emulated.
- iii) Plan the benchmarking visits
 - Determine what data is needed, who will hold the interviews, skill and time required, etc.
- iv) Observe ethical guidelines and code of conduct
- v) Prepare for the site visits
 - Contact the partner.
 - Set expectations.
 - Send questionnaire through.
- vi) Conduct benchmarking site visits
 - Review do's and dont's.
 - Discuss priorities and visit etiquette.
 - Provide model.
 - Stay focussed on key issues.
- vii) Debrief the site visit and compile a summary report
 - Review and summarise findings into a site-visit report.
 - Provide model.

3.2.4 Step 4 – Analyse performance gaps

3.2.4.1 Objective

The objectives to accomplish in this step are:

- determine which processes are superior and why by measuring the performance gaps
- compare operational differences between processes and select the best of best practices
- combine the best of best practices in a redesigned process
- estimate the value gained by adopting these best practices.

3.2.4.2 Output

The following deliverables should be derived when conducting this step:

- Performance gaps identified.
- Best practices identified.
- Process redesigned.
- Performance gains analysed.

3.2.4.3 Sub-activities

The following sub-activities have been sequentially determined to complete this step:

- i) Analyse performance gaps
 - Compare one's own process to each benchmark process by all the critical performance measures. Set up a matrix by assessing the following:
 - customer satisfaction
 - output conformance
 - process performance
 - input quality.
 - Identify in what way (e.g. time, quality, cost, etc.) each benchmark process is superior.
- ii) Identify operational differences
 - Compare process maps and flow charts to identify workflow process differences and operational advantages. The process differences can be analysed by looking at the following five areas^[61]:
 - methods
 - people
 - environment
 - materials/input
 - equipment.
 - Create side-by-side descriptive comparisons and determine which process is superior and why. There are basically six ways to recognise superior practices^[61]:
 - A practice is observably more superior (less activities, people & time).
 - Large quantified output difference.
 - Expert judgement (consumer & critics reports).
 - Same practice recurs frequently.
 - Validation from several sources.
 - Preferred in open market test.

- Decide what performance advantages each benchmark process offers.
- Analyse what value is gained by adopting superior practices.
- Consider what's involved to convert to these practices.
- iii) Identify best of best practices and create a composite process
 - Decide which work practices are best of best.
 - Combine the best composite process.
 - Test several designs on paper continue experimenting until a superior process emerges.
- iv) Analyse performance gains
 - Estimate the value gained by implementing the superior process.

3.2.5 Step 5 – Project future performance gaps

3.2.5.1 Objective

The objective is to project how the composite process is going to leapfrog ahead of competition, and maybe become world class. This is a very important step, because:

- without seeing performance projections, management might not understand why a process could be vulnerable
- projecting performance trends can be difficult
- data may not be immediately available
- anecdotal evidence that a competitor has an edge may not convince management of a need to change (the first reaction to such studies is normally one of denial – “...they can not be that much better than us!”)
- the case for change is bolstered on the basis of facts and projected performance gaps.

3.2.5.2 Key issues

When conducting this step, there are certain factors that should be taken into consideration and somehow be addressed. These factors are the following:

- What has been the historical trend in recent years?
- How will industry practices change over the next few years?
- Will the performance gap widen, narrow or remain the same? Why?
- What implications will this have for your organisation?

3.2.5.3 Output

The deliverable of the step should be a forecast, which will display the following:

- The extent of the current performance will narrow, widen or remain at parity if corrective action is not taken.
- How tactical and strategic changes in work practices will close the gap and achieve performance superiority.

3.2.5.4 Sub-activities

The following sub-activities have been sequentially determined to complete this step:

- i) Select one summary measure
 - Select a single primary measure of process performance, which can be used to project future performance gaps (e.g. unit cost, % customer satisfaction, productivity per hour, defect rates, etc.).
- ii) Analyse historical trends and plot the current gap
 - Using the primary metric for the current process and the industry-best process, create a chart that shows the historical trend and current gap.
- iii) Project future trends without changes
 - Project performance gains if benchmark practices are not implemented.
- iv) Project future trends with process changes
 - Analyse future trends and project performance gains if benchmark practices are implemented.
- v) Assess the performance gains -
 - Assess the operational implications and financial worth of these performance gains and report them to all the stakeholders.

3.2.6 Step 6 – Communicate findings

3.2.6.1 Objective

The objectives to accomplish in this step are:

- consolidate the analysis findings
- present synopsis to management
- obtain approval to proceed.

3.2.6.2 Output

The final deliverable is the best practice report. Documenting benchmark findings is critical for several reasons:

- to gain acceptance of findings from owners
- to overcome scepticism (or resistance) to findings and conclusions
- to gain acceptance of proposed strategic, structural & cultural changes
- to communicate potential impacts to affected parties
- to prevent credibility problems.

3.2.6.3 Sub-activities

The following sub-activities have been sequentially determined to complete this step:

- i) Decide who needs to know
 - Decide who needs to know the study findings, and why, including customers, suppliers, management and staff employees.
- ii) Select best vehicle for presentation
 - Decide what is the best vehicle for the presentation (e.g. report, newsletter, memo, formal presentation, etc.).
- iii) Develop world class practices report
 - Develop the analysis into a “Best Practices Report”. This report consists of the following elements:
 - Study purpose – describe why the study was undertaken
 - Methods of investigation – explain how the investigations were conducted
 - Study costs – lists all the costs incurred
 - Study results – describe all process changes and gains
 - Summary of findings – review what was accomplished
 - Conversion costs – break down the costs of adopting benchmark practices

- Conversion benefits – how the organisation will benefit by the proposed process changes
- iv) Present to management and obtain approval
- Present the report to the stakeholders and obtain the approval to proceed with the project.

3.2.7 Step 7 – Revise performance goals

3.2.7.1 Objective

The objectives are to revise the operating plan and communicate the changes to all affected groups so that they can change the operating plans.

3.2.7.2 Key issues

When conducting this step, there are certain factors that should be taken into consideration and somehow be addressed. These factors are the following:

- What do these benchmark changes mean to the work group?
- How will the other work groups be impacted?
- What will it mean to the organisation?
- How will it contribute to financial goals this year?

3.2.7.3 Output

Process changes reverberate throughout the organisation and have wide-ranging implications. Before moving ahead with process changes, one should:

- formalise improvements into the operating plan
- assess the impact of practise changes on others.

3.2.7.4 Sub-activities

The following sub-activities have been sequentially determined to complete this step:

- i) Revise the operating plan
 - Analyse how changes affect your operating plan and functional goals.
The following types of changes can realise on the business:
 - Change of emphasis – new benchmarks may require a recording of priorities
 - Measurement changes – goal metrics may be revised
 - Direction – strategic/focus changes of the business
 - Absolute value changes – changing of performance standards
- ii) Analyse impact on other groups
 - Analyse how process changes impact other groups.
- iii) Obtain commitment to new goals
 - Present the findings to sponsors and stakeholders and obtain commitment before implementing changes.

3.2.8 Step 8 – Develop action plans

3.2.8.1 Objective

The objective is to make sure that the process is ready for implementation before going on-line. How much preparation is necessary will depend on how radically one has redesigned the process. If one made minor practice changes, you might be able to introduce those elements directly into the process with little or no interruption. If the process has been reengineered in major ways, it might be necessary to^[6]:

- lay out an implementation plan
- document the process
- build a new process alongside the existing process
- conduct a process walk-through
- pilot the new process off-line.

3.2.8.2 Output

There are four important deliverables for this step:

- process documented
- process walk-through conducted
- system changes implemented
- process piloted.

3.2.8.3 Sub-activities

The following sub-activities have been sequentially determined to complete this step:

- i) Document the process
 - Process documentation includes a number of tasks, including the following:
 - updating process maps and flowcharts
 - indicating start and end points
 - naming the process
 - identifying customer requirements
 - installing all measurements
 - documenting procedures.
 - Designing and producing job aids.
- ii) Conduct a process walk-through
 - After documentation is completed, it is useful to conduct a paper simulation – a process walk-through to be sure that one has full confidence that it works and that nothing has been overlooked.
- iii) Implement the changes
 - Install the process changes – construct parallel systems to test the new process without shutting down the current process.
- iv) Pilot the new process
 - Conduct a full pilot test to be sure that it produces outputs that meet all specifications all the time under normal work conditions.

3.2.9 Step 9 – Implement and monitor

3.2.9.1 Objective

The objective is to successfully implement all changes.

3.2.9.2 Output

The following deliverables should be derived when conducting this step:

- The transformation of actions and plans.

3.2.9.3 Sub-activities

The following sub-activities have been sequentially determined to complete this step:

- i) Select implementation strategy and team
 - Decide on the best approach to implement process changes and who should manage this.
- ii) Set implementation priorities
 - Decide on the joint/phased implementation of the elements.
 - Review implementation priorities and strategies.
- iii) Develop action plans
 - Decide who is responsible for each activity and set down milestones and due dates.
- iv) Manage the transformation
 - Decide how best to manage the transformation from the current to the new processes.
 - Set down the boundaries for a transformation monitoring system.
 - Obtain approval for the transformation plan from the sponsor/owner.
- v) Set up an transformation monitoring system
 - Create a tracking system.
 - Decide what should be monitored, by whom, how often and how to report progress.
 - Obtain approval for the plan from the sponsor/owner.
- vi) Bring the process on-line and monitor performance
 - Create control charts.
 - Monitor performance and respond immediately if problems or variations occur.

3.2.10 Step 10 – Recycle the process

3.2.10.1 Objective

The objective is to make sure that the process stays at the cutting edge. This is very important, because:

- in a fast-changing industry, even world-class practices can become obsolete very fast
- one must stay current with changing conditions, innovations and latest industry practices, and continue to fine tune your processes.

3.2.10.2 Sub-activities

The following sub-activities have been sequentially determined to complete this step:

- i) Monitor the process
 - Take measurements and periodically analyse process performance.
 - Take action if unusual variation occurs.
 - Survey customer satisfaction.
 - Identify and remedy problems.
- ii) Track industry developments
 - Analyse industry changes and keep abreast of process innovations.
- iii) Survey customer satisfaction
 - Stay close to customer.
- iv) Recycle as needed
 - Investigate other world-class processes.
 - Recycle the process as often as needed to stay competitive.

3.3 *Conclusion*

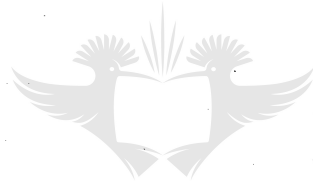
The important subject, of creating a framework for the benchmarking process, was discussed in this chapter. A “Roadmap for Benchmarking” that consists of 10 sequential steps were enunciated and the detail of step were discussed.

It is important to remember that for any benchmarking study, some kind of a framework will be needed. It does not matter whether the benchmarking study is pitched on a holistic/strategic or on a detail/operational level, because a basic framework will be used. This implies that the “Roadmap for Benchmarking” is not a rigid structure, but that the benchmarking exercise will determine the extent of detail of the process.



CHAPTER 4

PERFORMANCE MEASUREMENT



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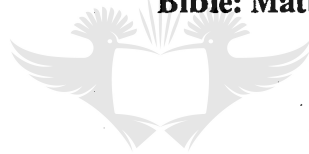
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4. PERFORMANCE MEASUREMENT

*“Ye shall know them by their fruits.
Do men gather grapes of thorns, or figs of thistles?
Even so every good tree bringeth forth good fruit;
but a corrupt tree bringeth forth evil fruit.
A good tree cannot bring forth evil fruit,
neither can a corrupt tree bring forth good fruit.
Every tree that bringeth not forth good fruit is hewn down,
and cast into the fire.
Wherefore by their fruits ye shall know them.”*

Bible: Matthew 7:16–20



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“Remember that time is money.”

Benjamin Franklin

4.1 Introduction

There have been some paradigm shifts in the business world, because of the fact that organisations need to measure their performance for benchmarking objectives. Historically, four important shifts in perspective have helped to elevate the importance of benchmarks in this performance measurement revolution.^[3]

- Organisations now more than ever recognise the importance of performance measurements or benchmarks in managing complex systems and processes.
- Customer satisfaction has emerged as a strategic goal for many organisations world-wide.
- Leading-edge managers recognise that many other non-financial benchmarkers are useful in achieving total quality excellence within complex systems and processes.
- The revolution in information technology places powerful computer hardware and software within reach of virtually every organisation. This technology enables organisations to inexpensively create, distribute, analyse, and store more data about their business than ever before.

The revolution in performance measurement is spreading rapidly. This revolution is creating a new paradigm for performance measurement. Eccles^[5] suggests that financial measures usually “represent outcomes of processes, although they do not always provide the best information about actually - or how these processes are related to one another in the big picture.”

Bogan says that there has been a change in the “dashboards” of performance measurements and that change is dual:

- The relative weight of the performance measurements has changed.
- The amount and structure of the performance measurements have changed.

Table 4-1 illustrates the evolution in the “dashboards” of the performance managers by which managers navigate their organisations (adapted from Bogan & English^[2]).

Dashboard of old Performance Measurements		Dashboard of new Performance Measurements	
Performance Measure	Relative Weight (1-4)	Performance Measure	Relative Weight (1-4)
Profitability	4	Profitability	4
Sales	2	Quality	4
Liabilities	2	Training	3
Cashflow	2	Customer Retention	3
Assets	2	Employee Retention	3
Debt	2	Customer Satisfaction	3
Costs	1	Assets	3
Capital Expenditures	1	Liabilities	3
		Debt	2
		Referral Rates	2
		Costs	2
		Capital Expenditures	2
		Cashflow	1
		Sales	1
		Cycle Time	1
		Defect Rates	1

Table 4-1 "Dashboard" of Performance Measurements
(Source: Adapted from Bogan & English^[2])

4.2 Designing successful benchmarks

Successful performance measurements describe factors critical to successful business operations. If performance benchmarks are successful, they should reflect all the important dimensions of a business, namely the strategic dimension, the process dimension, and the technology dimension.

According to Bogan & English there are four measurement elements that are especially important, when designing benchmarks. These elements are measurement focus, measurement perspective, the degree of measurement control, and the ability to collect data.^[2]

4.2.1 Measurement focus

Measurement focus is much more important than it seems off-hand. If the measurement is not found on the factors that are critical for the survival of the business, then why benchmark at all. For example, if a guy is searching for water in a desert, and he does not worry about the murderer waiting for him behind the next dune, then he is going to die anyway. One must first focus on the first problem at hand, then he can have a shift of focus to the next measurement.

4.2.2 Measurement perspective

Benchmark measures can be divided into pre-active and reactive performance measures. Traditional organisations incorporate reactive performance measures like financial statements as the primary indicators. The companies that strive towards high performance incorporate pre-active performance measures like total quality management, customer satisfaction, and order management as indicators.

4.2.3 Measurement control

Control is always a difficult measurement, because it regards the soft issues of measurement, namely people. Benchmarks must therefore reflect the individual measurement of authority, responsibility, and skills of those people expected to work with the benchmarks.

4.2.4 Data collection

It is very important to collect data in relation to benchmarks. It is of no use in setting up well-designed performance benchmarks, just to discover that there are no means of collecting the data in relation to the benchmarks. It is also important to remember that if one cannot measure it, it cannot be managed.

4.3 *The balanced business scorecard*

The 1990s is a decade of massive upheaval in the way businesses are managed. Old industrial models have been rendered obsolete due to globalisation, the convergence of information and communication technologies, and deregulation. New models that meet the needs of the so-called “information age” are taking their place. At the heart of this change, based largely on some spectacular corporate collapses due to sudden market changes, lies the recognition that judging likely future business success purely on financial performance is no longer acceptable.^[6] It was this awakening that led, in the early 1990s to the creation of a brand new model for business management: “the balanced business scorecard”. The scorecard was based on the belief that in order to secure long-term survival in a world of constant change, it is vital for the organisation to focus attention on the non-financial indicators of future profitability.

As Robert Kaplan, Athur Lowes Professor at Harvard Business School, (and the joint scorecard originator along with Dr. David Norton of Renaissance Solutions Inc.), said^[6]: “The financial measures of the most recent period performance will

tell you how well that company operated during that period. But there may be processes that they developed during that period for new products or new capabilities that will create long-term value that have yet to show up in the financial statements. And conversely, some organisations may have cut back on some of those investments in capability; in the short run this will make their financial performance look better. But in the process they have mortgaged their future.”

Essentially, the balanced business scorecard is a performance measurement, management and reporting framework, which enables senior managers to simultaneously look at the business from four key perspectives, and gain answers to four key questions (see *Figure 4-1*)^[7]:

- ❑ The customer perspective – how do our customers see us?
- ❑ The internal business perspective – which processes and competencies do we need to excel at?
- ❑ Innovation & learning perspective – can we continue to improve and excel?
- ❑ Financial perspective – how do we look to our shareholders?

The *financial perspective* is concerned with identifying the key financial drivers in creating shareholder wealth. Shareholder wealth is created when the business earns a rate of return on invested capital that exceeds its cost of capital. Growth amplifies this effect. A common analytical approach is to decompose return on equity, a common representation of return on capital, into its component ratios. The major component ratios are profit margin, asset turnover, and leverage; these should be the core of the financial perspective. Other important measures may be concerned with cash flow or working capital management.

The *customer perspective* encompasses measures of corporate or brand awareness and image, customer satisfaction, customer retention, and customer profitability. Although these measures do not have a mathematically precise relationship with creating shareholder value, as do the financial measures, they may be leading indicators of what the financial measures will subsequently reveal. For example, increases in brand awareness typically precede increases in preference, which leads to sales growth.

The *internal perspective* is primarily concerned with the efficiency of the entire business system. It will be most effective when it views the firm as a system of business processes, all of which must be coordinated for the purpose of creating customer value. Analysing manufacturing cycle time with its implications for cost and reliability may be more informative than focusing narrowly on a metric such as inventory level. Even if inventory level is critical, it is likely to be influenced by other internal processes or external demands. Potentially important business processes include order-to-delivery cycle time, response time for dealing with

customer complaints, and total labour content. Time is a key influence on many of these internal processes.

The *innovation perspective* is concerned with how effectively the business can adapt to changing conditions. In other words, how well can the firm learn to create customer value more effectively with new products and services, and more efficiently based on new internal processes? Whereas the internal perspective focuses on continuous improvement exemplified by the learning curve or experience effects, and the customer perspective focuses on learning about the business's competitive position directly from the market, the innovation perspective requires a willingness to learn through experimentation and exploration. The key is to learn from those experiences and improve on the central innovation processes. Important metrics include time from concept to market introduction, design for manufacturability, and value as a platform for future offerings.

Within these four perspectives are a series of objectives that are deemed critical to business success. Progress towards these objectives is tracked through specific measures, and various continuous improvement initiatives are launched to ensure that the measures are attained.

Crucially, and unlike other powerful frameworks, such as the EFQM (European Foundation for Quality Management) Business Excellence Model, the scorecard is non-prescriptive. The actual objectives and measures are chosen by the companies themselves to reflect their own critical success factors. Even the names of the four perspectives reflect the culture and focus of the company.

This flexibility was key to the thinking of the scorecard creators who believe that the scorecard is not a template that can be implemented "off the shelf" into any organisation. But rather, it has to be adapted to suit different markets, product strategies and competitive environments, and crucially has to have the built-in capability to change its focus quickly to respond to sudden change.

Kaplan & Norton stress that a key to successful implementation of the balanced scorecard is an adequate feedback and learning system. "The scorecard," says Kaplan "is a living, breathing thing that needs to be adjusted to meet changing strategic priorities. An effective feedback mechanism enables companies to quickly acquire new information from customer-facing staff, identify internal strengths and weaknesses and, therefore, quickly make the adjustments necessary to achieve and maintain superior performance."^[7]

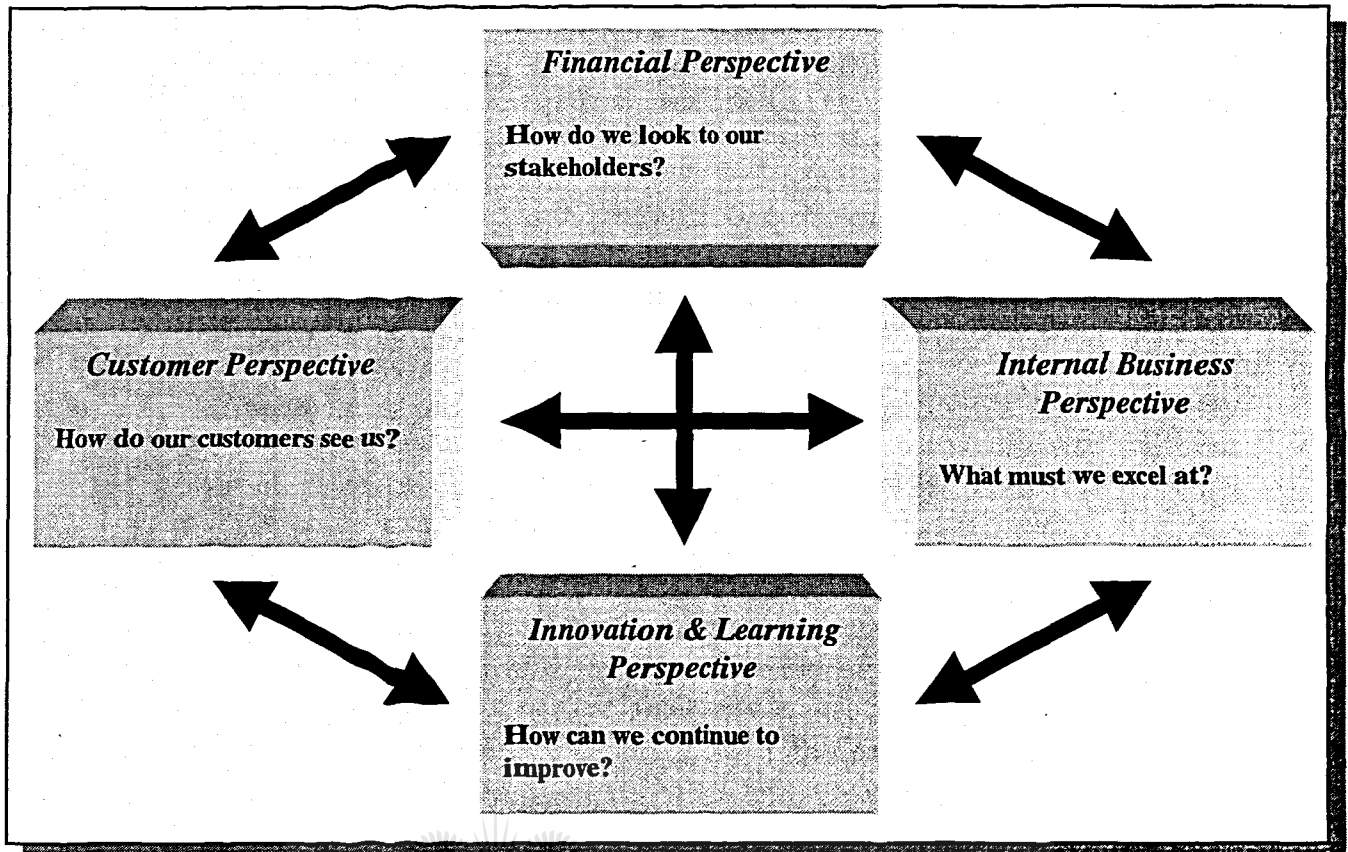


Figure 4-1 The Balanced Business Scorecard (Source: Kaplan & Norton^[7])

4.3.1 Case studies

Two case studies by James Creelman (Business Intelligence) were discussed in the August 1996 edition of *The Benchmark*, referring to achieving a balanced performance measurement system.^[4] The two companies that use the balanced business scorecard are discussed below.

4.3.1.1 BP Chemicals

BP Chemicals is one company that has adapted the balanced business scorecard for its own needs. BP Chemicals foresee that, ultimately, financial goals are the most important. The top measurement has to be the financial measurement. However, this is the end result, an output measurement, so it's important to look one level down at the drivers of the financial results. BP Chemicals' main financial goal relates to a specific return on capital (ROACE) target and so it is aligning its activities and measurement systems world-wide towards that goal.

In the early 1990s, BP Chemicals was measuring a lot of important performance indicators separately, until it became apparent that they should be pulling them all together into one framework. To create this framework, they first identified eight critical success areas, which provided for attaining this goal and chose 15 integrated performance measures (IPMS) for monitoring improvement within these areas. These levers cover hard financial areas such as margin and capital efficiency; production measures such as reliability; health and safety issues as measured by emissions and accidents; and softer areas such as customer, employee and community attitude, all measured objectively by surveys.

BP Chemicals believes that a key strength of the framework is that it vertically links top-level goals to everyday activities. Company and divisional level goals are cascaded down through the business where they are translated into local measures and objectives that support the top-level goals. They also believe that in a devolved, empowered and geographically diverse organisation you need a framework of common goals and values to keep the company pointing in the same direction.

It is in creating this concrete link between the strategic goals, as set by the board, and the company's everyday operations that the real power of the scorecard becomes evident. It takes a strategy and operationalising that strategy with a series of objective measures and initiatives to a level of detail that is rarely done in strategic plans. It therefore provides a defined action base from which to measure and to manage, against which you can assess performance and make adjustments.

If the outcome is compared against *Figure 4-1*, the similarities can be seen in the fact that strategic initiatives were identified and from that a determination of an action plan base. The primary issues and factors are therefore the same.

4.3.1.2 Cigna Property and Casualty

A best practice example of an organisation that has used the scorecard to operationalise its strategy is US-based insurance carrier Cigna Property and Casualty (P&C). A 6000 strong employee company, with close to \$3 billion in premiums and \$4.5 billion in revenue, it has used the scorecard to drive a strategy of major corporate transformation.

Transformation at Cigna P&C began in April 1993 with the appointment of a new divisional vice-president. On arrival he found a company which had very poor financial results and very poor relations with its producers (the agents and brokers who work with its customers to select policies and assess risks). It had also lost its key underwriting skills and morale was very low. At the time, Cigna P&C was a generalist insurance carrier and so the top team made the strategic decision to re-focus the company as a specialist carrier. To illustrate the difference, a generalist

carrier might offer worker compensation to all organisations regardless of size in all industries, whereas a specialist carrier might focus on companies of a specified size in two or three industries.

The challenge was, therefore, to transform the organisation into a specialist carrier that was a top performer in that business unit portfolio. Instead of dealing with a wide variety of producers, they had to deal with a select few, who understood their business and risk appetite. They also had to re-establish underwriting as a key discipline. To manage such a transition they really needed a strategic management system that covers the four perspectives of balanced business scorecard.

The critical first step for Cigna P&C was to clarify and gain consensus from the senior managers of the 18 business units as to the common framework for its transformation and for attaining the goal of a top performer. The scorecard helped them to do this by enabling the organisation to define the key objectives, common throughout the company, that were critical for successful transformations. Cigna P&C chose 12 key objectives. Four from the financial perspective (e.g., profitable growth), two external (e.g. build and strengthen relations with target producers, four internal (e.g. implement the specialist strategy in selected markets where they have an advantage) and two from learning and growth (e.g.. upgrade the competencies). The objectives for the three latter perspectives all feed through to the financial perspective.

The next challenge was to determine the specific initiatives that each business had to develop to support our strategic objectives. Therefore, they devised a series of questions that set each business unit to focus on the key non-financial indicators that would deliver the financial results that they were looking for. This, importantly, enabled the business units to determine the key leverage points for their own business and to create tailored initiatives and measures.

Vitaly, Cigna P&C has focused heavily on ensuring that effective communication mechanisms are in place that enable the company to ensure buy-in to the scorecard goals. To get ownership throughout the company one has to have absolute clarity about the results that one is looking for and communicate clearly the role that individuals have to play. To help achieve this the company has set a management review process. This starts with the executive review, which is essentially a forum of the divisional vice-president and his direct reports been created in order to ensure that the company is clearly focussed on the high and leverage points for each of the business units. The agenda for which is set by the findings from the business unit meeting are then communicated through to employees in the unit.

“There's a holy grail of management,” says David Norton, “that if the things that chairman worried about at night were the same as the people on the front-line worried about, there would be no worries in the organisation. Through the use of the balanced business scorecard, we're finding companies where this is starting to

happen. In some organisations, people have their own personal scorecards which detail their own objectives and how these relate to the corporate level objectives.”^[7]

4.4 *Strategy-Based Performance Measurement*

Probably everyone has peeked into the cockpit of an airliner as they disembarked after a flight. What one saw as a dizzying array of gauges, dials, switches, and various instruments was actually the control system of a complex and sophisticated network of equipment, the purpose of which is to convey passengers safely to their final destination. Control systems vary, however, depending on the type of equipment in use. The information needs for safely flying a Turbo-Prop are a great deal different from those for flying the Boeing 747 because of the fundamentally disparate propulsion systems of the two planes.

Managers face a similar situation in executing the strategies that make up the “propulsion systems” of their businesses. Every business needs a control system that is matched to the strategy it uses to stay “in the air.” The framework provided here can help match the components of a company’s control system to its market strategy. To illustrate this framework, four generic market strategies are described and the broad parameters of a control system, that tracks a firm’s performance from multiple perspectives, examined. Then it’s also shown how a firm can, and should, customise its control system to track the key performance indicators defining its strategic effectiveness.

4.4.1 *Market Strategy*

According to Slater & Narver, a market strategy^[13] has two fundamental objectives. The first and the most important, is to create superior customer value. Others would rephrase this to say the objective is to achieve competitive advantage. However, the first phrase has an important, if subtle, distinction. The superior customer value perspective, also known as a market orientation, clearly focuses everyone in the organisation on customers’ needs rather than on competitors’ products, thereby helping the business act rather than merely react. The second objective is to create economic value for the owners of the business. Although creating economic value is necessary for a firm to acquire the resources required for market expansion or new product development, it is not the focus of strategy making. Superior economic performance is the result of a strategy that creates superior customer value. Nevertheless, economic performance is an important yardstick for assessing strategy effectiveness.

A recent book by Treacy and Wiersema^[14], describes three generic market strategies – product leadership, customer intimacy, and operational excellence –

that the authors argue are representative of the strategies of most successful businesses. Aaker^[1], on the other hand, put a lot of emphasis on one other strategy type, the brand champion, which also is employed by many successful firms. All four have a strong foundation in academic research as well. The benefit of the similarity to previous frameworks is that it allows one to draw on two decades of research into the key success factors associated with each strategy type.

No one strategy is generally superior to the other three. On average, each of them performs economically as well as the others. Their successes depend more on how well each is executed and less on the market environment of the business. In other words, a well-executed product leadership strategy can be successful in both dynamic and stable markets, as can a well-executed customer intimacy or operational excellence strategy. Each strategy does have its own key characteristics, as well as its individual requirements for execution.

Product leaders seek to identify emerging opportunities and continuously strive to develop and deliver new products that exceed existing performance boundaries. They look for first-mover advantages that accrue to pioneering businesses from the often short-lived monopoly position the product enjoys, from the resultant reputation for innovation, from preferential access to both suppliers and distributors, and from the potential for creation of customer loyalty or buyer switching costs. The key task for product leaders is to maintain an environment in which focused creativity can flourish.

Of course, this type of activity requires a culture that encourages experimentation and risk-taking, one in which well-developed plans that fail are often celebrated rather than punished. Product leaders usually work in multifunctional teams so that communication among the key areas of marketing, R&D, and production is rapid, leading to shorter response times and development cycles. They recognise the importance not only of profitability, but also of developing platform technologies and products that become the foundation for future products. The successes of Intel with microprocessors, Microsoft with PC operating systems as well as McKinsey & Company with cost-cutting consulting are clear examples of this principle.

Customer intimacy is the strategy of companies such as IBM as well as some of the smaller consulting firms. They focus their efforts on building strong relationships with a select group of customers whose needs they understand deeply and who are willing to pay a premium for the service or special attention they receive. Accompanying this orientation is a focus on the lifetime value of a relationship, not just the profit from an individual transaction. From the business's perspective, it costs only about one-fifth as much to make an additional sale to an existing customer as it does to attract and to a new one. Thus, the concepts of "customer equity" and "customer share" instead of market share are central to the customer-intimate business.

Brand champions are the mass-market counterparts of customer-intimate businesses. Companies such as Coca-Cola invest heavily in advertising to build up the value of their brands. The value of a well-respected brand name emanates from its ability to convey important information about a product quickly. Consumers understand that a strong brand can reduce the risk of getting stuck with disappointing or faulty products. Strong brand names also enable a company to avoid expensive and ineffective price promotions and maintain price premiums even in the face of competition from private-label products.

Superior marketing capabilities are the foundation skills of the brand champion. Specific skills crucial to building and maintaining brand value include market segmentation and analysis, positioning through the creative use of advertising and other media, and maintaining good channel relationships. Because brands cannot be targeted efficiently to individual consumers, the brand champion must be skilled at understanding how needs, the use of communication media, and a willingness to pay a premium vary across market segments. This comprehensive knowledge of the customer base enables the brand champion to target the most promising segments of the market and select the most effective positioning strategy. The purpose of the positioning strategy is to convey meaning to the consumer, which can be accomplished by focusing on brand benefits, brand attributes, company values, or brand personality, among other characteristics. The objective of the positioning strategy is to create an enduring image that also has meaning for the consumer.

Operational excellence is the discipline of businesses that offer the lowest total cost to their customers. In many cases, such as with Wal-Mart and Southwest Airlines, this may mean the lowest price. In other cases, though, it means identifying other critical costs to customers, reducing them, and avoiding price competition. Federal Express charges more than its competitors for rapid document delivery. However, that price premium is more than offset by the customer's confidence that the package will be delivered on time and by FedEx's ability to provide real-time document tracking. So the total cost to the customer associated with the document and its delivery is lower, even though the price is higher, because of the company's operational excellence.^[14]

Two operating characteristics are common to most of these businesses. The first is a commitment to standardisation and simplicity. Southwest Airlines flies only Boeing 737 planes, thereby simplifying training and maintenance. Because of the high employee turnover in the fast food industry, McDonald's has developed a set of uniform procedures that provide for easy employee training and efficient operations. The second characteristic, and one that is invisible to most customers, is the use of information technology. Whereas most of us recognise the importance of information technology to Federal Express, far fewer realise that Wal-Mart's competitive advantage is based on a sustained annual investment of

\$100-200 million in information technology that has resulted in the creation of a superior logistics capability.^[14]

4.4.2 Performance measurement and Strategic control systems

Control systems are the critical linkage between strategy execution and strategy adjustment. It is naive to believe a strategy can be successfully executed consistently without adjustments or corrections, both minor and major. Just as the captain of an aeroplane must monitor weather conditions and the performance of the plane's systems, business managers must monitor customer needs and preferences, competitors' actions, technology development, and the performance of internal processes, as well as the overall financial condition of the business. The fundamental reason one measure anything in a business is to determine when and how one should shift behaviour.

A multidimensional performance measurement and analysis system is the heart of an effective strategic control system. It provides the basis for organisational learning from an analysis of the results of the firm's actions. The importance of a multidimensional system is clear. Imagine our aeroplane captain had only one large gauge with which to monitor everything that affected the plane. Would you want to board? Then how comfortable can you be with a control system that only measures financial performance, even if it measures several dimensions of it? Financial performance is an outcome. By the time that information is available, the game, or at least the innings, is probably over. The multidimensional approach should include leading indicators so that there is an opportunity to influence the final results.

Although multidimensional approaches to performance measurement have been discussed for many years, recent work by Robert Kaplan and David Norton on the "Balanced Scorecard" seems to be the most popular among managers. As described earlier, the balanced scorecard presents managers with four different perspectives on performance from which to choose the strategy-specific measures that become the centrepiece of the strategic control system.^[7]

4.4.3 Matching performance measurement systems to market strategy

As Kaplan and Norton note, "The balanced scorecard is not a template that can be applied to businesses in general or even industry-wide."^[8] Different market strategies and competitive conditions call for different performance measurement systems. In fact, it is argued that the scorecard should not be balanced. Whereas the financial perspective is important regardless of strategy, the different market strategies should emphasise one of the other perspectives: customer focus, internal analysis, or innovation.

Business units with a performance measurement focus that complements their market strategy are generally perceived to be superior performers by senior management. This is not to say that only one of those perspectives should be recognised in a given strategic context. Instead, one perspective should dominate, with lesser attention being given to the other two.

It is proposed that a set of principles for matching market strategy and performance measurement. *Figure 4-2* depicts illustrative metrics for each market strategy.

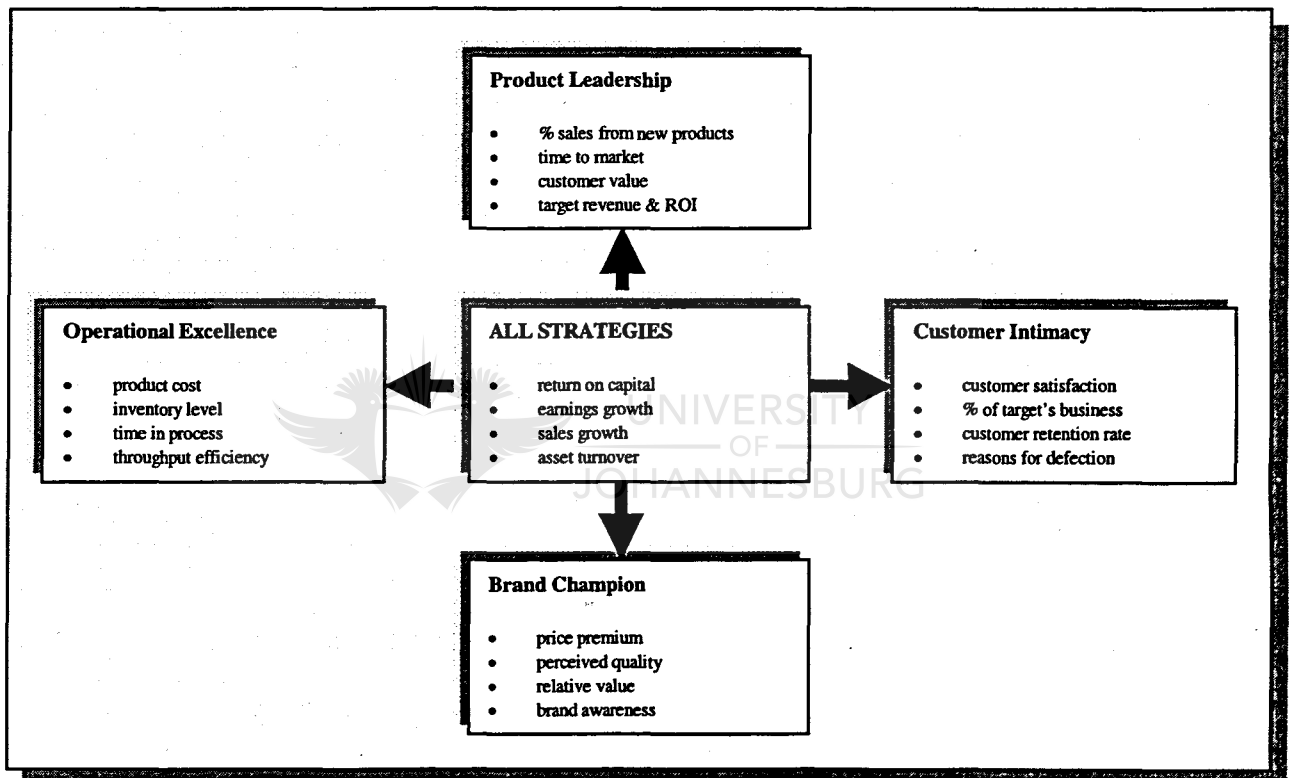


Figure 4-2 Principles for matching marketing strategy & performance measures

(Source: Adapted from Treacy & Wiersema^[14])

4.4.3.1 Product Leaders

With their emphasis on developing new products and services that push performance boundaries, product leaders must emphasise the innovation perspective when it comes to performance evaluation. Top-line indicators used by such outstanding product leaders as 3M and Hewlett-Packard include the percentage of revenues from products introduced in the previous three years, the

number of concepts under investigation, new product success rate, and return on investment. However, these measures are of limited use for real-time assessments of strategy effectiveness. Managers of product leader businesses should make use of both in-process and end-of-process measures.

In-process measures are leading indicators of whether a project will produce the desired results and whether it may be a part of phase-gate reviews. Key indicators include whether the project is on time and on budget. Candid estimations of project complexity and risk should be provided regularly by members of the project team with differing points of view. In an electronics firm, for example, estimates should be provided by hardware, software, and manufacturing engineers. Measurements of “soft” factors such as teamwork, trust, and morale may also illuminate emerging problems.

End-of-process measures should provide an opportunity for learning and process improvement. Their usefulness will be severely limited if performance itself is the primary focus. End-of-project retrospectives, though often painful, can provide much useful information. Again, scheduling and budget accuracy are important, as is an assessment of whether the manufacturing cost of the new product is on target. How do customers perceive the value of the product? Are volume and profit objectives being met? Was the standard process followed? What specific ideas did the project or its retrospective produce that will improve the overall process in the future?

4.4.3.2 Customer Intimacy

Customer-intimate businesses naturally focus on understanding the customer and his perception of the value of the product or service offered. But this goes far beyond tracking the traditional indicators of profit margin, sales growth, market share, and Customer satisfaction. In fact, these factors are imperfect and potentially misleading. Market share, for example, is far too coarse a measure to be very useful to these businesses. Markets are composed of many segments, several of which are of no interest to such companies. Often the smaller segments are of the greatest interest because they are composed of less price-sensitive customers who provide the greatest profit.

Customer satisfaction surveys are capricious indicators of the intention to purchase or the likelihood of return business. Often they are poorly conceived and conducted, measure the wrong activity or customers, or do not assess relative value or satisfaction. More important to understanding the effectiveness of the customer intimate business are measures of customer loyalty. One important indicator is the proportion of target customers' purchases the business obtains. For example, a producer of forest products systematically tracks the proportion of purchases in key product categories that large retail accounts make from it, as

opposed to the proportion purchased from competitors. This constitutes share of customers as opposed to share of market.

Customer loyalty is central to the success of the customer-intimate firm. Repeat business is profitable business; it costs up to five times as much to generate a sale from a new customer as it does to generate an additional sale from an existing customer. Thus, a key statistic to measure is customer retention: What proportion of customers are repeat customers? Too much turnover will end up hurting the bottom line.

A different perspective on customer loyalty is to understand customer defections. This is a difficult phenomenon to assess for several reasons. First is the very human tendency to want to focus on success and ignore failure. Next are the more practical issues associated with determining when a defection has occurred and then understanding the reasons why. The practical issues may not be too difficult for an industrial firm that tends to make large sales to small numbers of customers. It is much more difficult in the financial services industry, for example, where a relatively small percentage but nevertheless a large number of accounts generate the bulk of profits. In the credit card business, the customers who carry a balance, are the ones that make money for the card issuer. People who pay off their accounts each month are actually a drag on profitability. It is incumbent on all customer-intimate businesses to identify, track, and provide excellent service to retain core customers.

4.4.3.3 Brand Champions

Brand champions also emphasise the customer perspective in their performance measurement systems. Because in this strategy the concept of “customer” has more meaning at the market or market segment level than at the individual customer level, performance measurement for brand champions differs from that for customer-intimate businesses. The challenge for brand champions is to develop a system for assessing brand equity. A brand is a name or a symbol that identifies a product or service and differentiates it from those of competitors. Its purpose is to communicate to the customer the source of the product and its key attributes. Brand equity is the value of the brand to the producing company based on the associations and feelings it evokes from customers.

Brand equity is the most valuable asset of the brand champion and should be the focus of its performance measurement system. Surprisingly, however, a recent study by Kuczmariski & Associates found that the majority of companies in their sample (56 percent) do not measure brand value.^[10] Thus, a high priority for the brand champion is to develop reliable and sensitive measures of brand strength that enable managers to assess the effectiveness of brand-building activities.

According to David Aaker^[1], there are four fundamental dimensions of brand equity, each of which can be measured with multiple indicators:

- i) customer loyalty
- ii) perceived quality
- iii) associations/differentiation
- iv) awareness.

Customer loyalty is the core of brand equity and has the most direct influence on financial performance. Loyalty may be assessed by the brand's ability to command a premium price or by its ability to generate repeat purchases. Loyalty is created when there is a perception of a brand's superiority in some key performance dimension. Such perceived quality is an important dimension to measure because it is often a leading indicator of both loyalty and financial performance.

A finer-grained way to evaluate brand quality is along the associations/differentiation dimension. The objective here is to identify the brand attributes most important to customers and to develop measures of those attributes both for the company's brand and for key competitor brands. These measures identify the points of greatest vulnerability and point out where brand-building efforts should be focused. The most fundamental measure of brand equity is brand awareness. Building brand awareness can be very expensive and can dissipate quickly without regular reinforcement. However, increased awareness generally translates into increased preference and market share.

4.4.3.4 Operational Excellence

Operationally excellent businesses emphasise the internal perspective because of their focus on efficiency. Although the internal perspective historically has focused on narrow metrics such as product cost, scrap rate, rework percentage, and inventory level, truly excellent businesses have taken a process focus with an emphasis on throughput-oriented measures, where time is often a key metric. Wal-Mart's business system is based on the ability to move products rapidly and efficiently from the supplier to the retail store. This enables Wal-Mart to maintain the lowest inventory levels in the industry and respond to emerging regional or local trends with speedy deliveries of high-demand products.^[14]

An interesting and usually surprising measure for businesses that use a processing sequence, in which work proceeds from station to station, is throughput efficiency. For example, in claims processing operation with five stations, each of which is operational 99 percent of the time and is 99 percent accurate, what is the throughput efficiency? It is 90 percent, not 99 percent. In other words, the operation is losing 2 percent efficiency because of inaccuracy and down time at each station. Although five processing stations may not be excessive, the 99 percent accuracy and operational time figures would generally be optimistic. Thus,

most businesses are not as efficient overall as they believe they are, resulting in both a financial cost and a quality penalty. Other potentially important process measures include cycle time, inventory turnover, and the time from a customer's recognition of what it needs to the delivery of that product or service.

4.5 Performance Measurement Case Study – Performed by the candidate

4.5.1 Scope

Company A, an information technology service provider, had a problem with their management model/system. The management system was very tedious in a sense that it was not focussed on Company A's strategic initiatives, but was instead managing the company on an operational level.

A strategic session was held and two of the important initiatives that was determined was to:

- restructure the meetings of the management team to manage more effectively; and
- develop a performance management system for the organisation.

4.5.2 Restructuring of the meetings within the organisation

4.5.2.1 Time spent on meetings by Management Team

As mentioned, the business had an operational focus previously. The meetings, therefore were also on an operational level, and tended to become work sessions, because of the level of detail in the meetings.

The time spent by each management team member on meetings can be seen in *Table 4-2*. The total work time available for each member per year (excluding weekends, sick-leave & holiday-leave) is approximately 1850 hours per year. Looking at *Table 4-2*, it can be seen that the total time spent on meetings per team member is 322 hours per year. By dividing these two figures, it can be seen that every management team member spends approximately 17.41% of his/her time to attend meetings.

This figure was benchmarked against other companies and the conclusion was made that the industry standard for management team members is approximately 10%. This huge gap meant a quick and efficient solution, focusing on the “low hanging fruit”.

Meeting	Frequency	Time per meeting	Management time
Caucus	2 Weekly	3	78
Human Resources	Monthly	3	36
Marketing	Monthly	3	36
Finance	Monthly	3	36
Quality Assurance	Monthly	3	36
Technical	Monthly	3	36
Strategic Planning	3 Monthly	16	64
Total			322

Table 4-2 Time spent on meetings per management team member

4.5.2.2 A Framework for the Management System

Kaplan & Norton^[7] believes that a management system consists of the following four interactive aspects (see *Figure 4-3*):

- Clarifying & translating the vision and strategy
- Communicating & linking
- Planning & target setting
- Strategic feedback & learning

With this framework in mind a work session was held and the framework populated with meeting structures. The meeting structure can be seen in *Figure 4-4*. A couple of symbols, terms and abbreviations were used and the meaning is as follows:

- IBIF (Business Integration Forum) – A monthly meeting that replaces the old support meetings (HR, Finances, Marketing, QA, Technical)
- ISIF (Strategic Integration Forum) – A monthly meeting to manage the strategic initiatives for the business.
- Board Meeting – A board was established to help Company A on a strategic level.
- Business Focus – There are five businesses within Company A, that should be separately measured and managed by a “Fictitious Board”

Certain meeting principles were established (e.g. take only minutes of decisions, no work sessions as part of a meeting, professional conduct, thorough preparation for meetings, etc.), to ensure more effective meetings.

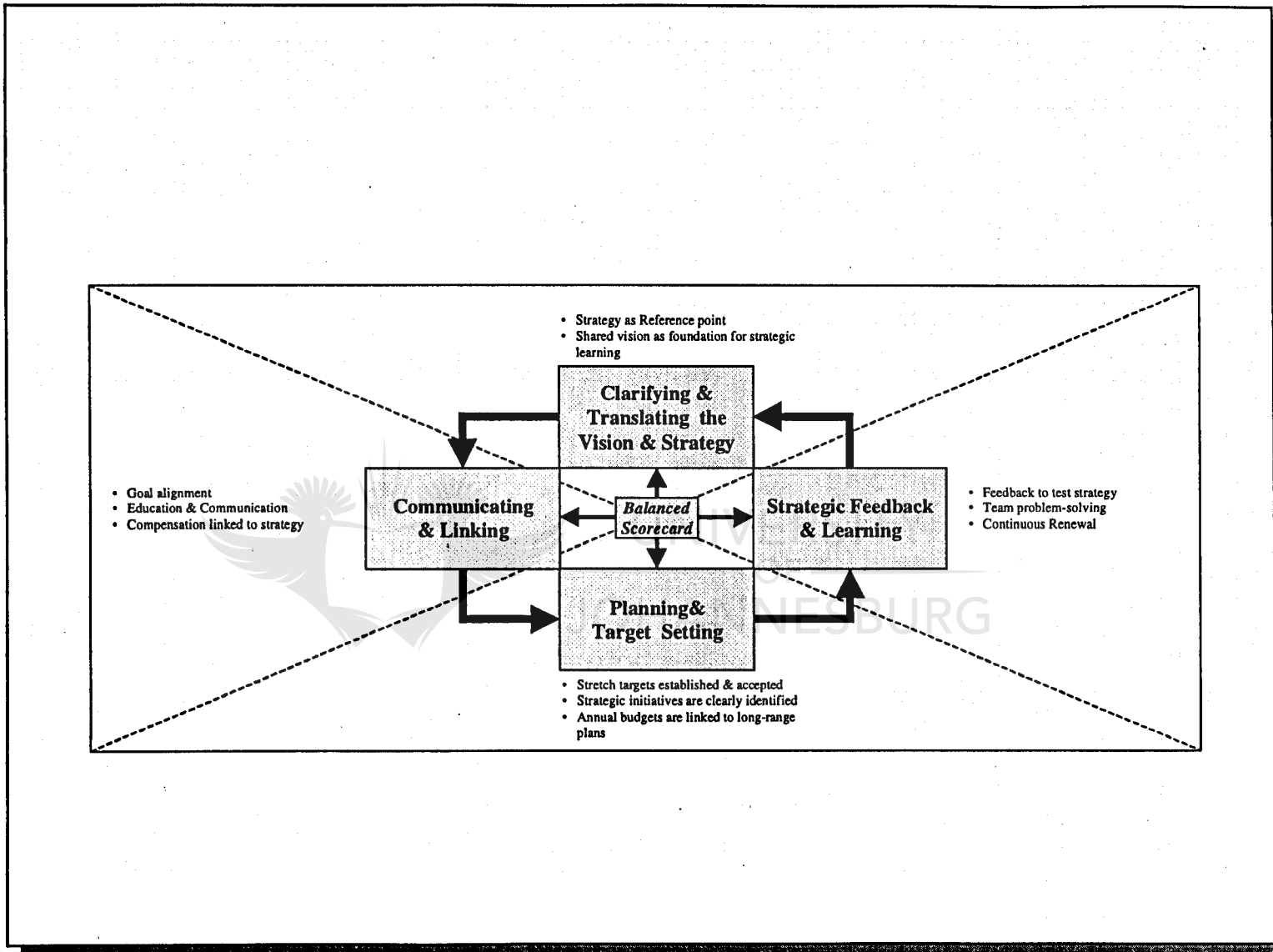


Figure 4-3 A different management system for strategic implementation (Source: Kaplan & Norton^[7])

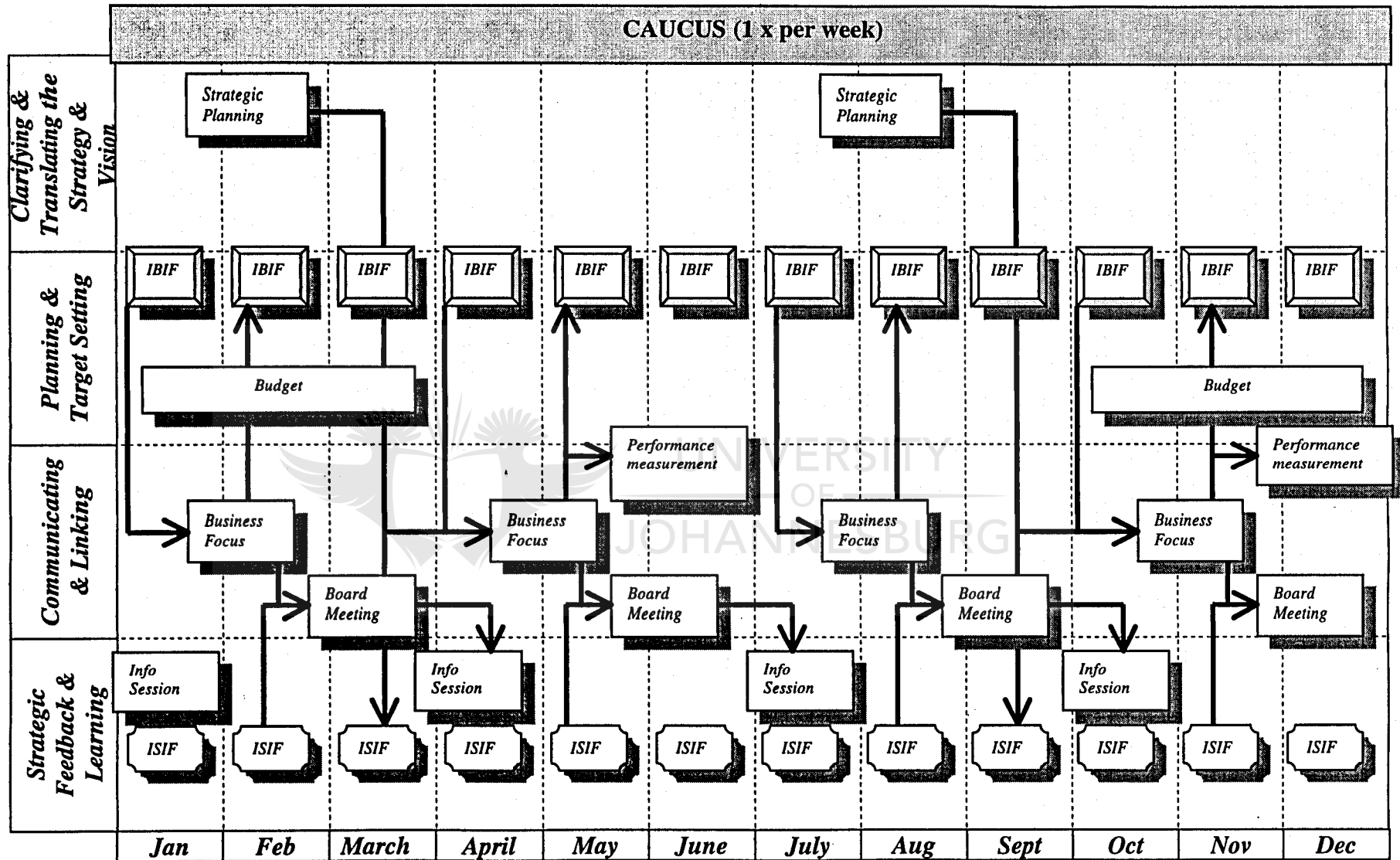


Figure 4-4 Business System for Company A

4.5.2.3 Time saving on meeting structure

The new time spent by each management team member on meetings is 444 hours per year, and can be seen in *Table 4-3*. As said, the total work time available for each member per year (excluding weekends, sick-leave & holiday-leave) is approximately 1850 hours per year. By dividing these two figures, it can be seen that every management team member spends approximately 9.73% of his/her time to attend meetings. This is an overall improvement of 78.9% on the previous system and is also below the benchmark of 10%.

Meeting	Frequency	Time per meeting	Management time
Caucus	Weekly	1	52
ISIF	Monthly	2	24
IBIF	Monthly	3	36
Business Focus	Quarterly	2	40
Board Meeting	Quarterly	2	8
Info Session	Quarterly	1	4
Strategic Planning	Semi-annual	8	16
Total			180

Table 4-3 New time spent on meetings per management team member

4.5.3 Performance Management System

As noted earlier, a new meeting were established (Business Focus), because of the new Management System structure. This meeting was established to help everyone of the five business within Company A, to manage itself more strategically.

To establish this strategic measurement, the four perspectives of the Balanced Scorecard^[7] was populated with Company A's strategic initiatives.

The following Key Performance Areas (KPA) were identified:

- Financial Perspective
 - Profitability
 - Cashflow
 - Capital expenditure
- Customer Perspective
 - Market share
 - Customer gain

- Customer loss
- Customer satisfaction
- Value-added to customer
- Innovation & Learning Perspective
 - Growth in intellectual capital
 - Knowledge management
 - Personnel satisfaction
 - Personnel turnover
 - Productivity
 - Management of diversity
 - Research & Development
- Internal Perspective
 - Product cost
 - Occupational Health & -Safety
 - Quality Assurance
 - Audit Reports

Each business will be measured on these bases. The convenience of a framework like this is that it can be used throughout the organisation for personnel contracting and performance measurement, by setting performance indicators and specific targets for these KPAs. By using this framework for performance appraisal as well as incentives can be determined for each employee, whilst being aligned with the strategic initiatives of Company A.

4.6 Conclusion

This chapter has raised a number of issues about performance measurement. It was defined that any organisation needed to measure themselves, in one way or the other, before a benchmarking comparison could be made.

These measures/benchmarks can be on different levels throughout the organisation, namely strategic, tactical or operational. It was also stated that the most famous way to align a company's strategies with the measurements is through the "Balanced Business Scorecard". This measurement framework consist of four perspectives: financial, customer, learning & growth and internal. The success of such a framework is that it is aligned with the strategic initiatives of a company.

The case for the "Unbalanced Scorecard" was also debated. This is because different market strategies and competitive conditions call for different performance measurement systems. This means whereas the financial perspective is important regardless of strategy, the different market strategies should emphasise one of the other perspectives: customer focus, internal analysis, or innovation. Business units with a performance measurement focus that complements their market strategy are generally perceived to be superior performers by senior management. This is not to say that only one of those perspectives should be recognised in a given strategic context. Instead, one perspective should dominate, with lesser attention being given to the other two.

It can therefore be seen that different situations of organisations call for a certain measurement system (as can be seen in the case study), and that organisations must not try and force themselves into a specific measurement/management framework/system. It is however imperative that a company has a measurement framework to base there management systems on.

CHAPTER 5

STRATEGIC THINKING and FUTURE CHANGE



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5. STRATEGIC THINKING and FUTURE CHANGE

“Cogito, ergo sum.”
I think, therefore I am.

René Descartes

“The people who lived in the past must yield to the people who live in the future, otherwise the world would begin to turn the other way round.”

Arnold Bennett

“Whenever you see a successful business, someone once made a courageous decision.”

Peter F. Drucker

“One must never lose time in vainly regretting the past, nor in complaining about the changes which causes us discomfort, for change is the very essence of life.”

Anatole France

5.1 Introduction

Why is it that benchmarking thrives in some companies, while in other organisations it is seen as just another management fad? The answer lies in the company's organisational structure and the relationship between benchmarking and the strategic business plan.

All organisations have a *raison d'être* – usually in the form of a mission statement. Increasingly this mission statement includes a focus on customers and/or stakeholders, as well as the desire to be a technological or market leader. For public sector organisations there is a growing trend which recognises that they too have customers. In addition to a corporate mission, organisations have a set of operating principles. They are the basic beliefs, which form the culture of the organisation. It is often the case that the company's founder consciously or unconsciously supplies the organisation with these operating principles. It is also a fact that these operating principles rarely change, even after the founder has left the corporate scene.

Based on the corporate mission and supported by its operating principles, the management team will set the business objectives, performance goals, strategies and the tactics. So why do some benchmarking programmes succeed while others limp along or fail? Benchmarking thrives in organisations where the operating principles include a single-minded focus on customers, an emphasis on product/service leadership, a quest for continuous improvement and a fostering of knowledge management, information exchange and networking. Because of the alignment of operating principles and business goals, benchmarking receives the full commitment and support of the senior management team. Within this positive corporate environment, it is easy to understand how best practices, identified through benchmarking studies, can support and extend the organisation's business objectives and performance goals. Business process improvements resulting from benchmarking studies will also positively impact the organisation's strategies and future tactics. Since the strategic business plan must include implementation plans for future "quantum leaps" in performance due to the introduction of new best practices, it follows that the plan must also include the resources needed to support and maintain the benchmarking programme.

The lesson from world-class organisations is clear. It is much easier to establish and integrate benchmarking in companies with a character focusing on customers and improvement. In this business environment senior managers will be committed to benchmarking and will provide the resources in the strategic business plan necessary to make benchmarking happen.

There is definitely better awareness on the “art of benchmarking” and its application is spreading to encapsulate various organisational contexts, including non-profit making sectors such as health care. Indeed, examples of benefits, which may be derived from the use of benchmarking, are in abundance and range from cost reductions and quality improvements, to better awareness and new learning.

5.2 *Benchmarking methodologies*

Most texts, however, describe benchmarking as a “tool” of quality.^[3] This is indeed both unfortunate and incorrect. When one refers to the subject of benchmarking methodologies, it is perhaps an area, which is easy to describe as a tool. One could specifically refer to the “Roadmap for Benchmarking” in chapter 3, that is derivative of the Rank Xerox approach. The application of benchmarking, however, differs from the application of other tools and techniques of quality management. If one refers, for instance to the use of statistical process control (SPC), most of its applications are at an operational level in order to provide local benefits.

Most tools of quality management are “task related” and are used to reinforce the importance of data collection and the gathering of facts for decision-making and problem solving. Benchmarking is perhaps much more encompassing as a concept, since its main focus is on larger processes which may not necessarily have local/operational impacts on the business but very much impinge on the level of competitiveness of the organisation concerned.

Watson^[7] in his book on strategic benchmarking writes:

“What issues are addressed by strategic benchmarking as opposed to operational benchmarking? Among the issues are:

- Building core competencies that will help to sustain competitive advantage.
- Targeting a specific shift in strategy, such as entering new markets or developing new products.
- Developing a new line of business or making an acquisition.
- Creating an organisation more capable of learning how to respond in an uncertain future because it has increased its acceptance of change.”

It is very evident from the previous description that strategic benchmarking places more emphasis on knowledge and learning as the major source of competitive advantage, rather than on conventional means such as new technology, range of products and services. In other words, strategic benchmarking focuses on soft rather than hard aspects of competitiveness. The former is more likely to give sustainability and continuity of the momentum of progress and advancement.

The notion of benchmarking as a “tool” is, therefore, incorrect since the impact of its application is more for changing attitudes, behaviours and raising commitment through better education, awareness and inspiration from model companies. Benchmarking is perhaps the best means for servicing the human asset by continuously fuelling in new ideas to sustain superior performance levels.

5.3 *Defining the scope of Strategic Benchmarking*

It is very important to highlight that the strategic application of benchmarking has a lot of scope and certainly does not just relate to model organisations. Benchmarking is relevant to any organisation committed to the ethos of continuous improvement. It is a fallacy to think that the scope is only relevant to organisations to become number one in their industry sectors. Depending on the learning curve, resources committed and pace of achievements, benchmarking can lead to:

- Incremental improvements to existing performance standards.
- Quantum leaps by instigating new practices and ways of working.
- The road to excellence; creating the learning organisation.

The previous three objectives can be achieved through a strategy of closing a performance gap based on determining what the existing standard is (current state), what should really be the internal standard (halfway point) and developing an action plan for the immediate future to achieve this entitlement. Benchmarking stretches organisation further by encouraging them to aspire to superior performance (desired goal). *Figure 5-1* specifically emphasise benchmarking, as strategic planning, should be seen as a long-term returns (sustaining competitive advantage) on investments (resources).^[7]

5.4 *Benchmarking and Strategic Planning*

Strategic planning is the framework by which organisations can navigate with confidence and with the level of uncertainty and risk rendered to a minimum. Effective strategic planning makes organisations go through specific milestones to pick up various prizes and will ensure that the organisations concerned are “on course” with the ultimate prize, that of achieving their desired mission. Strategic benchmarking, on the other hand, is the means by which the navigation plan is determined. It is the process by which the vision/mission is established and challenging goals are developed. As Watson^[7] argues:

“...This is the essence of strategic benchmarking and the link to a company's planning process. Companies selected for benchmarking because of their key

business process knowledge and performance indexes can serve as a basis for establishing challenging, yet realistic and achievable goals."

Conventional strategic planning tended to focus more on what do we need to happen in isolation from internal operations. Many strategic plans fail to deliver because the targets are set too remotely from the processes which are expected to deliver, and the basis on which targets are set is very often questionable, heavily based on "individual ambition" rather than on "wisdom and vision".

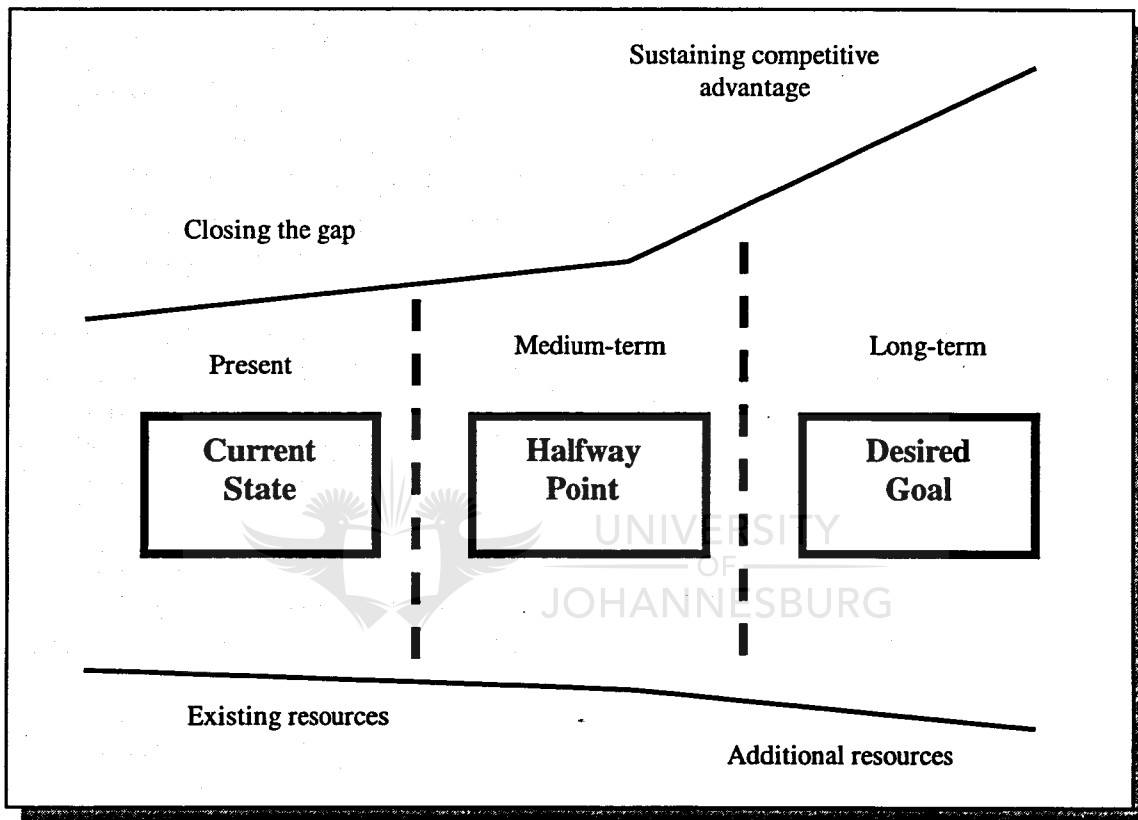


Figure 5-1 Benchmarking encourages aspirations for superior performance

(Source: Adapted from Watson^[7])

Strategic benchmarking has added a new dimension by making strategic planning more effective and target setting a more systematic process, based on reality rather than merely stretching organisations with unreasonable expectations.

5.5 Implementing Strategic Benchmarking

Many questions get asked about the ideal number of benchmarking projects to be started, the areas where benchmarking activity needs to be focused and the

establishment of priorities for benchmarking, together with the resource implications for conducting each and every benchmarking project. In a sense, all of these questions are asked by organisations, which embark on a benchmarking activity in a very ad hoc manner, following opportunity rather than managing through discipline.

Some writers mention that perhaps as much as 85% of benchmarking activity is done at an operational level, possibly more.^[7] This is an indication of the spread of activity at various levels within the organisation without effective coordination and certainly without perhaps asking the most basic questions:

- What do we want to benchmark and why?
- How relevant is the area to our strategic plan?
- How prepared are we to embark on such initiatives?
- What are the likely benefits we should expect?
- What is the likely impact expected on competitiveness?

A prioritisation methodology is, therefore, needed to address the previous questions and many others. Prioritisation ensures that the focus of benchmarking activity is on the core aspects of the business, the impact from benefits derived is closely linked to strategic intentions, and by focusing on the “vital few” resources will not become an issue.

The prioritisation matrix for benchmarking is a tool, which was developed at the University of Bradford to help organisations choose core areas relevant to their business needs.^[3] The following population is just as an example and not based on any specific case study.

Step 1: Determining the order of criticality of business processes through a series of set questions (Q1 – Q7) and very much linked to the critical success factors (CSFs), and an appropriate rating for each process. Total aggregation will determine the priority list, as indicated in *Table 5-1*, with the process having the biggest score being strategically the most important.

Step 2: Determining the ease of benchmarking each process, once again through a set number of questions (Q1 – Q7) and an appropriate rating. As *Table 5-2* indicates, the ease of benchmarking is established through aggregating all the scores, with the process having the biggest score being the easiest to benchmark.

Step 3: Relating the strategic importance of each process (by prioritisation list) to the ease with which they can be benchmarked (also by prioritisation list). Rather than add the scores together, because this would be meaningless. The two are related on a matrix, as indicated by *Figure 5-2*.

Process	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Total
System, product and service delivery	5	5	5	4	2	5	5	31
Prospective customers	3	3	4	4	3	4	4	25
Competitive technology	4	4	5	4	2	4	4	27
People satisfaction	3	3	3	2	4	4	3	22
Process improvement	4	3	3	3	3	4	3	23
Supplier partnerships	2	2	3	4	2	3	2	18
Cost reduction	3	2	5	4	3	4	3	24
Self-assessment	3	3	3	3	3	3	3	21
Recognition	1	2	3	3	2	2	2	15
Deployment	2	4	4	3	3	3	2	21

Table 5-1 Strategic Importance (process order of criticality)

Process	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Total
System, product and service delivery	4	5	4	3	5	3	3	27
Prospective customers	3	4	1	1	2	1	1	13
Competitive technology	3	3	2	2	3	1	4	18
People satisfaction	4	5	5	5	5	4	3	31
Process improvement	3	5	4	4	5	3	3	27
Supplier partnerships	4	4	4	3	2	4	4	25
Cost reduction	3	4	3	1	5	2	4	22
Self-assessment	4	5	5	3	5	5	2	29
Recognition	4	2	2	2	5	5	3	23
Deployment	2	2	2	1	5	1	2	15

Table 5-2 Establishing ease of benchmarking

The best processes for strategic benchmarking are those, which are high on strategic impact (typical value levers) but also easy to carry out. Focusing on only one dimension would not lead to the desired effect. A scenario could be to choose the most important areas strategically, however if these areas are too difficult to benchmark, then the obvious outcome is going to be disappointing. On the other hand, ease of choice benchmarking (because of opportunity) may mean low leverage or superficial impact on competitive aspects of the business.

A more practical approach in most situations would be to choose projects according to strategic intentions. For instance, if an organisation wishes to pursue a high potential benefit strategy, i.e. a strategy that benchmarks processes of high strategic importance, however, it pays little attention to the ease with which that process can be benchmarked (a high-risk strategy), it would select the processes falling into the categories in the order of preference shown for strategy A. *Figure 5-3* is a presentation of the order how the processes should be benchmarked, depending on the specific strategy of the organisation.

Strategic Importance	High			Best Choice
	Medium			
	Low	Worst Choice		
		Hard	Medium	Easy
		Ease of Benchmarking		

Figure 5-2 Strategic Benchmarking Prioritisation Matrix

(Source: Hutton & Zairi^[3])

If the company wishes to minimise risk and pursue benchmarking projects that are more likely to produce successful (but not so impressive) results, it would select processes in the order shown by strategy B. If it wishes to select processes for benchmarking on the basis of both measures – strategic importance and ease of benchmarking – it would select processes in the order shown for strategy C (Figure 5-3).

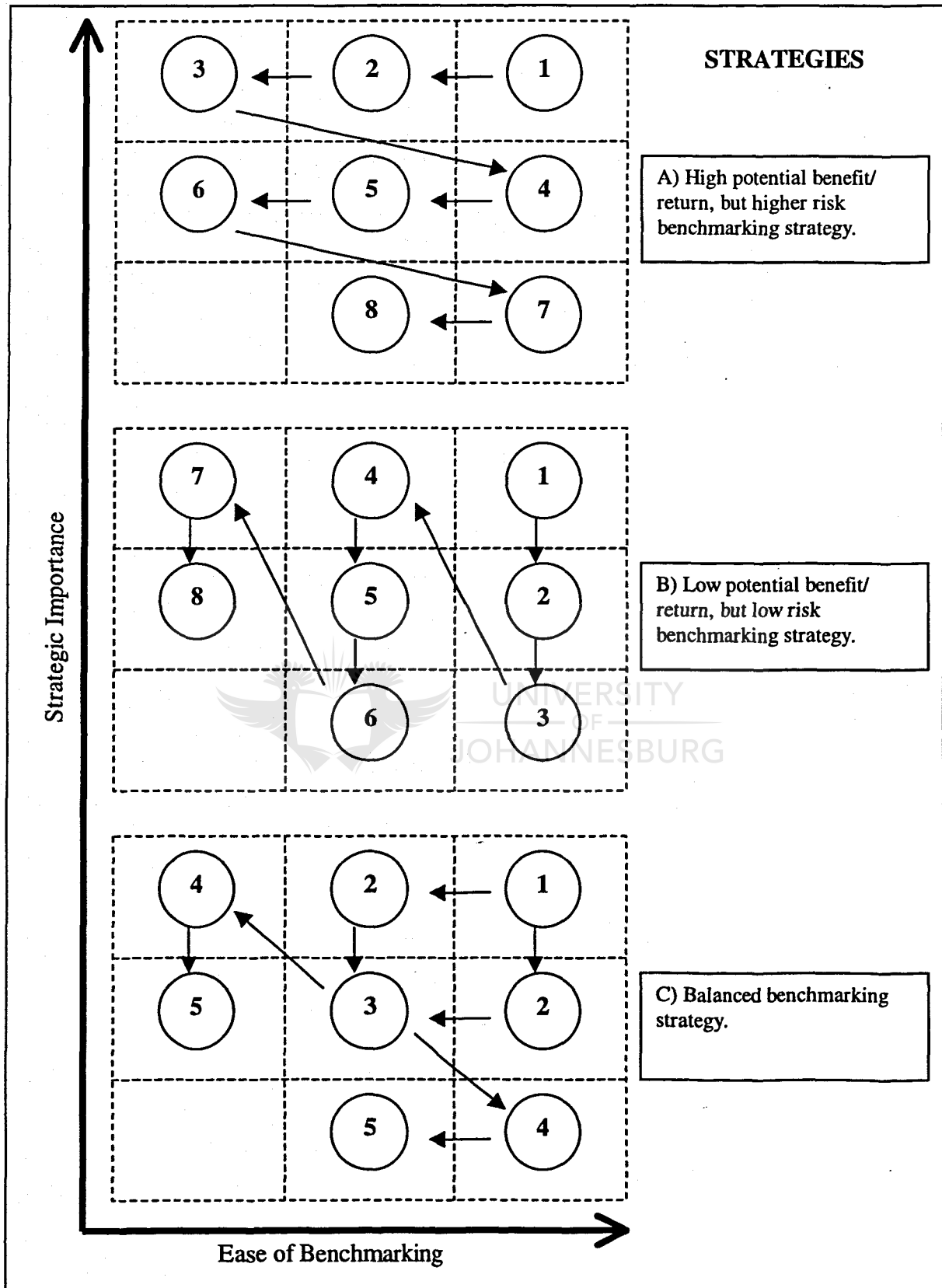


Figure 5-3 Selection process for strategic benchmarking

5.6 Strategic Benchmarking

Strategic benchmarking provides the opportunity to take a holistic view of the business and take action where and when necessary. It is the best means for building synergy levels and integrating the various key elements of the business. The model, which is illustrated in *Figure 5-4*, represents an integrated approach to modern competitiveness, facilitated by the practice of strategic benchmarking^[3]:

- The model itself defines a new marketing where the traditional four Ps of price, promotion, place, and product are replaced with a set of new Ps standing for:
 - Process.
 - People.
 - Performance.
 - Position.
- At the heart of strategic planning is the customer. Strategic benchmarking ensures that corporate priorities have to be defined in customer terms.
- Corporate goals and targets have to be measured in terms of:
 - Quality (defined from the customer's perspective).
 - Effectiveness (value-added contribution).
 - Innovativeness (uniqueness, creativity and competitive advantage).
 - Competitiveness (market position and domination).
- The four Ps are the critical building blocks and represent the following:
 - Process represents optimised capability and ability to respond to changes in the marketplace.
 - People are the major asset and the real source of value-added contribution through creativity and innovation.
 - Performance needs to be measured in terms of customer satisfaction, building long-term partnerships and new acquisitions.
 - Position is the arena of competitive performance, and needs to be measured in terms of superiority from different parameters.

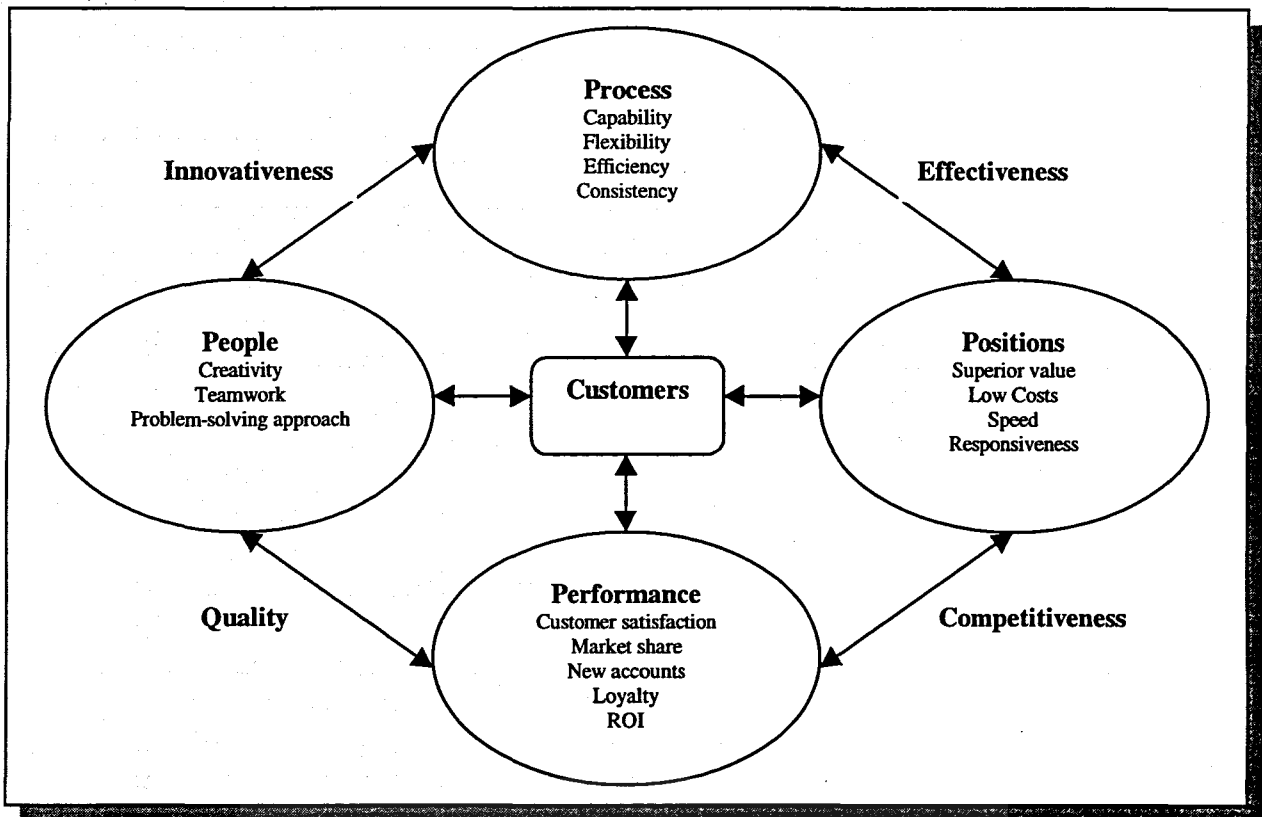


Figure 5-4 Modern Marketing – An Integral part of Competitive Strategy

(Source: Hutton & Zairi^[31])

5.7 Benchmarking for Future Change

Benchmarking is a strategic option, which can be selected from a wide variety of other strategic options. What makes Benchmarking especially useful is that it facilitates the process of change in an interactive way. On the one hand, clear strategic thinking helps one to decide what has significance in terms of long term competitive advantage, and therefore what to benchmark. On the other hand, benchmarking facilitates the process of goal-setting during strategic planning.

Among all this useful input to strategy formulation, it is easy to lose sight of the fact that even when it comes to something as practical as benchmarking, good implementation is far more important than good formulation. But benchmarking also influences strategy implementation in a particularly practical way, because benchmarking helps the process of change.

Change is something all businesses face sooner or later, and for South African companies, it is a constant companion. But implementing organisational change is difficult, expensive and only rarely successful.

5.7.1 Making change happen

Luckily, a great many empirical studies of organisational change and turnaround are available to learn from. The February 1994 issue of Fortune magazine was full of case studies of both positive and negative change programmes.^[1] Some of the key requirements of successful change were identified:

- Change needs a champion at a very high level, and it needs visible, committed leadership.
- Change must take place in the context of a culture of continuous renewal, and with a strong sense of urgency. It cannot follow the evolutionary route, because the countervailing forces against change (resistance to change) are so powerful.
- There must be a clear vision of the future, and employees must be empowered to take action.
- The organisation must streamline processes and expedite decision-making.
- Focus on the customer needs helps to motivate the need for change.
- A flexible structure with a flat hierarchy is necessary for an organisation to change and learn on an on-going basis.
- Change can't happen unless individuals take responsibility.
- Experimentation and innovation must be encouraged so that people are not hesitant about committing themselves to change.

This is a very deterministic view of change, as these "rules" would obviously not apply in all organisations. Nevertheless it is a good example of the kind of things that people say about the subject. When studies like these are analysed, Handy^[2] suggests that it is possible to identify five key success factors for achieving change, as illustrated in *Figure 5-5*.

The *first* key success factor deals with the creation of pressure, which overcomes natural inertia in the company so that it is willing to change. Without this willingness, the new strategy will become a lower and lower priority. The change simply never gets made because unless people have a reason to make it, they will avoid it at all costs.

The *second* pre-requisite is a clear understanding amongst employees of the direction in which the leader wants the organisation to go, so that they understand the consequences of not changing and the advantages of changing. Without this kind of vision, one might start off energetically, but your new strategy will eventually fizzle to a stop.

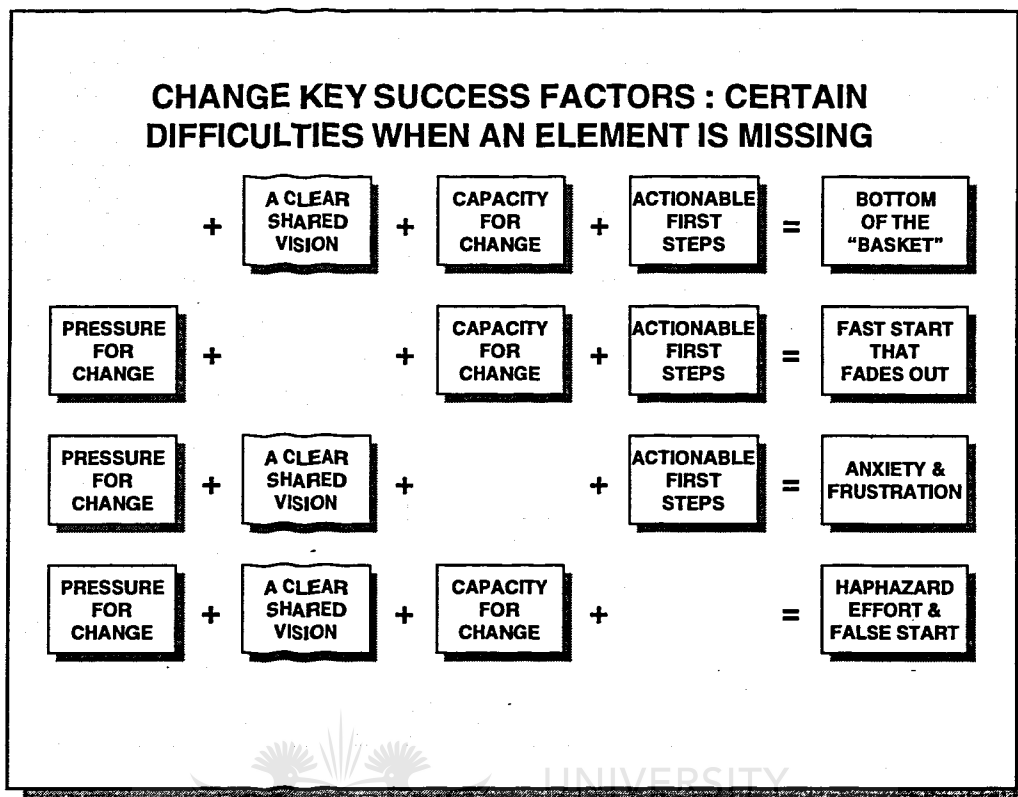


Figure 5-5 The Key Success Factors for Change

(Source: Charles Handy^[2])

Thirdly, the capability to change must be in place, so that people feel confident that they are equipped to face the new challenges in terms of skill and resources. Without the right kind of capabilities, the company will suffer from collective anxiety and frustration at its inability to make the changes happen.

Fourthly, you need a very clear programme of action that details the first steps that have to be taken along the way. If there is no clear programme of action, there will be a lot of false starts, and you will be risking "analysis paralysis".

Handy^[2] emphasises that it is the *fifth* factor that makes or breaks any new strategy, any change programme. Change must be compatible with the culture of the organisation. Whatever your programme contains in terms of activities, campaigns and training, it must be appropriate to the culture of your organisation if it is to be successful. Without this compatibility, your change programme will inevitably be sabotaged by the culture of your organisation.

5.7.2 Defining corporate culture

"...a social force that controls patterns of organisational behaviour, by shaping members' understanding of reality, and providing energy for mobilising organisational action."^[4]

This definition explains why culture is a difficult but important concept. Firstly, it is a social force, and like everything else to do with people, that makes it complex and contradictory. Culture controls employee behaviour in an invisible but often powerful way. It also shapes organisational members' understanding of reality. In other words, culture affects the way people see the environment and therefore it affects the way strategies are formulated and kinds of threats and opportunities that are seen.

Culture also mobilises action through a system of shared values which "tell" employees what is expected of them. In other words, the culture tells people what to do, and how to do it. This means that culture has a profound impact on the quality of strategy implementation. A familiar concept of culture can be seen in the illustration in the *Figure 5-6*.

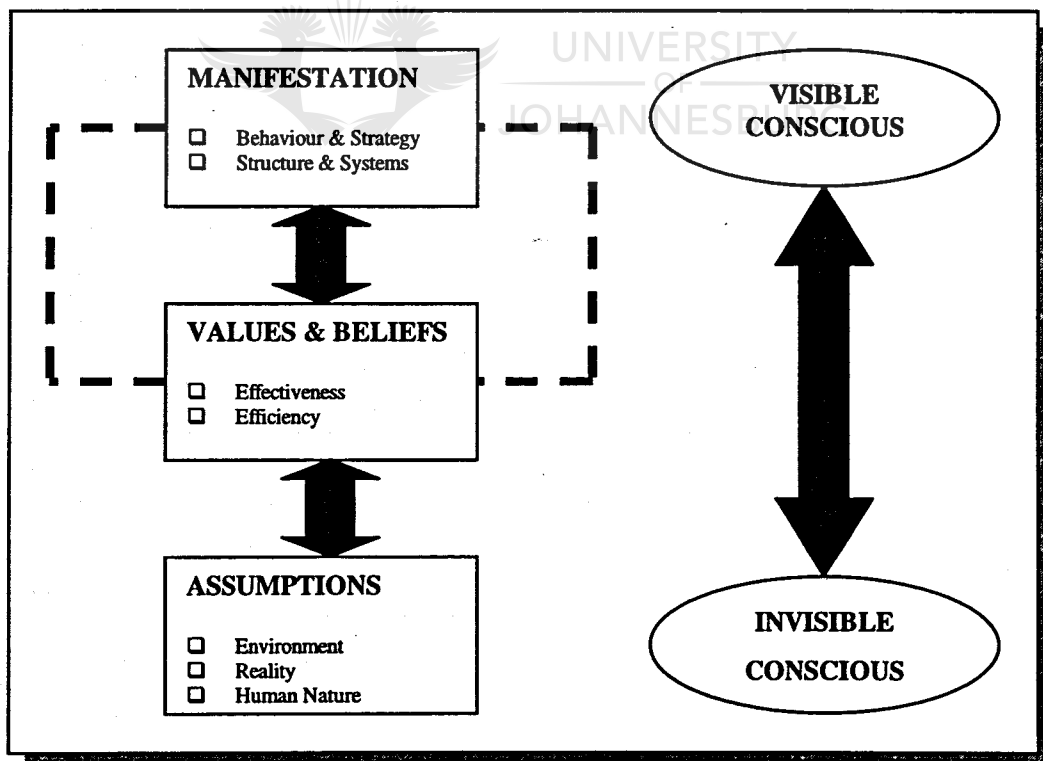


Figure 5-6 The concept of Corporate Culture

(Source: Edgar Schein^[6])

This depiction is often called the “ice-berg” because much of the culture is below the level of consciousness. Culture is portrayed as a multi-level phenomenon. The underlying assumptions about the nature of the business's relationship to its environment, the nature of reality, and the nature of human nature, both support and are influenced by, a set of shared values and beliefs about what constitutes effective organisational activity and efficient organisational effort. These values and beliefs tend to manifest themselves in particular kinds of behaviour, strategy, structure and process. It is at this visible, conscious level that most of us experience organisational culture.

Quite simply, one experience culture when standing in front of 1000 people and asking them to do something differently. The weight of culture can be felt when one asks people to change their behaviour, because one is really asking them to change their values. You can have all of the “right” change elements in place and still not achieve change because you can't get people to act against their values - not even when they are hypnotised. Culture is more than simply the sum of its individual parts. Similarly, culture should not be viewed as just another tool that management could manipulate. Many cultures are highly resistant to change, even when their very survival is threatened.

It is worth emphasising the point that culture is not the average of the values of individuals. Rather, it is made up of the values that the individuals in the organisation share. It's important to think about what is meant by culture because all too often, change programmes promise the answer to culture, without understanding the question.

5.7.3 Analysing culture

There is no point at all in analysing one's culture for its own sake – in fact the analysis process can be detrimental to organisational health.

The first problem associated with understanding a culture is that it is very difficult to analyse it when one is a part of it. At the same time, it is very difficult to understand a culture if one is not part of it. Cultures are easy to see and feel but difficult to decipher in terms that have real impact on the formulation and implementation of strategy. In understanding culture, it is helpful to use a model that defines a series of archetypes. Such a model describes a series of perfect types of organisation, in much the same way that personality models define a perfect type of person.

The model displays general tendencies, not absolute types, since every culture is in some way or another made up of every other culture. The culture types help to clarify the complexity culture because they illustrate the differences between

cultures and the similarities. The model is therefore useful in communicating the complex and difficult world of culture, but it is not perfectly accurate.

There are many of these models available, particularly those that are Jungian based. The one used is called the Competing Values framework, and Robert Quinn^[5] developed it (see *Figure 5-7*).

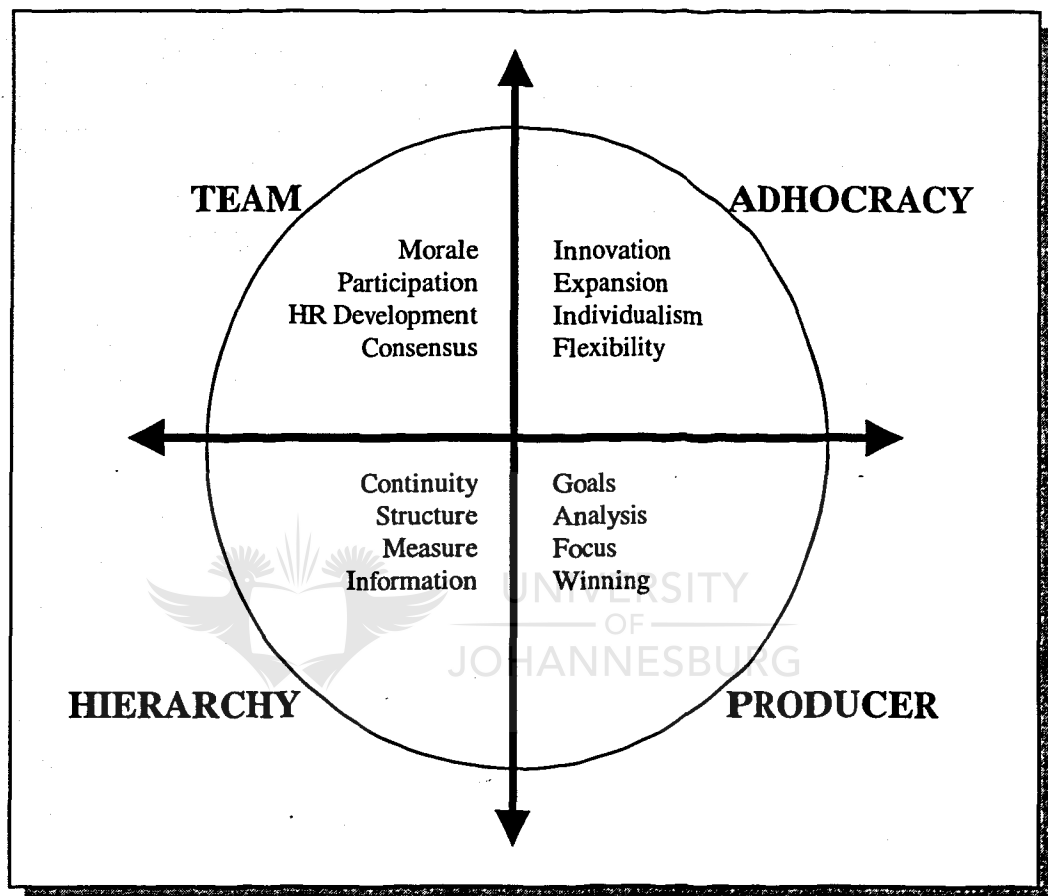


Figure 5-7 Competing Values Framework (Source: Robert Quinn^[5])

It is possible, using a combination of qualitative and quantitative techniques, to map a particular organisation's culture on this framework. The mapping process allows the organisation to define its dominant cultural type, that is, its cultural preference for a particular way of acting and behaving. This dominant culture or preference most often surfaces in a pattern of behaviours when the organisation is placed under the kinds of stress that change can bring.

It should be pointed out that plotting organisational culture on a model such as this is essentially a process of benchmarking, in the sense that it allows the comparison of one organisation against many. In addition, by conducting studies such as these

on a regular basis, perhaps every two to five years, it is possible to track progress to organisational development over time.

5.8 *Conclusion*

This chapter has noted how benchmarking is a vehicle for stimulating change in an organisation. It can be said that the failure of benchmarking to generate the kind of impact it should in most organisations is tied up with the misunderstanding of the magnitude of organisational change required to achieve the impact. The real impact of a benchmarking program lies in its ability to generate large, structural shifts in business processes, and the hard benefits to the bottom-line of the organisation. Defining “World Class” practices that enable the delivery of these benefits requires a benchmarking process that is specifically linked to the change process of the organisation, its environment for change, and management’s vision for the future.



CHAPTER 6

INTEGRATING THE SUPPLY CHAIN



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6. INTEGRATING THE SUPPLY CHAIN

“Carpe diem, quam minimum credula postero.”

Seize today, and put as little trust as you can in the morrow.

Horace

“Who controls the past controls the future.

Who controls the present controls the past.”



6.1 Introduction

The manufacturing sector spends on average 55% of its turnover on purchasing goods and services. The impact of this expenditure is such that a 1% reduction in procurement costs can increase a company's profits by the equivalent of an extra 10% of sales, and this is only the tip of the iceberg.^[17]

Effective supply chain decision-making can have a dramatic effect on a company's bottom-line. For example, a recent study of companies listed in *the Financial Times Non-Financial Companies Index* revealed that a 1% reduction in the cost and use of bought-in materials, supplies and expenses improved corporate profits by an average of 19.2%.^[10]

The supply chain is now considered a strategic business process in best practice companies, The focus is shifting from simply obtaining goods and services faster and cheaper to managing the entire supply chain. This strategic view encompasses product/service design, sourcing materials, production and delivery (*Figure 6-1*).

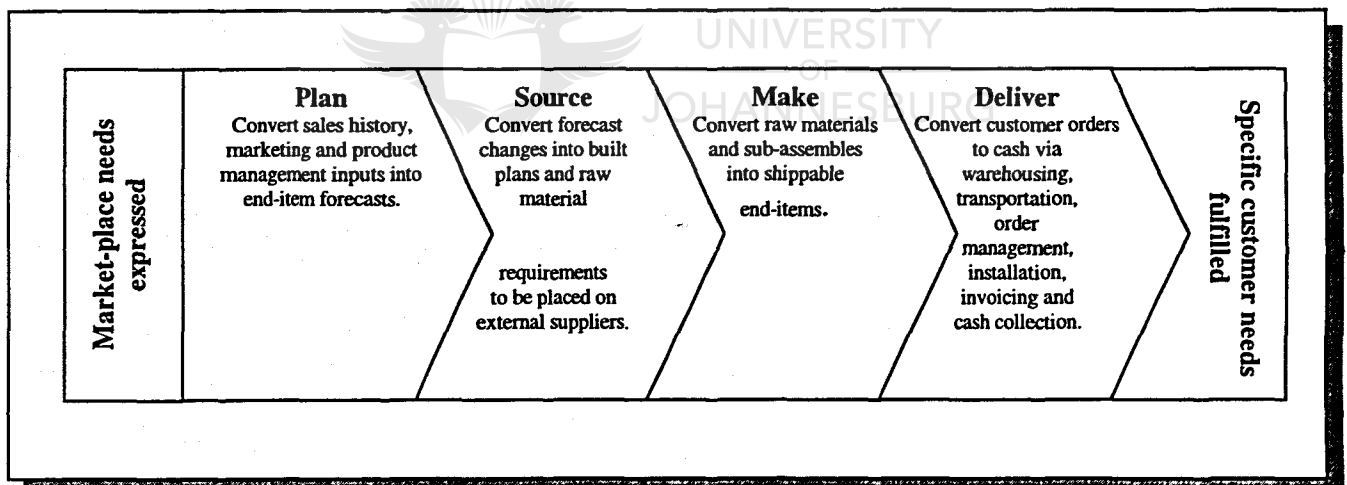


Figure 6-1 The Supply Chain (Source: Adapted from Christopher^[4])

6.2 Supply chain management

According to Christopher^[4], supply chain management differs significantly from classic materials and manufacturing control in four respects:

- It views the supply chain as a single entity rather than a relegating fragmented responsibility for various segments in the supply chain to functional areas such as purchasing, manufacturing, distribution and sales.
- It calls for – and in the end depends on – strategic decision-making.
- It provides a different perspective on inventories, which are used as a balancing mechanism of last resort.
- It requires a new approach to systems – integration, not simply interface, is the key.

A report by KPMG Management Consulting and the Economist Intelligence Unit revealed that 132 out of 150 European companies surveyed have been radically overhauling their supply chains.^[9] This “revolution” has two main features:

- A global trend towards supply chain integration, both internally and externally, as companies adopt new strategies supported by information technology.
- A trend in Europe towards fewer warehouses and stocking points, with more multi-country or in some cases pan-European and global distribution centres.

Respondents to the KPMG/EIU survey indicate that 37% operate European and 26% national distribution systems (some 56% said that they had previously operated national systems). The proportion of global systems has increased to 16% and for companies with a mix of national and regional systems the figures have risen from 14% to 21%.

The main barriers and obstacles to rationalising European supply chains are shown in *Figure 6-2*. They reflect a combination of systems and people issues. Over 70% of the respondents report that the fear of change or job losses has prevented re-engineering the supply chain. Outmoded information systems and conflicts between functional departments closely follow this.^[14]

Other barriers include adversarial customer/supplier relationships; an emphasis on short-term profitability; difficulties encountered when working in multinational teams; lack of common electronic data interchange (EDI) standards; and inefficient transport infrastructure/services.

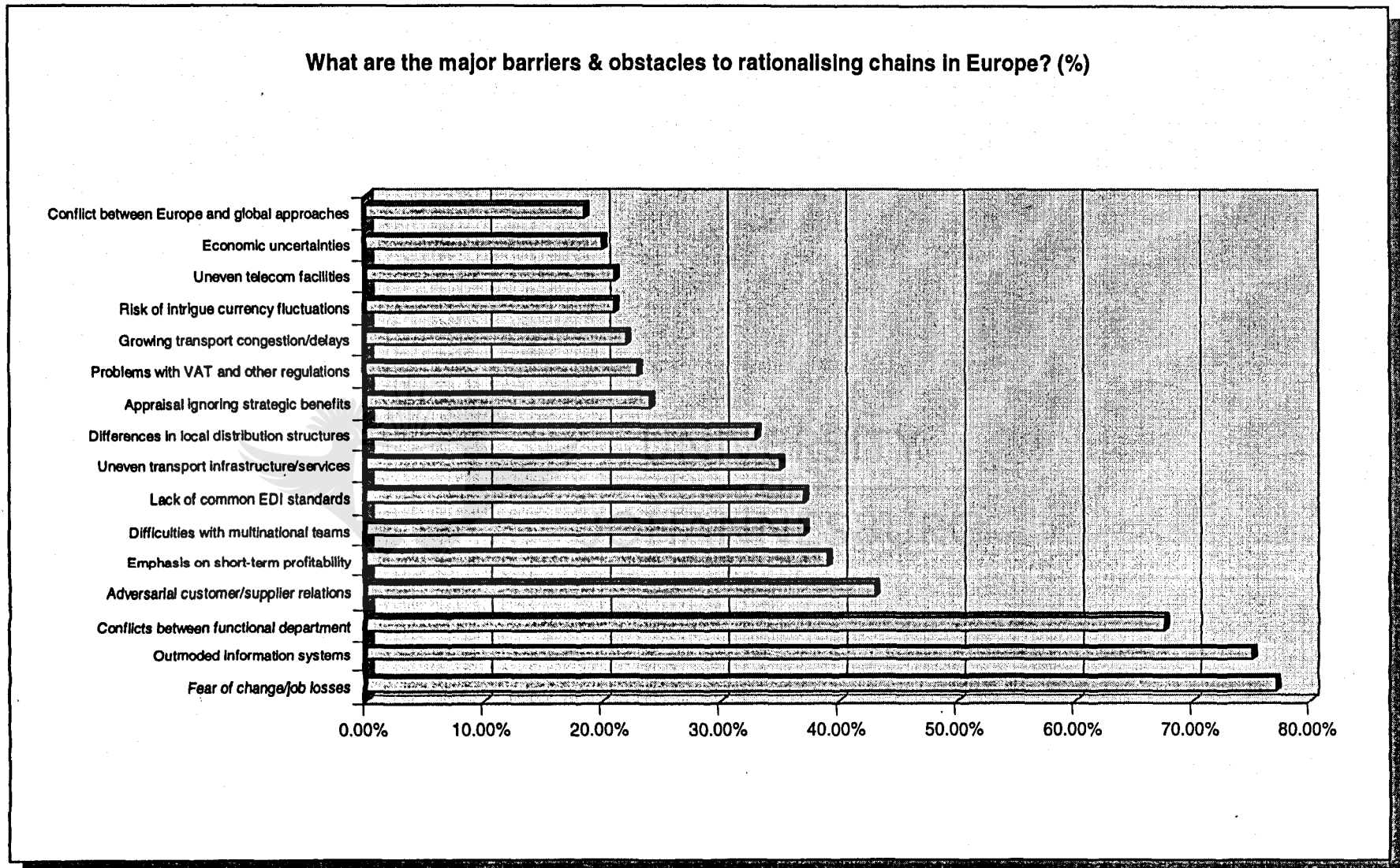


Figure 6-2 (Source: Michael Terry^[14])

The goal of world-class companies is the strategic management of the global supply chain. It involves “integrating” key suppliers into an organisation’s business and decision-making processes. Sometimes moves towards “partnership sourcing” may be resisted by employees who have experienced the negative effects of single-sourcing – rapid price increases during product shortages, or plant shutdowns when factory has been closed by a strike.

However, companies pursuing world-class supply chain management have found that the benefits far outweigh these perceived disadvantages. The key to forging successful strategic alliances is to identify suppliers who have similar corporate values and aspirations. The objective is to agree on a set of common goals as the basis for developing a business relationship that will benefit both parties over many years.

6.3 *Benchmarking the Supply Chain*

Over the past few years information on supply chain exemplars has become more readily available. In his book *Business Process Benchmarking* Robert Camp identifies several “best-of-the-best” companies: Federal Express (inventory control); Hershey Foods (warehousing, distributions); Honda Motor (purchasing); L. L. Bean (warehousing, distribution); MCI (inventory control); NCR (purchasing); and Xerox (purchasing).^[3]

Other best practice companies often cited in public literature include: distribution and logistics (Kodak, Wal-Mart, Xerox); materials management (Dupont, General Electric USA, IBM, Motorola, Xerox); supplier development (British Telecom, Gillette, LucasVarity, Short Brothers); supplier management (3M, Black & Decker, Bose, Ford, ICL, Levi Strauss, Motorola, Texas Instruments, Xerox, Zytec).^[1, 7, 11, 17]

For many senior executives “seeing is believing”, especially when it comes to managing the supply chain. Several countries, including Austria (Technokontakte), Australia (Best Practice Program), France (ADEPA), Germany (TOP), Spain (ADEGI), and the United Kingdom (inside UK Enterprise), sponsor “informal” benchmarking initiatives to encourage managers to visit exemplar companies and see for themselves best practices in action.^[1,11]

Even as business enters the era of knowledge management, identifying best practice companies can be an expensive and time-consuming task. Organisations such as the Best Practice ClubTM, The Benchmarking Exchange, the Strategic Planning Institute’s Council on Benchmarking, and the International Benchmarking Clearinghouse maintain databases of best-in-class organisations and offer assistance in identifying and contacting potential benchmarking partners.

Many companies are benchmarking the supply chain. A recent study of 125 US companies indicated that nearly two-thirds of these organisations were conducting benchmarking studies, and supply chain process benchmarking ranked as follows^[13]:

- Customer service (54.1 %).
- Quality (52.5 %).
- Cost (49.2 %).
- Productivity (36.9 %).
- Order processing (31.1 %).
- Warehouse operations (26.2 %).
- Transportation operations (23.8 %).

Although benchmarking methodologies are well documented and new “short cycle time” techniques are available, there are many barriers and pitfalls present when conducting a benchmarking exercise. A benchmarking study of the purchasing process at Glamox Fabrikker AS illustrates the potential problems, which face the benchmarker.^[10]

Glamox Fabrikker AS, part of the Norwegian-based Glamox Group, manufactures lighting fixtures. A review of company operations revealed that its purchasing process was one of the company’s main problem areas. An improvement project was launched. Later a benchmarking study was initiated as part of TOPP, a Norwegian governmental productivity improvement programme.

The Glamox internal improvement project had found that it required 26.5 working days for the company’s purchasing department to process a customer order. Plans were already in place to visit some of Glamox’s suppliers in Germany. The original purpose of these visits was to improve customer/supplier relationships and review opportunities for improvements in procurement. It was decided to add benchmarking to the agenda to save on expenses.

The partner visits were conducted before the benchmarking planning phase was completed. Glamox did not provide its partners with information about the study, nor was any background information on the suppliers collected. These circumstances, combined with the fact that Glamox did not know whether the suppliers were best practice in purchasing, reduced the potential benefits of the visits.

At this point Glamox decided to begin implementing solutions, rather than continue the search for “real” benchmarking partners and conducting additional site visits. These continuous improvement efforts reduced the order process by 50% to 13.5 days. At this point there was a change of chief executive officer at

Glamox Fabrikker AS and all benchmarking was stopped as the company went through a major restructuring and reorganisation.

A number of conclusions can be drawn from this case study:

- Benchmarking studies must be focused.
- Resources must be available for and offer assistance in identifying and contacting potential partners and conducting site visits.
- Look outside the business sector for best practices.
- Seek documented evidence of process mapping and performance measures from potential partners.
- Resist the temptation to begin implementing improvements before the benchmarking study is completed.
- Senior management commitment is necessary for successful implementation of the benchmarking findings.

Another approach to benchmarking the supply chain is through participation in consortium studies. For many companies consortium studies offer an economic way of obtaining benchmarks against world-class organisations. In the area of supply chain management, organisations such as the Michigan State University (USA), the Logistics Benchmarking Network (UK), The Chartered Institute of Purchasing and Supply (UK), the Logistics Benchmarking Service (Australia) and Pittiglio Rabin Todd & McGrath (USA) have ongoing research programmes. For example, the Pittiglio Rabin Todd & McGrath (PRTM) consultancy conducts an annual supply chain performance benchmarking study, which attracts over 160 benchmarking partners. With over 300 detailed metrics, the study provides insights into the “hows” of achieving world-class performance. The study generates a comprehensive set of fact-based performance measures, which can be used to accurately describe a world-class supply chain, from planning through to delivery.^[10]

6.4 *Supply Chain Benchmarks*

As noted previously, certain measures/indicators/benchmarks have to be used, when conducting a benchmarking study. This is also the case when conducting a supply chain benchmarking exercise. It is very important to note that it is not just the supplier and distributor performance that should be monitored and compared with the best-in-class companies. The supplier and distributor performance has a definite influence on the internal processes, as well as the interaction between these internal processes and the supplier and distributor. Therefore, one needs to know, for example, how companies manage the order-placing process at the supplier. Another example can be how a company manages their production schedules so that the supplier and distributor are in line with the company's needs.

According to Christopher, many companies are conducting formal appraisals of vendor performance.^[41] However, the idea of a supplier benchmark is still a relatively new concept. Similarly it is not sufficient just to monitor distributor's performance in absolute terms, but also comparatively against other distributors with a reputation for superior performance.

Table 6-1 illustrates the key areas for benchmarking in the supply chain.

Supplier	Interface between supplier and internal	Internal	Interface between internal and distributor	Distributor
<input type="checkbox"/> Quality <input type="checkbox"/> On-time performance <input type="checkbox"/> Stock availability	<input type="checkbox"/> Communications <input type="checkbox"/> Schedule integration <input type="checkbox"/> Co-makership	<input type="checkbox"/> Throughput times- <input type="checkbox"/> On-time performance <input type="checkbox"/> Stock availability	<input type="checkbox"/> Communications <input type="checkbox"/> Requirements planning <input type="checkbox"/> Partnership	<input type="checkbox"/> Value-added services <input type="checkbox"/> Customer concern <input type="checkbox"/> Delivery performance

Table 6-1 Benchmarking Supply Chain Performance – some typical measures (Source: Adapted from Christopher^[41])

6.5 Key Business Processes in the Supply Chain

The strategic importance of supply chain benchmarking for the business has already been stressed earlier in this chapter. One concept in particular that Michael Porter has brought to the wider audience is the value chain. Porter said that, "Competitive advantage cannot be understood by looking at a firm as a whole. It stems from the many discrete activities a firm performs in designing, producing, marketing, delivering and supporting its product. Each of these activities can contribute to the company's relative cost position and create a basis for differentiation. The value chain disaggregates a company into its strategically relevant activities in order to understand the behaviour of costs and the existing and potential sources of differentiation. A firm gains competitive advantage by performing these strategically important activities more cheaply or better than its competitors."^[12] The extensive influence of supplier management, therefore, must have an enormous impact on the business value chain. Figure 6-3 presents a generic value chain.

Business process can be categorised into primary and secondary processes. As seen in figure 6-3, there are three primary business processes. The sequence of these processes depends on the marketing vs. production relationship within a company (i.e. marketing-driven, production-driven, etc.). However, the main primary process, which is influenced by supplier management, is logistics. Looking at the secondary processes, quality management has a very big influence on and is hugely influenced by supplier management.

Judging by the above mentioned, it is necessary to investigate the impact and the process of benchmarking on the two mentioned business processes (Logistics & Quality Management).

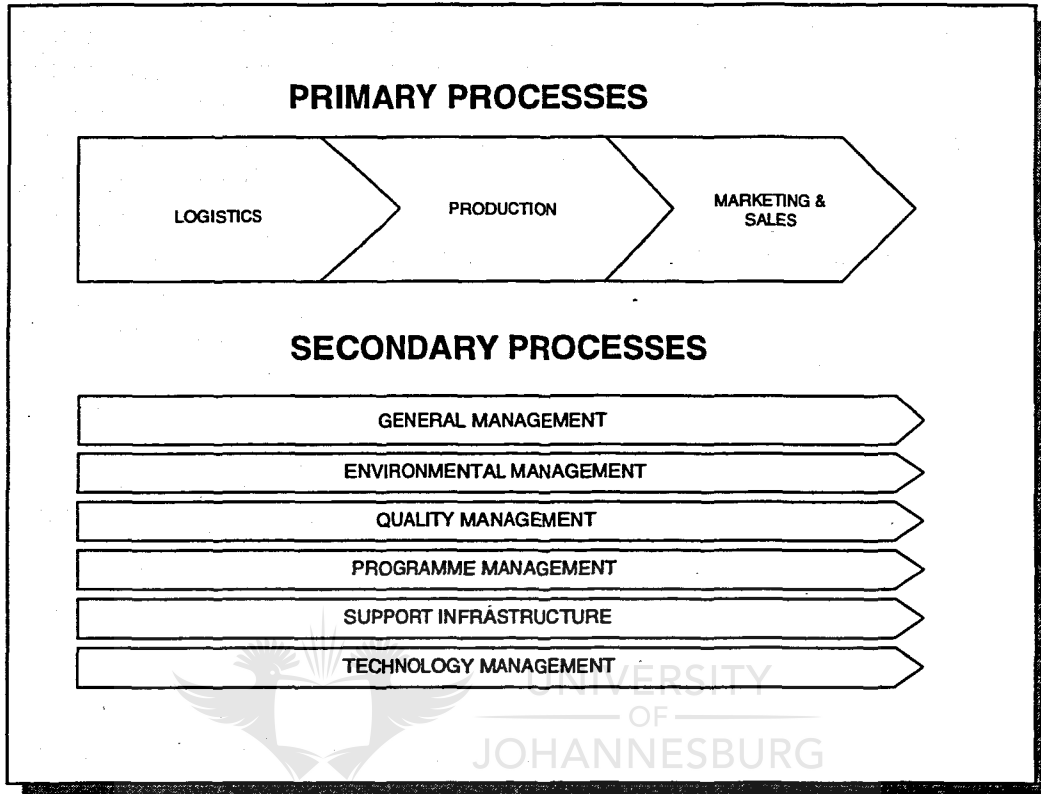


Figure 6-3 The Generic Value Chain (Source: Adapted from Porter^[12])

6.5.1 Benchmarking Logistics

6.5.1.1 Defining business logistics

Before attempting to benchmark the logistics function it is essential to understand what one is trying to measure firstly, and thereafter, the scope and complexity of the measurement exercise.

Mike Johnson, Managing Director of Logistics Management, defines Business Logistics follows^[8]:

“Logistics is a Management Discipline concerned with the effective flow of material and information through the business cycle, covering critical activities ranging from Forecasting through to Customer Service. The objective of the discipline is to promote integrative management of the member activities.”

If one analyse the above statement and integrate this with other logistic trends, the following can be deduced:

- Logistics is now recognised as a full blown “management science” in its own right. In so doing, it comes equipped with its own “toolbox” of technology and techniques. In due course, these will obviously be enhanced and expanded upon. The modern computer has a major role to play in the effective application of this new science.
- Logistics is concerned with the flow of material, and information. This emphasis on flow, with the implied continuity and repetition, is a critical aspect of any logistical analysis. The information requirement is to assist in the management of the flow of the material.
- The Business Practices is an important concept, as it defines the sub-processes a customer’s order goes through, enroute to being fulfilled. In general, these “processes” tend to run “across” the normal organisation’s functional structures.
- The range of the Business Practices will vary according to which organisation is being considered. But in general terms, they are fairly “standard” tasks, each presenting a unique opportunity to create a competitive advantage.
- The objective of Logistics is to integrate these various activities, in such a way that:
 - they meet the customer’s needs
 - they provide him with perceived value.
 These two aspects describe the essential and very critical “balance” between customer service & distribution cost.

The great problem, however, is that the supplying company has to be able to anticipate the customer’s needs, and their perceived value that they place on the, goods or services being purchased. This it does by planning, co-ordinating and controlling its business cycle more effectively than their competitors.

6.5.1.2 The Business Practices

The concept of the “Business Practices” is absolutely critical to the successful management of Business Logistics. It describes the series of tasks, or processes, that a company goes through, in the routine performance of its business in

providing goods or services for which its customers pay. These processes can be categorised into two broad types:

- Those that add value to the goods/services.
- Those that support the tasks that add value.

These processes can be viewed at various levels, the most common being:

- Strategic
- Tactical
- Operational

The most important from a benchmarking point of view, is at the operational level, due to the fact that is where the bulk of the routine customer/company contact takes place. The other levels are there to ensure the success of the operational level and the company as a whole. The strategic and tactical levels largely serve a supportive role, rather than add value to the, product or service.

The Strategic Business Practices would typically consist of the, analyses and planning of the following processes:

- Demand Forecasting
- Purchasing
- Requirements Planning
- Manufacturing Inventory
- Warehousing
- Material Handling
- Packaging
- Distribution Inventory
- Distribution Planning
- Order Processing
- Transportation
- Customer Service

The Tactical Business Practices would be similar to the strategic level, but would be confined to a smaller, or more specific area of responsibility and would include a greater emphasis on control in addition to the planning role.

The Operational Level Business Practices would include such functions as:

- Order Processing
- Credit Control
- Distribution Planning
- Warehousing
- Dispatching

□ Performance Evaluation

Depending on the nature of the organisation being considered, the Operational Level Business Practices could also include such aspects as Manufacturing, Maintenance, Training and other such processes, provided that they add value from the customer's point of view. Each of the operational processes should be carefully "mapped" out, using standard flow chart techniques. This allows the analysis of the various relationships, and their relative contribution to the entire business. Unnecessary, inefficient or illogical steps should be dealt with, as and when they occur. Alternative methods can also be evaluated this way.

It is suggested that many of these operating level processes are well worth benchmarking, as the potential for cost effective improvements, can often be identified by observing other operations. Flow charting all routine operating processes can often prove to be an eye-opening exercise for company employees involved, especially management, and is an ideal way to get to know and understand one's operation better. This is an essential basic requirement for effective benchmarking. Each of these processes, regardless of the level at which it is performed, offers the company a great opportunity to differentiate itself from its competitors.

6.5.1.3 Logistics Benchmarking Guidelines

According to Christopher^[4] and Camp^[2-3], some useful guidelines for the effective implementation of the logistics benchmarking process are as follows:

- Focus on meeting the end-user requirements. Attempt to set a good "feel" for what is really important, and quantify the game.
- Focus on the "Best Practices". Understand the various processes, and identify why some work better than others.
- Include all available proven technology. Do not miss an opportunity because you are unfamiliar with a particular technology. Do not get too adventurous with unproven technology.
- Focus on business simplification opportunities. For example:
 - process simplification (i.e. eliminating duplicate or unnecessary steps in a process)
 - business practice simplification (i.e. by conducting one's business, or part of the business, in a simpler manner)
- Concentrate on major contributors to the cost base. Apply the 80/20 rule by focusing on the items that are likely to give you the biggest return.
- Define the long-term end point and migration strategy. Be clear in what you are trying to achieve, and how you aim get there. Communicate these ideals to everyone that is concerned.

- Use whatever available quality improvement tools may be, appropriate to the, situation. Remember that an effective flow of information is essential for the “management” of a sound Logistics System.

6.5.1.4 Benchmarking Approach

Mike Johnson suggests that there are five broad benchmarking methodologies relevant to logistics, namely^[8]:

- Comparing total performance against some other comparable system.

This could include comparisons against other company divisions, major competitors or quality operations from another industry. The availability of information and the validity of the comparison often determine the feasibility of this approach. Such global comparisons can often indicate that there is a problem, but they do not always allow for effective follow-up analysis due to the lack of detailed data. Benchmarking against top performers in other industries is usually the best option, as it gets outside the measuring company's business environment/practices, and is usually non-threatening to the company being measured against.

- Comparing performance of individual logistics components against other comparable components.

Here, the performance being measured is very much more specific. Again, it can be compared to another division, a competitor or another industry. Information is generally more difficult to come by in this case, because of the more confined nature of the subject being measured. It is worth the effort, however, as it leads to more meaningful “cause, & effect” analysis. Great care must be taken, however, not to give certain components inflated “value” because they are easier to monitor. It is critical to keep the business cycle “in balance” at all times.

- Comparing performance against some form of standardised industry data from reliable and objective sources.

Where industry wide or individual process data exists, it is worth undertaking company performance comparisons (subject to the base assumptions made in any such database, being relevant and applicable). Unfortunately, not too many of these currently exist in South Africa. This is partly due to the relatively small nature of our markets, with the balance being due to the very introverted and generally conservative nature of most South African managers. It is anticipated that this situation will improve fairly rapidly, now that we are becoming an accepted member of the international community again.

Extensive databases exist overseas, but it is very questionable whether these are valid or relevant to South African companies, with the exception of those interested or involved in exports.

- Comparing actual performance against the internal company budgets.

Most reasonably managed companies do this today. This is the internally focused approach. To be really effective, a company should combine this with some sort of external focused perspective as well. It requires extra effort and resources, but is usually worth the effort, especially in very competitive situations.

- Comparing performance against internally created and measured efficiency norms.

This method is usually an extension to the budget method discussed above, wherein more detailed, and specific, performance indicators than required for the budget are used to monitor and manage day-to-day operations. Again, it is an internally focused measure, and can often be if not “tagged” to some external measure.

Data for the benchmarking process is not always easy to come by. Often, it has to be collected over a period of time from fairly obscure sources. Initially, it could require a fair degree of patience and determination.

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6.5.2 Benchmarking through Total Quality Management

It has already become clear that the 1990's will be a staggeringly different and much more demanding era for business than what has been experienced up to now. The 1980s and 1990s will probably seem to be the warm-up practice for the decade ahead where most of the up-and-coming managers of today will spend the majority of their careers. Concepts such as “participation”, “teamwork”, “empowerment”, “competitiveness” and “improvement” are becoming the passwords for the future. Alvin Toffler said in his book, *The Third Wave*, that we moved into a so-called “technology wave”, whereas the first two waves were the agricultural & industrial waves.^[15] What about the new movement in business towards softer issues like human resources, intellectual capital & knowledge management – isn't the fourth wave a knowledge wave? This current wave is the one where workers (human resources) will best utilise the first two waves through total quality.

Since the collapse of sanctions against South Africa, an increasingly open, globally competitive marketplace has emerged with an unstoppable force which no government or business consortium can delay indefinitely. This will mean an

enormous increase in the competitive pressures upon most South African companies. The South African business community estimates that nearly three quarters of all the products manufactured in SA are now targets of strong import competition.^[5] There is major import vulnerability for all South African organisations. This part concentrates on the importance of quality in the total organisational change process and how to benchmark the quality improvement process to create a truly world class company.

6.5.2.1 Strategy: design for the world market to protect domestic market

The fundamental business strategic impact to South African companies is to protect its position in its home market, they should design and sell their domestic products and services with the potential also for supremacy in the international marketplace even though there isn't yet much import competition or interest in exporting. And they must do this quickly; there is no time to lose.

Wilson states that there are basically three external focuses that are primarily causing the quality environment's rapid transformation^[16]:

- Technological advances.
- Shifts in products, services and markets.
- Increasing economic competitiveness.

According to David Crawford, Managing Director of QSI, three facts of life about this new business environment have become apparent^[5]:

- Quality is the key to competitiveness in these opening markets.
- Quality leadership is imperative for surviving the future but not widely found.
- Quality is, or should be, the fundamental way of managing any manufacturing or service business anywhere for market growth and profitability.

Quality will be expected to exist in a company's products and services as a matter of course. Having it will be nothing special - not having it will mean disaster.

6.5.2.2 Total quality benchmark

Someone once said that strong total quality systems are like strong stomachs – they are working best when you scarcely know they are there. There are numerous companies that are “going the total quality management route” and going to great lengths to install a quality management system that will gear the company to become a world class player. The criteria used in setting up such a system is invariably the ISO 9000 quality system standard or, in some cases, a hybrid of the ISO 9000 standards, the American “Malcolm Baldrige award” criteria, as well as

the “Model for Business Excellence” of the European Foundation for Quality Management (EFQM). Designing the quality system of a business according to the criteria of these codes of practices gives the company the assurance that their quality is world class and conforming to the requirements set by their customers.

Crawford also states that there are ten basic benchmarks that need to be present in any quality system to ensure its success. These benchmarks are universal and can be applied to any type of business.^[5]

First: Quality is a company-wide process

Technical capability isn't the principal quality problem for companies today. What differentiates the quality leaders from the quality followers is quality discipline and clear quality work processes that man and women throughout the organisation understand, believe in and are part of. In a company wide quality process the word quality becomes both a reference point and a goal for all activities undertaken in the company. Quality should embrace and unify every element contributing to excellence, which is the fundamental goal of every company. Quality therefore includes the following:

- Competitiveness
- Cost
- Delivery
- Morale
- Productivity
- Profit
- Product quality
- Quantity or volume
- Performance
- Safety
- Service
- Concern for the environment
- The stockholder's interest

The all-embracing dimension of quality is particularly important at the operational level of a company. Here the ability to combine all these factors is fundamental. Quality not only has a unifying dimension but is also can be viewed as an enlarged concept for example when talking about quality one may refer to all of the following aspects:

- Quality of a company's performance.
- Quality of an individual's performance.
- Quality of the organisation.
- Quality of the company's image in the marketplace and world-wide.
- Quality of the working environment

- Quality of relationships among employees

Second: Quality is what the customer says it is

Quality is not what an engineer, marketer or general manager says it is. If one want to find out about one's quality, go out and ask the customer. Giving highest priority to customer satisfaction accords great respect to the customers themselves. In this benchmark great value is attached to human beings in their three most important roles related to business.

- Human beings as customers.
- Human beings as employees.
- Human beings as suppliers.

Respect for customers is the engine that moves excellent companies. There are two main reasons for the primacy of customer satisfaction over profit:

- Profit usually affects few people, and implies knowledge of aspects of the business that are not understood by a great majority of employees.
- Customer satisfaction touches everyone. All employees are also customers, and they know what it means to be satisfied or dissatisfied with a supplier of products or service.

Third: Quality and cost are a sum not a difference

The quality movement has become popular among businesses for one reason, because empirical evidence suggests that quality and profits be linked.^[6] Unfortunately, while many firms accept that quality and profits go together, few actually track the profits associated with their quality programs. Some managers believe that the value of quality is unknowable, while others do not believe that quality should not be subject to financial criteria. Ultimately, however, whether the profit impact is measured or not, the success or failure of any quality program is its effect on the company's bottom line.

Fourth: Quality requires both individual and teamwork zealotry

Quality is everybody's job but it will become nobody's job without a clear infrastructure that helps all the left hands work with all the right hands. The biggest problem of many quality programs is that they are quality improvement islands without bridges. This culminates in the conflict between the vertically structured organisation versus the horizontal workflow in order to satisfy customers. The horizontal workflow and vertical organisation result in many voids and overlaps. An adequate

structure will therefore have to exist to find synergy between all the activities to improve quality.

Fifth: Quality is a way of managing

Good management used to be thought of as getting the ideas out of the boss' head and into the hands of the workers. Today we know better. Good management means empowering the quality knowledge, skills and attitudes of everyone in the organisation to recognise that making quality right makes everything else in the company right.

Sixth: Quality and innovation are mutually dependent

The key to successful new product launches is to make quality the partner of product development from the beginning - not the sweep up after mechanisation for development problems. It is essential to include the views and attitudes of customers right from the start when designing new products or services.

Seventh: Quality is an ethic

The pursuit of excellence, deep recognition that what you are doing is right is the strongest motivation in any organisation and it's basic driver in true quality leadership. Cold turkey quality programs with charts and graphics are never enough. Due to our traditional mode of analysis (breaking things down into their integral parts to understand them) and to our culture of specialisation, we are still looking for that one-most-important-factor in quality improvement. We are looking for that drives force of quality, rather than realising that all of the views on quality are critical to the new culture we desire to spawn. We fail to see that whole must be created which is more than just the sum of its parts.

Eighth: Quality requires continuous improvement

There is no such thing as a permanent quality level. Quality is a constantly upward moving target and continuous improvement is an in line, integral component of a quality program, not a separate activity. One can see it as the jogging and fitness discipline for a company quality leadership.

Ninth: Quality is the most cost effective, least capital-intensive route to productivity

Some of the worlds strongest companies have blindsided their competition by concentrating on elimination of what have long described as their hidden plant; the part of the organisation that exists because of bad work. They

have done it by changing their productivity concept from the old Frederick Taylor four letter word, MORE, and added on the quality four letter word, GOOD, into the more good quality productivity concept.

Tenth: Quality is implemented within a total system connected with customers and suppliers

This is what makes quality leadership real in a company - the relentless application of the systematic methodology that makes it possible for a company to manage its quality rather than just have it happen.

These are the ten basic benchmarks underpinning the technology of total quality management for the demanding decade of the year 2000. They make quality a way of focusing the company on the customer; whether it be the end user or the man or woman at the next desk or workstation. They make quality the company's way of simultaneously achieving total customer satisfaction, human resource leadership and low cost.

And that brings me back to the broader international competitiveness issues, and to an emphasis of the great importance, of quality leadership to the health of South Africa's overall economy today in the face of the intense demands we all face.

6.5.2.3 Global imperatives

As we work within the global economy three imperatives are critical, and need to be benchmarked, for companies to achieve the competitive leadership in quality (David Crawford^[5]):

- A clear understanding of today's international markets and how people buy in these markets.
- A thorough grasp of the kind of total quality strategy that provides the business foundation for satisfying these customers.
- Hands on management knowledge of how to create the environment for total quality to establish the stretch goals required for modern quality systems to technology for gaining market leadership.

6.6 Conclusion

The technique of benchmarking business operations is going to become an increasingly important one within South Africa in the years to come. As one become a more important player in the world economy, both as an exporter and an importer of goods and services, so will one's need to measure performance levels relative to other world players increase. In time, it will become an important

source of reference, as it has in most overseas countries. Ineffective and inefficient operations will face increasing pressure to adapt or die. It is no secret, that as a result of our extended isolation as a result of sanctions, our economy is riddled with poor and inefficient businesses. Thus, the sooner one gets onto the learning curve the better.

Strategic management of the supply chain can deliver dramatic results. A 1% reduction in supply chain expenditures can increase a company's profits by 10-20%. Knock-on effects include improved delivery performance, greater flexibility and responsiveness and improved asset management.

Benchmarking plays an important role in identifying world-class organisations and their best practice supply chain enablers. By unlocking the "keys" to supply chain excellence organisations can expect to:

- Meet the customer's need date four times more often than the typical company.
- Respond to customer demand twice as fast as the average companies.
- Reduce total logistics costs from an industry average 10-12% of turnover by half.
- Reduce cash to finance inventories and receivables by 50%.

Business logistics in most companies presents a huge, or at least significant, opportunity to realise many of the benefits presented by benchmarking. The realisation that many companies often spend more on distributing their products, than they do manufacturing them, is starting to sink in. The big incentive within the Iscor LTD environment, for example, is the minimisation of TCO (Total Cost of Ownership). This was started after other similar companies were benchmarked, regarding supplier management.

A major research study was recently completed, by QSI, on the impact that widespread implementation of total quality would have on the gross national product of South Africa.^[5] The resulting quality improvement potential (QIP) estimate, measured in 1990 GNP terms, indicates that an enhancement of approximately 7% in GNP would be the result of widespread implementation of total quality in the SA economy. This study points to TQM, and the system technology, which provides its operational foundation, as one of the basic keys to increasing South Africa's industrial strength today and tomorrow.

Benchmarking is a catalyst for change by identifying best-in-class practices providing senior management teams with performance goals to match or exceed. Strategic business benchmarking contributes directly to planned change, generating competitive benefits to all stakeholders. Now is the time for a new approach, and benchmarking is one of those that have considerable merit.

CHAPTER 7

KNOWLEDGE MANAGEMENT and INTELLECTUAL CAPITAL



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7. KNOWLEDGE MANAGEMENT and INTELLECTUAL CAPITAL

*“We are perpetually moralists, but we are
geometricians only by chance. Our intercourse with
intellectual nature is necessary; our speculations upon
matter are voluntary, and at leisure.”*

Samuel Johnson

“Nam et ipsa scientia potestas est.”
Knowledge itself is power.

Francis Bacon



*“Knowledge is the mother of all virtue;
all vice proceeds from ignorance.”*

Proverb

*“The greater our knowledge increases,
the more our ignorance unfolds.”*

John F. Kennedy

7.1 Introduction

The role of knowledge as the key source of potential advantage for organisations and indeed whole economies has become a hotly debated topic. Peter Drucker recently wrote that “knowledge is the only meaningful economic resource”.^[6] It follows that for organisations, individuals and society, the processes by which knowledge is created or acquired, communicated, applied and utilised must be effectively managed.

The idea that knowledge may be managed is clearly fundamental to the related notions of the learning organisation, the knowledge-based business, and the management of intangible assets and of intellectual capital. Current interest in these overlapping concepts may well reflect important phenomena with which organisations have to cope, such as perceptions of increased rates of change, competition and market turbulence. People are looking for new ways to compete effectively. One important process is to recognise or rediscover assets you already have but are not using to their full potential. Notably, these are employees and information, but may also include patents, copyright, brands, R&D, licensing opportunities, innovative use of assets such as databases, and so on. These provide opportunities to innovate, to cut costs, to save design time, reduce time-to-market, etc.

However, those wary of yet another management fad are also justified in posing three key questions:

- Is the trend towards knowledge management adequately defined and identified?
- Is what is perceived to be happening genuinely new and different?
- Can anything meaningful be said in order to guide the knowledge management process – is knowledge manageable in terms of management as a process with which we are familiar, or is knowledge management an oxymoron? Might knowledge management better be seen as a component of all forms of human and organisational activity, rather than a subject of concern in its own right?

More fundamentally, is the underlying premise, as suggested by Drucker’s quote, that knowledge may be seen as a resource that, like land, oil or iron ore has independent existence outside human and social systems, not open to question?

7.2 Knowledge Management: A Strategic Agenda

7.2.1 Information and Knowledge Economies

The importance of knowledge for securing economic and social benefits would hardly be news to the ancient Egyptians or Greeks, and the practical application of knowledge to solve human problems was fundamental to Francis Bacon's writings in the early seventeenth century. Subsequent generations of scholars have emphasised the importance of information, many writers over the last three decades (for example, Daniel Bell and Alvin Toffler)^[3,17] arriving at the conclusion that information, as well as the traditional factors of land, labour and capital, also creates wealth. Bell^[3] wrote in 1974 of information being the "axial principle" of a post industrial society in which the majority of employment is for "information workers" rather than for those engaged in manual tasks. Concepts such as the "information economy" and even "the information age" are underpinned by the suggestion not so much that previous societies brought no information to bear on their endeavours. There has been a qualitative change brought about by the ability to produce, reproduce and communicate vast amounts of data and information electronically (the issue of information technology shall be returned to at a later stage in the chapter).

The first question in relation to such claims focuses on whether more information is necessarily better. Unlike material commodities, in the economics of information, "more" must mean "different" or it is worthless. The second related question is whether any given organisation can utilise appropriate information within a relevant context and timeframe, and at what cost. Information is not a free good since its assimilation and utilisation requires an appropriate level of understanding. Information is only of value within a context where other forms of knowledge are brought to bear. Indeed, for a number of reasons it may have negative attributes. There is much current concern with "information overload" – that is, too much information swamping the individual or the organisation's ability to assimilate and use it. The following quote from Herbert Simon illustrates this and raises a further point:

"In a world where action is a major scarce resource, information may be an expensive luxury, for it may turn our attention from what is important to what is unimportant."^[16]

The additional point is that what is important is a matter of judgement and depends on other forms of knowledge being brought to bear. The claim, therefore, for the emerging inter-discipline of knowledge management, is that knowledge must be the focus for analysis, and that organisations must find ways in which to manage

the processes by which knowledge is created and applied. Charles Handy has recently claimed that the future lies in a “three-i” economy, with organisations adding value through the application of “information”, “ideas” and “intelligence”.^[10] These might well be seen as key elements within knowledge management processes, but the word application perhaps disguises the complexity of these processes.

7.2.2 Definitions and Scope of Knowledge Management

What is the current scope of activity relating to knowledge management? A search in August 1997 of over 100 web sites, which touch on some aspect of knowledge management, revealed a heterogeneous range of interests, perspectives and issues, including:

- i) Economics and organisational knowledge capital. This includes the issue of whether “information” is “data” or “knowledge”, and questions of information and knowledge value in particular contexts, including considerations of intellectual property rights (IPR).
- ii) Engineering approaches, including ways to reduce information overload in decision support systems and environmental scanning, ways to re-use information, as in configuration management systems to support the reuse of engineering and manufacturing knowledge in routine design, and configurable production systems achieving dynamic and flexible product-specific manufacturing systems.
- iii) Other aspects of computing and knowledge media.
- iv) Organisational studies, informed by anthropology, evolutionary biology, sociology, etc.
- v) Other aspects of definition and classification, informed by artificial intelligence, information science, linguistics, philosophy, etc.
- vi) Human resource sites, which mention relatively recent job categories such as Chief Knowledge Officers, Intellectual Capital Directors and Intellectual Capital Controllers, as well as more traditional knowledge management job titles such as Information Officers, R&D Librarians and Corporate Archivists.

What is perhaps surprising is the lack of convincing examples of Handy’s “three-i” organisations, creating value from intangible assets, or adding value, for example by effective brand management. Moreover, the benefits of knowledge management are often presented solely at the level of the organisation or the decision-maker, rather than at the level of individuals in an organisation, or other stakeholders. There appears to be very little consideration of how individuals might become better able to manage their own knowledge and that of their organisation.

Other underpinning disciplines and themes that emerge from the literature include: organisational memory, knowledge representation and communication, ethics, explicit and tacit knowledge, and organisational learning. Clearly the scope of knowledge management is wide, reflecting this heterogeneity. Inevitably, definitions depend to a large extent on the purposes for which they are intended. The interest here is in a definition that will provide heuristics for management practice and education. Knowledge management can therefore be regarded as a process, distinguishing Knowledge Management from the focus on resources and assets, which is fundamental to many interpretations of intellectual capital, thus:

“Knowledge management is the process of continually managing knowledge of all kinds to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities.”

Such a perspective allows one to explore useful distinctions between different kinds of knowledge, and sets the agenda for the development of action-oriented goals for managers and organisations, such as:

- to formulate an organisation-wide strategic policy for developing, acquiring and applying knowledge;
- to implement knowledge strategies with the help of all relevant parties within an organisation (or a network of organisations);
- the daily improvement of the business processes in an organisation, with a focus on knowledge development and use;
- to monitor and evaluate the achievements of knowledge assets, and
- to monitor and evaluate management activities in terms of knowledge.

The kinds of activities that might be associated with such goals include:

- the disclosure of knowledge (e.g., lessons learned, best practices) so that all members of an organisation can use that knowledge in the context of their organisational roles;
- ensuring that knowledge is available at the precise location where it is most crucial for decision-making;
- ensuring that knowledge is available when it is needed for a business process;
- facilitating the effective and efficient development of new knowledge (e.g. R&D activities, learning on the basis of historical cases);
- supporting the acquisition of knowledge from external sources, and developing the capability to assimilate and utilise that knowledge;
- to ensure that new knowledge is distributed to those people in the organisation who perform activities on the basis of the new knowledge (e.g., distribution of lessons learned);
- to ensure that everybody in the organisation “knows” where knowledge is available within the organisation or network of organisations.

These activities have management implications at all organisational levels and functions. This suggests that knowledge management programmes must have coherence across a number of dimensions, including organisational structure and culture, people aspects, processes and technology:

- organisational structure and culture: including the development of structures that facilitate the growth of communities of practice (groups of professionals informally bound to each other through exposure to a common class of problems, with common pursuit of solutions, who thereby themselves embody a store of knowledge);
- people aspects: training, development, recruitment, motivation, retention, organisation, job design, cultural change and the encouragement of thinking, participation and creativity, and the management of all types of employment contracts;
- process aspects: process innovation, re-engineering; both for radical and continuous improvement;
- technology aspects: concept maps, hypermedia and object-oriented databases, artificial intelligence approaches to knowledge acquisition, representation and discovery, decision support, data mining and knowledge dissemination.

7.2.3 Technology, Information and Knowledge

Technology provides powerful metaphors for human and organisational processes – the heart as a pump, the individual as an information processor, the organisation as a machine, and so on. The mechanistic view of human physiology has partially been replaced with a more holistic conceptualisation, and the mechanistic model of organisations has been similarly augmented with organic models. The use of computers has over the last 40 years led to the dominance of a database-centred view of organisational information resources and processes. It is this model which appears in many conceptualisations of knowledge management. As with the transfer of many models and metaphors between contexts, it may be misleading.

In fact, the database model may not even have been very helpful in the context of organisational information processes. Thomas Davenport, director of research at Ernst and Young's Centre for Information Technology and Strategy in Boston, argues that the majority of information that managers draw upon is not embedded in computer systems. Rather, it is principally in the heads of the staff, or communicated to them through a number of channels:

"...evidence from research conducted since the mid-1960s shows that most managers don't rely on computer-based information to make decisions. The results of these studies are remarkably consistent: managers get two-thirds of their information from face-to-face or telephone conversations; they acquire the

remaining third from documents, most of which come from outside the organisation and aren't on the computer system."^[4]

There is a now awareness that, for the majority of organisations, traditional database structures and IT approaches can capture or represent only a fraction of their knowledge and intellectual capital. Of course, this varies between sectors and organisational types. Some forms of organisation depend on large databases of tightly-structured information, but here the value-added may still occur at a conceptual level. Having knowledge about which information sources are accurate, and what types of information, and patterns in the data, specific customers may wish to pay for, are examples of meta-knowledge that are unlikely to be held within an IT system. Knowledge adds value to data by providing selectivity and judgement.

To start with conventional definitions of data, information and knowledge: information is organised facts and data, and "knowledge consists of truths and beliefs, perspectives and concepts, judgements and expectations, methodologies and know-how"^[18] Although the "data processing" view of computer systems and thereby the organisational processes which could be supported by them has been a powerful metaphor in the second half of the 20th century, organisations have never seriously been considered to be simply data processing machines.

However, JR Galbraith suggested in 1977 that organisations might be considered to be information-processing systems,^[7] and the contribution of IS (Information Systems) to organisational performance has been a matter of both blind acceptance by some and such controversy more generally. Clearly, even in the simplest organisation there are flows of information from customers, users and suppliers, as well as to and from the government and regulatory bodies. Internal processes must manage this information. The data and information processing that goes on inside the organisation takes place in a context within which other organisational processes add intelligence, judgement and value to data and data processes. Often the ability of humans to override, ignore and circumvent the formalised organisational processes represented in IS, has enabled the organisation to manage its knowledge base intelligently in spite of the IS system.

Emphasis is now shifting away from the "database-centred" view of IT towards the communication potential of new technologies – hence the phrase ICTs (information and communications technologies). ICTs are supporting the emergence of new organisational forms and working patterns that are in many ways transforming the ways in which organisations function, and especially the ways in which they interact and communicate. The metaphor of the computer as a filing cabinet, text processing or calculating tool is being replaced with the metaphor of computer as a communications device – a window, a channel, or perhaps a lens that may be focused, through which to access information.

7.2.4 Managing Knowledge Between Organisations

Companies and governments face many opportunities and threats accompanying the rapidly growing use of information and communication technologies (ICTs): global markets and competition, new forms of organisational structure and inter-organisational dependency, and new interrelationships between producers and customers. Few corporations have the capability to go-it-alone and cover the waterfront of technologies required to innovate in the many product markets where technologies are fusing across disciplinary boundaries.^[11] They therefore need to continuously acquire new knowledge from external sources to enable them to innovate effectively. Knowledge acquisition is an active process – it requires firms to commit resources to its management. For example, much R&D expenditure is devoted to tracking and assimilating knowledge from outside the firm boundary.

This is especially challenging in the case of tacit knowledge.^[14] Whereas certifiable knowledge can be expressed and transferred in written and other recorded forms (designs, formulae, specifications etc.), tacit knowledge resides within people and may be embedded in organisational and social processes, building cumulatively within the organisation. Such “difficult to unravel” knowledge is not easily transferred between organisations. Tacit knowledge should not be seen as knowledge which is independent of explicit knowledge; there is a tacit dimension to all forms of knowledge and practice.^[14]

In transferring knowledge across organisational boundaries, organisations must solve “the boundary paradox”. It implies that their borders must be open to flows of information and knowledge from the networks and markets in which they operate (markets which increasingly blur traditional boundaries), on both formal and informal bases. The organisation must, at the same time, protect and nurture its own knowledge base and intellectual capital. It is upon the dynamic preservation of the latter that survival depends.

7.2.5 Problems and Challenges

“Knowledge Management” suffers from the same problem as many other management labels: it assumes that knowledge is a “thing” (object) which is amenable to being “managed”, by a “subject” (a manager). The analogy is with “managing culture” – seeing culture as an independent set of variables which become incorporated in organisations and which can be manipulated (managed) by suitably sensitised people. Yet it is now widely accepted that culture is not an “add-on” to organisations. Culture is what an organisation is rather than what it has.

Further, organisations are embedded in societies. The presumed separation between object and subject is not so easily constructed, especially at the organisational level (exactly what has knowledge about what?). There is clearly an issue here as to whether knowledge can be regarded implicitly as a more or less discrete resource or input in the same way as “materials” can be. The organisation as an information processor is a metaphor, which fails if the divide between subject and object is complicated. Bateson^[2] said: “information consists of differences that make a difference”.

Another weakness of the information processor metaphor is that it takes as given the methods (and underlying knowledge base and assumptions) used to process information. This may be why some firms are blinded and do not perceive threats from outside their traditional “knowledge boundary” (e.g., knowledge from new or unfamiliar disciplines, or knowledge about unfamiliar ways of doing business).

It is clearly difficult to think completely “outside the box” – to find solutions that are not influenced by one’s traditional knowledge boundary or by the constraints and assumptions of one’s organisation and one’s society. Ideally, the management of knowledge would be carried out by people with “prepared minds”, able to cope with rare yet valuable opportunities such as the discovery of the Penicillin mould (which perhaps had been seen a thousand times in labs, before Fleming noticed it as something unusual rather than annoying). Realistically, the management of knowledge typically involves many routine events, mixed with a tiny number of unusual events. Common events can be managed better by becoming aware of common practices (and pitfalls), and alternative approaches from other organisations and societies.

7.3 *Creating a Knowledge Based Learning Organisation*

Although the benefits of discovering, analysing, and implementing best practices are inescapable, it represents a significant investment of both human and financial resources. The issue is not how to minimise the investment, but rather how your organisation can leverage the investment to maximum advantage. The key lies in a concept commonly referred to as *knowledge management*.

The idea is that organisations are composed not of *things* but of *people*, and that the people employed by an organisation collectively represent an organisation’s intellectual capital, its intangible pool of skills, knowledge and information. An organisation that effectively engages in knowledge management seeks to ensure that the intellectual capital possessed by one or more employees in one unit or division is shared with employees in other units and divisions. This sort of knowledge sharing leads to what many notable thinkers have called “*learning organisations* – organisations that are capable of creating, acquiring, and

transferring knowledge and of modifying behaviour across divisional boundaries to reflect new knowledge and insight”.^[8]

Learning organisations typically have five characteristics^[8]:

- i) They are adept at solving problems.
- ii) They encourage experimentation with new approaches.
- iii) They develop and maintain methods for learning from past experiences.
- iv) They support the exercise of learning from the best practices of others.
- v) They are adept at transferring knowledge quickly and efficiently throughout the organisation.

Learning organisations are ones in which valuable insights are shared throughout the organisation, enabling everyone to share in the results of an improvement or a new development. Such knowledge sharing continually raises the performance across the entire organisation and ensures that it will remain agile – that is, constantly behave in a pre-active manner, providing products and services that are increasingly customised to the needs of its customers.

What does it take to be a learning organisation? As it becomes more and more a part of our daily lives, technology acts as both a conduit through which we interact with others during a benchmarking exercise and a channel through which best practices and lessons learned are shared across organisations. Technology provides opportunities to share both “explicit knowledge (formal and systematic knowledge relating to things like product specifications, formulas and software programs) and tacit knowledge (knowledge that is highly personal, such as that which is related to skills or techniques)”.^[13] In this study, ways are explored to use technology both to learn about best practices and to share knowledge throughout an agency.

7.3.1 Information mining: Public domain research

The exponential growth of the Internet, a non-proprietary, publicly available information superhighway that links sites throughout the world, allows just about anyone to engage in data gathering. Key searches including the word benchmarking can connect one to all manner of benchmarking clubs and many of which offer their own proprietary databases. Beyond ease of access, the Internet assures exposure to data that is global in nature. That means the team can gain insights far beyond your national boundaries.

Beyond the Internet, there is a multitude of other places to shop for data. Whatever the scope of a project, there is likely to be a benchmarking database or clearinghouse that caters to your needs. Organisations sponsoring best practice clearinghouses include Software Productivity Research, The Benchmarking

Exchange (TBE), the US Department of Labour, and the United States Navy Directories, both published and on-line, are another valuable source of information. Inside UK Enterprise, for example, a directory compiled by the Department of Trade and Industry in the United Kingdom, lists companies throughout the UK willing to share best practices. Listings include basic company data (such as location and employee head count) as well as best practices (such as collections systems and mortgage front-end processing), issues they would like to explore with other companies, and dates during which site visits will be sponsored. Hoover's produces a whole series of directories, published by Reference Press, Inc., in hard copy, CD, and on-line formats, representing a rich source of company data including telephone numbers.^[13]

One mistake beginning benchmarkers often make is immediately attempting to partner with award-winning companies such as Malcolm Baldrige National Quality Award winners without conducting appropriate research. Effectively mining for information ensures that your team gains access to data that is most relevant to the project at hand.

7.3.2 Information mining: Interactive benchmarking

Because of its nearly real-time communications capability, the Internet offers value beyond the preliminary research phase. At the most basic level the Internet supports the ability to search by key words and views lists of communicate through electronic mail in the world almost instantaneously. E-mail can be used during every stage of the benchmarking process, to solicit partner involvement, to exchange site visit plans, and to distribute final reports.

At the more sophisticated end of the spectrum, through increasingly common programming techniques, agencies or organisations with a World Wide Web site can create a page that both captures data from benchmarking partners and provides immediate feedback on where those data stand in relation to the general field of partners.

Take the case of a university whose goal is to compare its core process indicators with those of the competition. It creates an on-line survey instrument and invites partners to feed their core process resources of information and lessons indicators into the instrument. With the click of a mouse, both parties are able to assess where the subject stands against the overall field of benchmarking partners. Interactive benchmarking not only saves time, it allows each partner to produce its own report and often eliminates the need for a costly site visit.

7.3.3 Leveraging intellectual capital

The increasing popularity of “Groupware” and “Intranet” – software technologies that enable employees within an organisation to communicate and share data in a real-time environment – demonstrates the power of knowledge management. A new policy implemented at Iscor Mining, for example, can be made available to the entire organisation by posting it on an electronic bulletin board or by publicising it on a “desktop”.

One professional services firm, for example, initiated a knowledge network composed of virtual television channels. Users tune into an internal “channel” to participate in a dialogue or sharing session. E-Systems, an electronics company based in Dallas, Texas, developed a system called ECLIPSE, allowing access to internal and external information. The system scans documents, accepts data from CD-ROMS, and provides access to electronic publications and subscription databases. Users can search by key words and views lists of topics accompanied by abstracts. Clicking on the abstract can access a full article.

Knowledge sharing does not always require technology. In fact, almost any organisation can realise significant benefits from some old fashioned networking. One way to network within your agency is to publish a directory listing employees’ areas of expertise, phone numbers, mail stations, and any other means of contact (for example, e-mail). Organisations that encourage knowledge sharing will often have some centralised database (this can be electronic or on paper) that tracks the activities of continuous improvement teams, benchmarking teams, re-engineering teams, and so on. The challenge is to encourage employees to tap into the vast resources of information and lessons learned that the database represents.

A 1994 study conducted by INSEAD, the European Institute of Business Administration in Fontainebleau, France, reveals that best-performing companies are the most likely to implement best practices that have been communicated within the organisation.^[18] Worst companies are the next likely candidates, followed in last place by the middle-of-the-road companies, which undoubtedly engage in the knowledge transfer process only as a result of internal peer pressure.

Without effectively managing the intellectual capital that is the very foundation of all organisations, no agency can hope to justify its existence. To be a learning organisation is to embrace aggressively the tools of breakthrough improvement and leverage the result across the enterprise.

7.4 *Assessing a Company's Knowledge Management Style*

7.4.1 **The Strategic Importance of Intellectual Capital**

For most firms increased competition and a faster pace of technological change have characterised the final decade of the twentieth century. Markets are volatile and future customer requirements are difficult to predict. In response to environmental turbulence many firms have looked inward, basing strategy on their resources and capabilities rather than the served market.^[15] In the past firms often based their long-term strategies on their established customer base but this has become increasingly problematic. Industry boundaries have become fluid and traditional notions of "industry" rendered obsolete as firms have sought to exploit their asset base across a range of markets. Supermarket chains have moved into retail banking, cable television companies have moved into telecommunications and biotechnology firms have become software developers. The emergence of this supply side or "resource-based" approach to long term strategy has highlighted the key role that intellectual capital plays in creating and sustaining competitive advantage.^[17] Intellectual capital is used here to refer to the intangible creations of human intellect, which include technical expertise, problem-solving capability, creativity and managerial skill, in other words, the knowledge and skills that are embodied in the employees of the organisation.

The importance of intellectual capital is reflected in the growing number of firms whose main assets are intangible. In the field of biotechnology, software services, consultancy and many others, intellectual capital is the firm's primary asset. There is also evidence of an increasing divergence between the market value and the book value of firms, again underscoring the significance of intangible assets. In 1995 IBM paid US\$ 3.5 billion for Lotus which represented seven times its book value, and examples of this nature are becoming increasingly common. But the strategic importance of intellectual capital extends to all firms, not just to those which are knowledge intensive. Indeed there is some justification for the argument that intellectual capital or, more precisely, the organisation's ability to build, integrate and utilise intellectual capital, is the ultimate source of competitive advantage.^[9]

The critical importance of intellectual capital stems from its particular characteristics. In order to sustain competitive advantage firms need to possess resources which are unique and which are difficult for competitors to capture through transfer or imitation. Although some forms of intellectual capital are easily transferred, knowledge, which is tacit and organisation-based, is much more difficult to replicate. The specialist knowledge of individual employees goes home with them each night and is unlikely to present long-term advantage. Individuals

are free to transfer between firms and can take their personal knowledge with them. Even if they remain loyal to the employer, they can appropriate the gains from their intellectual capital by extracting a high salary. There are plenty of examples of this kind of behaviour in financial markets where the salaries and bonuses of certain key traders and fund managers have become legendary. On the other hand if intellectual capital can be protected through patents, copyright and similar legal devices, then it can provide a platform for sustainable advantage, which is subject to obsolescence over time.

It is not the knowledge of the organisational members, which is of critical strategic importance, it is the firm's productivity in building, integrating and utilising its intellectual capital, which is vital. Each firm has its own unique stock of specialist knowledge, each firm has its own history, culture and set of organisational routines. If the specialist skills and knowledge of individuals can be efficiently accessed and harnessed, then it is possible to develop a sustainable position, which is extremely difficult for competitors to imitate.

The managerial challenge, therefore, is to improve the processes of knowledge acquisition, integration and utilisation, but any improvement must stem from an understanding of the ways in which knowledge is currently acquired and harnessed within the organisation. There are many different ways in which intellectual capital can be built and exploited but managing knowledge is path-dependent. The organisation's existing intellectual capital base both underpin and constrains the search for more efficient and effective ways of managing knowledge.

7.4.2 The Knowledge Framework

According to Argyris & Schon^[1], a typical knowledge framework consists of five broad superordinate categories or modes: knowledge acquisition, problem-solving, dissemination, ownership and memory.

7.4.2.1 Knowledge Acquisition

The knowledge acquisition mode contains two dimensions, which are labelled "focus" and "search". The focus dimension refers to whether employees look for knowledge from internal or from external sources. In some companies knowledge may be derived primarily from internal sources: co-workers, company databases and internal documents. Other organisations may have a strong external focus, deliberately scanning the external environment for ideas and practices or actively seeking collaborative relationships with other organisations. For example, meetings with suppliers of components may be an important source of knowledge and new ideas. Most organisations employ some kind of mix, looking for knowledge from

both internal and external sources, but vary with respect to emphasis. The search dimension refers to whether knowledge is acquired by deliberate and targeted searching for a specific item or type of knowledge, or by picking up knowledge in an opportunistic way. The former approach involves deciding what knowledge is required and then seeking it out. Problems are defined clearly and explicitly so that the search for knowledge, which may provide a solution, is narrowed down at the beginning of the problem-solving activity. Opportunistic search is characterised by the random accumulation of knowledge, which may not be immediately useable, but may provide the solution to a problem much later in time. For example, some engineers referred to picking up all sorts of things in the course of their everyday work, which might be used many years later.

7.4.2.2 Problem-solving

Four dimensions were identified, which can be used to characterise the problem-solving mode of an organisation: “location”, “procedures”, “activity” and “scope”. Location indicates whether the primary problem-solving unit is at the individual or the team level. In some companies problems are solved by individual experts who define and solve a specific problem. Their area of expertise is not duplicated exactly by any other person in the company and the input they provide is uniquely attached to them. In other organisations problems are solved collaboratively by groups who actively work together to deal with a problem. Solutions are arrived at through co-operative problem-solving by two or more people working together, not by the sequential contributions of individual experts. The dimension, which is labelled procedures, refers to whether problem-solving involves a trial and error approach or the use of heuristics as a guide to the development of solutions. Some engineers referred to using standard procedures as a normal part of everyday problem-solving, while others described a trial and error technique. Activity refers to whether problem-solving is dominated by an experiential learning activity or by a more abstract and holistic approach. Some engineers protect the benefits of being able to work with the problem in a “hands-on” way. Others worked with representational problem-solving techniques, such as those provided by computer-aided design packages or computational programmes. Problem-solving scope refers to whether there is a focus on seeking solutions of a radical or an incremental nature. This dimension is linked with the notion of single-loop and double-loop learning.^[1] Knowledge workers may be focused on the search for incremental improvements to existing products, while others may be looking for radical and highly innovative solutions to problems.

7.4.2.3 Dissemination

The dissemination mode is concerned with knowledge sharing and consists of two dimensions: “processes” and “breadth”. Processes describe whether knowledge is

shared primarily through formal or informal processes. For example, in some companies knowledge may be routinely shared within formal venues such as meetings and seminars, or by the use of computerised databases, while in other situations knowledge might be shared mainly through informal discussions over a cup of coffee. Breadth of knowledge sharing can be wide or narrow. There may be routine dissemination of knowledge across a wide range of employees, or it may be shared only on a narrow, "need-to-know" basis.

7.4.2.4 Ownership

There seem to be two separate aspects in relation to ownership of knowledge: emotional ownership and resource ownership. These can be labelled as the "identity" and "resource" dimensions of ownership. Identity refers to the extent to which the individual regards their knowledge base as being part of their own personal identity. Some individuals refer to their knowledge as being highly personal and locked into their sense of self: "it's part of me". Willingness to pass it on depends in some sense on their perception of being valued by the company. For others the knowledge does not have strong personal connotations: rather, it was owned at the collective level, either belonging to the team or perhaps to the organisation as a whole. Resource ownership relates to the way which knowledge is dispersed among individuals. In some companies knowledge is narrowly dispersed: the organisation consists of a wealth of individual experts whose areas of expertise did not overlap significantly. They operate as specialists with a unique knowledge base. In other organisations there might be considerable overlap between the working knowledge bases of employees, so that individuals are always substitutable in relation to a specific project. They could be described as generalists who work with overlapping domains of knowledge, in contrast to the specialists who work with a single domain of knowledge.

7.4.2.5 Memory

This refers to the orientation adopted within the company for storing knowledge, and it consists of one dimension: representation. This refers to whether knowledge is chiefly held explicitly, in the form of databases, documents, and so on, or tacitly, in the heads of employees. Tacitly held knowledge may be comprehensible in principle, but may not be communicated for some reason, for example, it might take too long to codify on paper. However, some knowledge seems to be held at the tacit level for the reasons identified by Polanyi^[14]: it is not possible to put that knowledge into words. Explicitly held knowledge is codified in some form and may be held on paper, perhaps in the form of documents or diagrams, or on some kind of computerised database. Some companies are attempting to codify tacitly held knowledge by codifying it onto "learned lessons databases" which articulate

the assumptions and processes followed in providing a particular solution to a problem.^[14]

This framework can be used to provide a profile of how knowledge is held and used within an organisation. The picture, which emerges, is likely to reflect a number of contextual factors, both historical and situational, the latter including the influence of product or service complexity on organisational knowledge management. The current mode of knowledge management existing within a company may be the reflection of emergent processes, with numerous elements interacting over time to produce the picture existing today.

7.4.3 A Knowledge Management Profile: High-level survey done by candidate

In order to demonstrate the application of this framework, an illustrative company profile is provided. This company is a fictitious company, which is nevertheless based on real-life interviews, experience and examples of frameworks from literature.^[1] It is suggested that in some industry sectors, and perhaps some service sectors, there will be companies like Company X, where the everyday management of knowledge by technical experts is carried out in ways similar to those which is described here. The picture, which will emerge from the illustration, is one of a company, which is overwhelmingly dependent on the personally held knowledge of its employees. This dependence may both strength and vulnerability for the company; this kind of intellectual capital is difficult to imitate or replicate but it is also difficult to access and is susceptible to loss. The natural reaction to this kind of profile is to seek to organise and routine knowledge but this, in turn, may constrain innovation and learning. These ideas will be explained in more depth by describing how engineers in Company X manage and exploit their knowledge and consider the implications of making changes in how knowledge is handled.

The profile of Company X in relation to how engineers in this company work with their technical knowledge is summarised in *Table 7-1*.

The acquisition of knowledge chiefly takes place in an opportunistic manner and involves primarily internal rather than external sources. When information or knowledge is required for dealing with a new problem, engineers in this company will ask associates on their informal organisational networks: "who knows about this?".

Measurement Framework	Scale		
	-10 on the scale	-10 to +10	+10 on the scale
<i>Knowledge Acquisition</i>			
Focus	Internal	-2	External
Search	Opportunistic	-4	Focused
<i>Problem-solving</i>			
Location	Individual	-5	Team
Procedures	Trial and Error	-6	Heuristics
Activity	Experiential	-4	Abstract
Scope	Incremental	-1	Radical
<i>Dissemination</i>			
Process	Informal	-7	Wide
Breadth	Narrow	-4	Formal
<i>Ownership</i>			
Identity	Personal	-4	Collective
Resources	Specialist	-2	Generalist
<i>Storage/memory</i>			
Representation	Tacit	-5	Explicit

Table 7-1 The Knowledge Management profile of Company X
(Source: Adapted from Argyris & Schon⁽¹⁾)

Finding the person who knows can be a matter of luck: it depends on who happens to be within the immediate network and on the range of contacts to which this gives access. Moreover, finding out is very much a physical activity: going out, perhaps to the shop floor or to the offices of engineers in another department, and asking them face-to-face what they know about this kind of problem. In the course of such activity all kinds of information may be picked up by an individual which has no immediate use in relation to the problem in hand, but may be brought into use many years later to deal with a new problem. In this company the acquisition of knowledge appears to be characterised by a degree of chance in relation to the search process and by having boundaries generally parallel those of the organisation.

Problem-solving in Company X is done mainly by individuals who deal with the part of the work, which is encompassed by their specific area of expertise. They do not usually involve others in developing the solution to a problem through collaborative work. Rather, an individual will work on a particular part of the problem and then pass the work on to the next individual expert who develops the answer to the next part of the overall project: problem-solving is sequential not concurrent in nature. The process of developing solutions has a strong experiential

focus: an engineer will go out and try out an idea on the product or on a three-dimensional mock-up of the product. There is a bias towards physical action rather than problem-solving as an intellectual activity. The inclination for taking a manual, hands-on approach to problem-solving is matched with a tendency to use trial-and-error approaches rather than heuristics as a guide for producing solutions. Engineers describe using a "let's try it and see" stance to technical problems: intuition and hunches form an important element of the processes involved in reaching solutions. Finally, there is a tendency to seek incremental improvements rather than radical solutions: answers to new problems are strongly influenced by the solutions developed previously for other problems and assumptions built into their resolution are rarely questioned.

Dissemination of knowledge is primarily an informal process, which occurs over a relatively narrow range of individuals. Informal social networks are the primary means by which knowledge is shared: what you learn depends on whom you know. Although these informal networks reflect the formal organisational structure there does not seem to be any systematic attempt to use the formal structure to disseminate knowledge. Even though meetings are held in relation to projects these function mainly to monitor the progress of work and to ratify decisions taken by individual experts: they do not seem to have any function in terms of knowledge-sharing.

Knowledge ownership is clearly defined as something, which belongs to the individual rather than to the team or the organisation, and an engineer's knowledge is part of that individual's personal identity. Having a specific area of expertise is the means by which an individual gains worth and status in Company X: an individual will be reluctant to part with knowledge if they do not feel sufficiently valued by the company. Moreover, one could describe each of the engineers in this company as specialist in their own right: no two individuals share exactly the same knowledge base. Each has a unique set of knowledge and understandings and the sharing of this depends on a sense of being appreciated by the organisation. In Company X the saying "knowledge is power" holds true in a very real sense for individual engineers.

The potency of knowledge as a source of power for the individual engineer, in Company X, derives from the way in which the storage of knowledge takes place: primarily this occurs at the tacit level, inside the heads of individuals. There is little attempt to try to codify knowledge systematically and make it accessible across the organisation. Although design documents are routinely used, their use is to provide a means of understanding failure and detecting the errors that lead to product malfunction rather than as a source of knowledge for developing ideas and solutions to problems on new projects. They operate as a means of control and for the allocation of blame rather than as a learning resource.

The picture that emerges from this profile is one in which the company is highly dependent on the willingness of individuals to share their knowledge. It is also dependent on the effectiveness of informal social networks for the efficient transfer of knowledge to those who require it for dealing with a specific problem. Knowledge may be difficult to access, either because there is insufficient information available as to where (in whom) it is located in the company, or because individuals are reluctant to pass on knowledge which gives them status and power. Knowledge is also highly vulnerable to loss: it may “walk out of the door” when individuals leave the company. The physical activity involved in acquiring and using knowledge may be very time consuming. Walking around the organisation finding the person who has the required understanding and trying out solutions on a trial-and-error basis may result in effective solutions but possibly is an expensive use of the time of highly developed experts. In addition the company has a strong inward focus in its search for solutions. The use of external networks and resources does not seem to be a routine part of the company’s activities, and this may be an influence on the extent to which engineers select incremental rather than radical solutions to problems.

7.4.4 Changing the Knowledge Management Profile

The immediate management reaction to an organisational profile as discussed in the previous paragraph, is likely to be a commitment to change. Current management thinking, as revealed by the over-abundance of articles on knowledge management and organisational learning, advocates a move to purposeful and systematic management of knowledge. The advice is to “move knowledge from the background to the forefront of management”.^[15] The deliberate management of knowledge implies a movement to the right in terms of our knowledge dimensions. Initiatives of this type include:

- increased emphasis on heuristics and problem-solving algorithms rather than trial-and-error and experiential approaches, usually supported by significant investment in information technology;
- the introduction of more team, cross-functional and concurrent working;
- increased emphasis on the codification and systematic storage of knowledge particularly through company where there is a strong tradition of individual ownership of knowledge closely aligned with the use of databases;
- the introduction of more formal mechanisms for sharing information and developing external contacts, for example, through regular meetings and seminars.

However, before adopting such policies it is important to consider whether significant change in the organisation’s knowledge profile is necessary, and to recognise the challenges presented by this kind of change.

Competitive advantage depends on how efficient the firm is in building, sharing and utilising the knowledge of its members. It is important to bear in mind that some of the knowledge characteristics of Company X may be highly efficient. Demsetz^[5] observes that efficiency in the acquisition of knowledge requires that individuals specialise in specific areas of knowledge, while the application of that knowledge to produce goods and services requires the integration of many areas of specialist knowledge. Company X is depicted as one, which is dominated by individual specialist knowledge and reliant on informal networks and organisational routines to integrate that knowledge. As Grant^[9] points out, routines can be a very efficient way of economising on communication and can offer a capacity for flexible response to a range of circumstances. Similarly the firm's attachment to sequential rather than concurrent integration of tasks can be highly cost effective. In a stable environment the profile may be appropriate but its apparent disadvantage is that it limits the scope for innovation and the development of new capabilities. When knowledge is primarily tacit in nature and routines are deeply embedded it is difficult for individuals to "think outside the box". However, informal communication and opportunistic learning promote spontaneity, which is a key element of creativity and promotes serendipitous (discovery-by-accident) learning. The challenge is to balance the tension between the efficient exploitation of existing knowledge and the exploration for more innovative solutions.

The knowledge management framework that is outlined suggests that organisations wishing to alter their mode of knowledge, working need to attend to both "hard" and "soft" issues and to the dynamic interplay between these two elements. Some of the hard or structural changes that can be introduced have already been described: the creation of new knowledge roles, the creation of teams and the codification of knowledge. But these initiatives are unlikely to be successful if they are not consistent with other knowledge dimensions. The move to team working, for example, assumes that a collective rather than an individual approach to the ownership of knowledge will emerge. This is unlikely to be the case, however, in a company where there is a strong tradition of individual ownership of knowledge closely aligned with personal identity. Given this kind of institutional heritage the transition to team working is likely to be slow and painful, requiring incentive and reward structures that signal the value placed on team effort together with deliberate efforts to develop team working skills.

The framework also highlights some of the issues raised by attempts to make knowledge more explicit. The codification of knowledge does not guarantee efficient dissemination nor does it necessarily result in more effective storage. The use of information technology provides the potential for greater access but problems of system use and information overload mean that this potential may not be realised. The stored knowledge may be of limited use. It is difficult, if not impossible, to write down all that is known on a particular topic. Explicit systems tend to record what was done but not why it was done or the context in which the action took place. Explicit knowledge also has a tendency to gain a kind of

legitimacy that tacit knowledge does not. If it is written down it is assumed to be correct and less open to challenge.

7.5 Conclusion

This chapter has raised a number of questions about knowledge management. Is knowledge management a fundamental feature of organisational processes? Is it new and different, or is it just another management fad? Is not all management concerned with knowledge management? Conversely, is knowledge manageable in terms of the management processes with which we are familiar? Moreover, what kind of conceptualisation of "knowledge" do we have? How constrained is this conceptualisation by our current mindsets and culture? Can knowledge management be benchmarked?

Knowledge management requires a broad definition of knowledge-including information, communications, human resources, intellectual capital, brands, etc. The current growth of interest in knowledge management is drawing on a wide range of existing literatures, from post-industrial theory to organisational learning and knowledge engineering.

The discussion began by the assertion that the management of knowledge, and its correlate intellectual capital, can be a key source of organisational advantage. There are a number of challenges that managers need to consider. A first issue is the context of that knowledge: its usefulness may be context-specific and its benefits difficult to transfer. Too much information may be a disadvantage. The acquisition and assimilation of information and knowledge requires the development of organisational capability, which is costly and uncertain in its benefits.

Clearly knowledge management in an organisational context does not mean managing everything that is known (assuming it could be gathered together in some way). It is concerned with creating and mobilising certain knowledge (some of which an organisation may not even know it has) for certain purposes (such as competitive advantage or greater efficiency). A lot of knowledge is useless (or too costly) for individuals or their organisations. Lots of innovations depend on knowledge which has long been known but not applied to the current problem. Lots of what employees know (their tacit knowledge) reflects the past that one is trying to escape. So the issues of uncertainty and complexity have a particular importance here. How does one know we have useful knowledge? How does one know that our successes are due to its exploitation? The best answer to this question is *Benchmarking*.

These conceptual challenges do not mean that meaningful action cannot be taken. The brief review of the field presented here suggests an agenda for the

development of action-oriented goals for managers, organisations and networks of organisations. The formulation and implementation of strategies for developing, acquiring and applying knowledge. The improvement of the business processes in the organisation, with a focus on knowledge development and its use – the monitoring and evaluation of knowledge assets and their effective management.

This chapter has highlighted both the importance and difficulty of seeing and defining this emergent and disparate field, and of understanding the processes involved, so that appropriate learning programmes can be developed. These will be vital if organisations are to manage knowledge processes effectively in the future. This is where benchmarking as a core strategy of establishing the knowledge based learning organisation, becomes very relevant. Benchmarking should definitely be used on a strategic as well as operational level in this context.

It can be argued that profiling the existing knowledge characteristics of the organisation, or elements within it, is a useful starting point for managers wishing to gain deeper insight into their firm's resources and capabilities. Given the uniqueness of each firm's configuration of knowledge characteristics and the eccentricity of the firm's history and institutional arrangements, it is not possible to specify one set of organisational arrangements conducive to efficient and effective knowledge management. Whilst this is of little comfort to managers facing increasingly hostile competitive environments, it does suggest there are a variety of routes to success. By understanding the knowledge processes that are at play, within the organisation and by recognising the challenges and tensions inherent in attempts to change these processes, managers will be better able to find their own unique sources of advantage.

CHAPTER 8

SUMMARY and RECOMMENDATIONS



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8. SUMMARY and RECOMMENDATIONS

8.1 *Summary*

Today's knowledge revolution has launched a huge wave of economic, technical and social change, and is forcing business to operate in radically new and continually shifting ways. The engineering and business faith in such things as vertical integration synergy, economies of scale and hierarchical organisations is giving way to fresh appreciation of outsourcing, minimisation of scale, profit centres, networks and virtual organisations.

To manage such change in an organisation, renewal concepts like "Benchmarking" is a very crucial competency for an organisation to have. To develop such a competency, an organisation should have some kind of a measurement system. Different situations of organisations call for a certain measurement system and organisations must not try and force themselves into a specific measurement/management framework/system. It is however imperative that a company has a measurement framework, like the Balanced Scorecard, to base their management systems on.

Benchmarking can be used as a vehicle for stimulating change in an organisation. It can be said that the failure of benchmarking to generate the kind of impact it should in most organisations is tied up with the misunderstanding of the magnitude of organisational change required to achieve the impact. The real impact of a benchmarking program lies in its ability to generate large, structural shifts in business processes, and the hard benefits to the bottom-line of the organisation. Defining "World Class" practices that enable the delivery of these benefits requires a benchmarking process that is specifically linked to the change process of the organisation, its environment for change, and management's vision for the future.

The technique of benchmarking business operations is going to become an increasingly important one within South Africa in the years to come. As one becomes a more important player in the world economy, both as an exporter and an importer of goods and services, so will one's need to measure performance levels relative to other world players increase. In time, it will become an important source of reference, as it has in most overseas countries. Ineffective and inefficient operations will face increasing pressure to adapt or die. It is no secret, that as a result of our extended isolation as a result of sanctions, our economy is riddled with poor and inefficient businesses. Thus, the sooner one gets onto the learning curve the better.

Benchmarking is a catalyst for change by identifying best-in-class practices providing senior management teams with performance goals to match or exceed.

Strategic business benchmarking contributes directly to planned change, generating competitive benefits to all stakeholders. Now is the time for a new approach, and benchmarking is one of those that have considerable merit.

Knowledge management requires a broad definition of knowledge-including information, communications, human resources, intellectual capital, brands, etc. The current growth of interest in knowledge management is drawing on a wide range of existing literatures, from post-industrial theory to organisational learning and knowledge engineering. The management of knowledge, and its correlate intellectual capital, can be a key source of organisational advantage. There are a number of challenges that managers need to consider. A first issue is the context of that knowledge: its usefulness may be context-specific and its benefits difficult to transfer. Too much information may be a disadvantage. The acquisition and assimilation of information and knowledge requires the development of organisational capability, which is costly and uncertain in its benefits.

Clearly knowledge management in an organisational context does not mean managing everything that is known (assuming it could be gathered together in some way). It is concerned with creating and mobilising certain knowledge (some of which an organisation may not even know it has) for certain purposes (such as competitive advantage or greater efficiency). A lot of knowledge is useless (or too costly) for individuals or their organisations. Lots of innovations depend on knowledge which has long been known but not applied to the current problem. Lots of what employees know (their tacit knowledge) reflects the past that one is trying to escape. So the issues of uncertainty and complexity have a particular importance here. How does one know we have useful knowledge? How does one know that our successes are due to its exploitation? The best answer to this question is *Benchmarking*.

8.2 *Recommendations*

Because of the thorough study of the Benchmarking concept, it can serve as a basis for a case study for a possible Masters Degree. It is also recommended that the study should be undertaken by looking at the strategic as well as operational aspects of the business, and the methodology derived from this study should be used.

9. REFERENCES

REFERENCES – CHAPTER 2

1. American Quality and Productivity Centre; The Benchmarking Management Guide; Productivity Press, 1993.
2. Bogan, Christopher E. & English, Michael J.; Benchmarking for Best Practices – Winning Through Innovative Adaptation; McGraw-Hill Inc., 1994.
3. Boxwell, Robert J. (Jr.); Benchmarking for Competitive Advantage; McGraw-Hill Inc., 1994.
4. Camp, Robert C.; Benchmarking – The Search for Industry Best Practices that Leads to Superior Performance; ASQC Quality Press, 1989.
5. Camp, Robert C.; Business Process Benchmarking – Finding and Implementing Best Practices; ASQC Quality Press, 1995.
6. Johansson et al; Business Poces Re-engineering; John Wiley & Sons, 1993.
7. Kaiser Associates Inc.; Beating the Competition – A Practical Guide to Benchmarking; Kaiser Associates Inc.
8. Karlöf, Bengt & Östblom, Svante; Benchmarking – A Signpost to Excellence in Quality and Productivity; John Wiley & Sons Ltd., 1993.
9. Lowen, J.; The Power of Strategy; Zebra Press, 1997.
10. Senge, Peter; The Fifth Discipline – The art and practice of the Learning Organisation; Century Business, 1993.
11. Spendolini, Michael J.; The Benchmarking Book; AMACOM, 1992.
12. Watson, Gregory H.; Strategic Benchmarking; John Wiley and Sons Inc., 1993.

REFERENCES – CHAPTER 3

1. American Quality and Productivity Centre; The Benchmarking Management Guide; Productivity Press, 1993.
2. Bogan, Christopher E. & English, Michael J.; Benchmarking for Best Practices – Winning Through Innovative Adaptation; McGraw-Hill Inc., 1994.
3. Boxwell, Robert J. (Jr.); Benchmarking for Competitive Advantage; McGraw-Hill Inc., 1994.
4. Camp, Robert C.; Benchmarking – The Search for Industry Best Practices that Leads to Superior Performance; ASQC Quality Press, 1989.
5. Camp, Robert C.; Business Process Benchmarking – Finding and Implementing Best Practices; ASQC Quality Press, 1995.
6. Johansson et al; Business Pocess Re-engineering; John Wiley & Sons, 1993.
7. Kaiser Associates Inc.; Beating the Competition – A Practical Guide to Benchmarking; Kaiser Associates Inc.
8. Karlöf, Bengt & Östblom, Svante; Benchmarking – A Signpost to Excellence in Quality and Productivity; John Wiley & Sons Ltd., 1993.
9. Spendolini, Michael J.; The Benchmarking Book; AMACOM, 1992.
10. Watson, Gregory H.; Strategic Benchmarking; John Wiley and Sons Inc., 1993.



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REFERENCES – CHAPTER 4

1. Aaker, David; Measuring Brand Equity across Products and Markets; *California Management Review*, 38, 3 (1996), pp 102-120.
2. Bogan, Christopher E. & English, Michael J.; Benchmarking for Best Practices – Winning Through Innovative Adaptation; McGraw-Hill Inc., 1994.
3. Camp, Robert C.; Business Process Benchmarking – Finding & Implementing Best Practices; ASQC Quality Press, 1995.
4. Creelman, James; Getting the Balance Right; *The Benchmark*, August 1996.
5. Eccles, Robert G; The Performance Measurement Manifesto, *The Harvard Business Review*, January-February 1991, p. 133.
6. Kaplan, Robert S. & Norton, David P.; The Balanced Scorecard – Measuring Corporate Performance; *Harvard Business School Management Productions*, 1993.
7. Kaplan, Robert S. & Norton, David P.; The Balanced Scorecard – Translating strategy into action; Harvard Business School Press, 1995.
8. Kaplan, Robert S. & Norton, David P.; Putting the Balanced Scorecard to Work; *Harvard Business Review*, September-October 1993, pp 71-79.
9. Kotler, Philip; Marketing Management – Analysis, Planning, Implementation & Control; Prentice-Hall.
10. Kuczmariski & Associates; Brand Asset Management for the 1990s; Chicago, Illinois, 1996.
11. Porter, Michael E.; Competitive Strategy – Techniques for Analysing Industries and Competitors; Collier McMillan, 1980.
12. Slater, Stanley & Narver, John; Market Orientation & The Learning Organisation; *Journal of Marketing*, July 1995, pp.63-74.
13. Slater, Stanley & Narver, John; Product-Market Strategy & Performance; *European Journal of Marketing*, 17, 10 (1993), pp.33-51.
14. Treacy, Michael & Wiersema, Fred; The Discipline of Market Leaders; Addison-Wesley, 1995.

REFERENCES – CHAPTER 5

1. *Fortune Magazine*, February 1994.
2. Handy, Charles; The Empty Raincoat: making sense of the future; Harvard Business School Press/UK: Random House, 1995.
3. Hutton, R. & Zairi, M.; Quality Award Winner's Approach to Benchmarking; *International Journal of Quality Management and Technology*, Vol. 1, No. 3, pp 21-38, 1994.
4. Kimberly, John R. & Quinn, Robert E.; New Futures: the challenge of managing corporate transitions; Dow Jones-Irwin, 1984.
5. Quinn, Robert E.; Beyond Rational Management; Jossey-Bass, 1988.
6. Schein, Edgar H.; The art of managing human resources; Oxford University Press, 1987.
7. Watson, Gregory H.; Strategic Benchmarking; John Wiley and Sons Inc., 1993.



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OF
JOHANNESBURG

REFERENCES – CHAPTER 6

1. Altany, David; Share and share alike – benchmarkers are providing the wisdom of mother’s reproach; *Industry Week*, 15 July 1991, pp 12-16.
2. Camp, Robert C.; Benchmarking – The Search for Industry Best Practices that Leads to Superior Performance; ASQC Quality Press, 1989.
3. Camp, Robert C.; Business Process Benchmarking – Finding and Implementing Best Practices; ASQC Quality Press, 1995.
4. Christopher, Martin; Logistics & Supply Chain Management, Pitman Publishing, 1992.
5. Crawford, David; TQM and Benchmarking; *Half-day seminar on TQM and Benchmarking*, July 1997.
6. Crosby, Philip B.; Quality Without Tears – The Art of Hassle-Free Management; McGraw-Hill Book Company, 1984.
7. Foster, Thomas; Logistics Benchmarking – Searching for the Best; *Distribution*, March 1992, pp 30-26.
8. Johnson, Mike; Business Logistics; *Business Logistics Seminar*, August 1994.
9. KPMG Management Consulting; Supply Chain Management; Economist Intelligent Unit, 1996.
10. Lascelles, David & Peacock, Roy; Self-Assessment for Business Excellence; McGraw-Hill, 1996.
11. Port, Otis & Smith, Geoffrey; Beg, borrow & benchmark; *Business Week* 30 November 1992, pp 74-75.
12. Porter, Michael E.; Competitive Strategy – Techniques for Analysing Industries and Competitors; Collier McMillan, 1980.
13. Rogers & Dale; Benchmarking programs – the opportunities for enhancing performance; *Journal of Business Logistics*, Vol. 16 No. 2, 1995, pp 43-63.
14. Terry, Michael; Revolutions Progress; *Business Week*, 15 October 1996, p 3.
15. Toffler, Alvin; The Third Wave; Bantam Books Inc., 1980.
16. Wilson, Paul F.; A Darwinian Future is Looming; *The Edge*, June 1997, pp 50-56.
17. Zairi, Mohammed; Benchmarking for Best Practice: Continuous Learning through Sustainable Innovation; Butterworth-Heinemann, Oxford, 1996.

REFERENCES – CHAPTER 7

1. Argyris, C. & Schon, DA; Organisational Learning; Addison-Wesley, 1978.
2. Bateson, G; Mind & Nature – A necessary unity; Bantam, 1979.
3. Bell, D; The Coming of Post-Industrial Society; Heineman, 1974.
4. Davenport, TH; Human Centred Information Management; *Harvard Business Review*, March-April 1994, pp 54-62.
5. Demsetz, H.; The theory of the firm revisited; *Journal of Law, Economics & Organisation*, 4, 1988, pp 141-161.
6. Drucker, PE; The Information Executive's truly need; *Harvard Business Review*, January-February 1995, pp 54-62.
7. Gailbrath, JR; Organisation Design; Addison-Wesley, 1977.
8. Garvin, DA; Building a Learning Organisation; *Harvard Business Review*, July-August 1993, pp 80-81.
9. Grant, RM; Prospering in dynamically-competitive environments: organisational capability as knowledge integration, *Organisational Science*, 7, 1996, pp 375-523.
10. Handy, Charles; Trust and the virtual organisation; *Harvard Business Review*, November-December 1991, p 89.
11. Kodama, F; Emerging patterns of Innovation; Harvard Business School Press, 1995.
12. Manville & Foote; Strategy as if Knowledge mattered; *Information Strategy*, October 1996.
13. Nonaka, I; The knowledge-creating company; *Harvard Business Review*, May-June, 1995, pp 40-50.
14. Polanyi, M; The Tacit Dimension; Double-Day & Co., 1966.
15. Roos, J. & von Krogh, G.; Managing Knowledge & Intellectual Capital; *European Management Journal*, 14, 1996, pp 333-337.
16. Simon, H; Traditionally as process and product of thought; *American Economic Review*, 68, 2, 1978.
17. Stewart, Thomas A.; Intellectual Capital; Harvard Business School Press, 1997.
18. Toffler, Alvin; The Third Wave; Bantam Books Inc., 1980.
19. Wiig, KM.; Knowledge Management Fountain; Schema Press, 1993.

