

A STRATEGY FOR KNOWLEDGE MANAGEMENT

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DECLARATION

Hereby I, Johan Andries Müller Rademan, certify that this dissertation is the product of my labour.

Signed at on this day

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OPSOMMING

Titel: A STRATEGY FOR KNOWLEDGE MANAGEMENT

Inleiding

Die hierargiese maatskappy strukture van die verlede forseer tegniese vaardige werknemers om in die bestuurs hierargie in te beweeg sodat hulle ook in lyn kan staan vir bevordering. In die proses word die mense nie toegepas in die areas van hulle beste kundigheid nie. Die kennis werkers van vandag is mobiele hulpbronne, die dae van een of twee werkgewers deur die ekonomies leeftyd van 'n werknemer is verby. Dus die kennis werker word hoofsaaklik gedryf en gemotiveer deur sy self-aktualiseringsdrang in die werksomgewing.

Probleemstelling

Die probleemstelling wat bespreek word is: wat is die strategie wat gevolg moet word om hierdie kennis werkers effektief te bestuur en te benut? Die aspekte waarna gekyk word is, eerstens, wat is die mees effektiewe kennis-bestuur omgewing en kultuur vir kennis werkers en tweedens, na uitkontratering ("outsourcing") as 'n metode om gesamentlik, met die netwerk struktuur, maatskappye wat gespesialiseerde dienste benodig van die nodige wêreld klas diens en kundigheid te verskaf om vir hulle 'n kompeterende voordeel in die wêreldmark te gee.

Doel

Die doel is om 'n strategie voor te stel wat die kennis werker gemotiveerd sal hou dat hy sodoende optimaal benut sal word, nie net binne hulle maatskappy konteks nie, maar ook in die kundigheidsdiens wat hulle aan kliënt maatskappye verskaf. Dit moet dus 'n omgewing wees wat genoeg ruimte skep sodat innovasie en entrepreneurskap kan ontwikkel (netwerk organisasie), maar terseldertyd gefokus is om hoë kwaliteit en effektiewe diens te lewer (uitkontratering). Daar word verder ook 'n strategiese model voorgestel wat sal help in die besluitnemingsproses oor uitkontratering.

Resultate

Die simbiotiese verhouding tussen produksie gedrewe maatskappye versus tegnologie diens maatskappye gee daartoe aanleiding dat strategiese alliansies en netwerk organisasie strukture baie goed geïmplimenter kan word, gesamentlik met uitkontratering. Motivering van kennis werkers is seker een van die sterkste dryfkragte om effektiewe werkverrigting en tevredenheid te handhaaf.

Vanwee die feit dat tegnologie besigheid se kapitaal, intellektuele kapitaal is met psigologiese behoeftes moet kennis werkers gemotiveerd wees in kontras met masjiene wat net onderhoud nodig het (soos in die industriële era). Die netwerk organisasie struktuur is baie gepas vir kennis werkers omdat dit 'n grenslose organisasie struktuur is en gebaseer is op 'n span beginsel (intern) en alliansies (ekstern). Die voordeel van 'n netwerk organisasie is dat die inherente aanpasbaarheid en buigsaamheid van die struktuur vergemaklik verandering wat dan ook lei tot die kompeterende voordeel van die maatskappy. Uitkontraktering is gewoonlik 'n hibiriede kombinasie van alliansies en venootskappe. Die bepalende faktore of uitkontraktering gaan lei tot 'n kompeterende voordeel of nie, is:

- die regte besluitneming oor aktiwiteite wat uitgekonnekteur moet word:
- die bestuur van hierdie verhoudinge is baie kompleks, dus die vermoë van bestuur om hierdie verhoudings effektief te bestuur: en
- die bestuur van die tegnologie en die toepassing van die tegnologie.



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Background on Problem Statement

1.1. INTRODUCTION

At the core of information technology – which loosely speaking is the blending of fast, powerful, compact and low cost electronic data processing with rapid, high integrity signal transmission to facilitate a whole range of activities in commerce, industry and the home – is microelectronics: the ubiquitous “chip”. Although initially developed in response to the need to shrink the size of the large and unwieldy early computers (technology pull), once developed this remarkable device then fanned out from its initial role to penetrate – and most would say enhance - almost every facet of our lives. It has not only radically improved the capabilities and scope of many established items and activities, but introduced equipment and facilities, as well as leisure activities, which as recently as 15 years ago hardly figured in our vocabulary – starting with the “word processor” to the “World Wide Web” (Anon., 1997a:7).

Microelectronics has become one of the most graphic examples ever of technology push, and an indication of the ways in which systems based on it are already being used to commercial advantage across the length and breadth of the processing and manufacturing industry, as well as the opportunities that lie just around the corner.

Technology pull might appear to be a less flattering label. Not so, for the developments that result can be impressive and very imaginative - witness the USA’s focused effort in the 1960’s to put a man on the moon from a cold start in less than ten years. This provides what is probably the most significant example yet of technology satisfying an overriding need to produce solutions to a whole raft of challenging problems, the outcomes of which was considerable spin-off in other sectors. Rather less visible, but nonetheless a text book example of technology pull, is the development of electrical storage batteries. Initially invented to fulfil a need to have electricity to hand when conventionally generated power was not, the battery is now essential to many items of equipment (Anon., 1997a:7).

Traditionally the processing and manufacturing industry has invested in large capital equipment to produce goods, but not in computers to manage the business. Nowadays, in larger companies there are a wealth of in-house information technology expertise, but over the last five years the industry has realised that this is not part of their core business (Gill, 1997:13). Therefore, businesses are taking packaged systems and outsourcing. A totally integrated, on-line computer system will help a business to control a transaction from its initial receipt of a customer order, through planning, manufacturing, stock control and invoice generation. However, such management systems are not critical to run the business (from a historical perspective), but it is essential to provide the company with "a leading edge" over competitors.

1.2. KNOWLEDGE MANAGEMENT

The development of systems that enables more effective and efficient business processes and in some instances improving the efficiency of a manufacturing process, created the requirement for information technology knowledge workers. The services of these knowledge workers eventually becomes critical to develop, but especially to maintain these systems. Therefore, the initial 'nice-to-have' system becomes an operational necessity for the company, and as such its status is elevated to 'mission critical' to the operation of the company. This then implies that the focus changed for the company from having the knowledge workers experiment and developed 'nice-to-have' systems, to having personnel that ensures the smooth operation of the company (i.e. 'systems') on a day-to-day basis.

The key difference that is possibly not well understood in the business environment today, is that there is a distinct difference between the knowledge worker as defined in this dissertation versus a well trained resource that can maintain complex systems. In general, knowledge workers are entrepreneurial in spirit, and is in search of technical challenges all the time. Giving rise to the general concern that knowledge workers are research and development orientated, and not enough business orientated. This could be true, if the necessary balance is not maintained. Therefore, the knowledge worker requires just enough stimulation to ensure the feeling of intellectual growth and stimulation.

Entrepreneurship and collaboration are held together by knowledge. No enterprise can be started without knowledge, and collaboration is meaningless without the creation, transfer or sharing of

knowledge. Unlike other resources, knowledge can't be used up; in fact, it increases as it is used. Knowledge is thus an infinite resource and represents an unlimited supply of energy and power to manage a world of unlimited potential and opportunity (Herman, 1999:4). Knowledge management is the collection of processes that govern the creation, dissemination and utilisation of knowledge to fulfil organisational objectives. It is thus a continuous developmental activity that seeks to find commercial value from company's intangible assets. In a knowledge-based economy, competitive advantage belongs to those who can embrace the new paradigms of de-centralised control, increasing technology and 'explosive' networking. The most powerful technologies to drive entrepreneurship will be those that enhance and extend human potential and cause relationships of all types to flourish (e.g. outsourcing). It would then appear that a holistic knowledge management process requires the leadership of someone who can draw on the key ingredients of human potential, experience and competence to position their company to realise the opportunities that exist in a world of unlimited potential.

1.3. INFORMATION TECHNOLOGY

Three powerful worldwide changes have altered the environment of business. The first change is the emergence of and strengthening of the global economy. The second change is the transformation of industrial economies and societies into knowledge- and information-based service economies. The third is the transformation of the business enterprise. These changes in the business environment and climate, summarised in Table 1.1, pose a number of new challenges to business firms and their management.

Table 1.1 – The Changing Contemporary Business Environment

<p>Globalisation</p> <p>Management and control in a global marketplace</p> <p>Competition in world markets</p> <p>Global work groups</p> <p>Global delivery systems</p> <p>Transformation of Industrial Economies</p> <p>Knowledge- and information-based economies</p> <p>Productivity</p> <p>New products and services</p> <p>Knowledge: a central productive and strategic asset</p> <p>Time-based competition</p> <p>Shorter product life</p> <p>Turbulent environment</p> <p>Limited employee knowledge base</p> <p>Transformation of the Enterprise</p> <p>Flattening</p> <p>Decentralisation</p> <p>Flexibility</p> <p>Location independence</p> <p>Low transaction and co-ordination cost</p> <p>Empowerment</p> <p>Collaborative work and teamwork</p>
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Source: Laudon & Laudon (1998:5)

1.3.1. Emergence of the Global Economy

Globalisation of the world's industrial economies greatly enhances the value of information to the firm and offers new opportunities to businesses. Today, information systems provide the communication and analytical power that firm's need for conducting trade and managing businesses on a global scale. Globalisation and information technology also bring new threats to domestic business firms: Because of global communication and management systems, customers now can shop in a world-wide marketplace, obtaining price and quality information reliably, 24 hours a day.

This phenomenon heightens competition and forces firms to play in open, unprotected world-wide markets (Laudon & Laudon, 1998:5). To become effective and profitable participants in international markets, firms need powerful information and communication systems.

1.3.2. Transformation of Industrial Economies

The United States, Japan, Germany, and other major industrial powers are experiencing a third economic revolution. The third revolution, now in progress in the United States, the country is transforming itself into a knowledge- and information-based service economy while manufacturing has moved to low-wage countries (Laudon & Laudon, 1998:6). In a knowledge- and information-based economy, knowledge and information are key ingredients in creating wealth. Intensification of knowledge utilisation in the production of traditional products has increased as well. This trend is readily seen throughout the automobile industry where both design and production now rely heavily upon knowledge-intensive information technology. Over the past decade, the automobile producers have sharply increased their hiring of computer specialists, engineers, and designers while reducing the number of blue-collar production workers. New kinds of knowledge- and information-intense organisations have emerged that are devoted entirely to the production, processing, and distribution of information. For instance, environmental engineering firms, which specialise in preparing environmental impact statements for municipalities and private contractors, simply did not exist 30 years ago.

In a knowledge- and information-based economy, information technology and systems take on great importance. Knowledge-based products and services of great economic value such as automation of production and manufacturing processes, credit cards, overnight package delivery, and world-wide reservation systems are based on new information technologies. Information technology constitutes more than 70% of the invested capital in service industries such as finance, insurance, and real estate (Laudon & Laudon, 1998:7). Across all industries, information and the technology that delivers it have become critical, strategic assets for business firms and their managers. Information systems are needed to optimise the flow of information and knowledge within the organisation and to help management maximise the firm's knowledge resources. Because productivity of employees will depend on the quality of the systems serving them, management decisions about information technology are critically important to the prosperity and survival of a firm.

1.3.3. Transformation of the Business Enterprise

The traditional business firm is a hierarchical, centralised, structured arrangement of specialists that typically relies on a fixed set of standard operating procedures to deliver a mass-produced product or service. The new style of business firm is a flattened (less hierarchical), decentralised, flexible arrangement of generalists who rely on nearly instant information to deliver mass-customised products and services uniquely suited to specific markets and customers. This new style of organisation is not yet firmly entrenched – it is still evolving. Nevertheless, the direction is clear, and this new direction would be unthinkable without information technology. The traditional management group relied on formal plans, a rigid division of labour, formal rules, and appeals to loyalty to ensure the proper operation of a firm. The new manager relies on informal commitments and networks to establish goals, a flexible arrangement of teams and individuals working in task forces, a customer orientation to achieve co-ordination among employees, and appeals to professionalism and knowledge to ensure proper operation of the firm (Laudon & Laudon, 1998:7). Information technology is bringing about changes in organisation that make the firm even more dependent than in the past on the knowledge, learning, and decision making of individual employees.

1.3.4. Specialised Skills



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Organisations require many different kinds of skills and people (see APPENDIX A). In addition to managers, knowledge workers (such as engineers, architects, or scientists) design products or services and create new knowledge. Data workers (such as secretaries, bookkeepers, or clerks) process the organisation's paperwork. Production or service workers (such as machinists, assemblers, or packers) actually produce the products or services of the organisation. Different levels and specialities create different interests and points of view. Managers must deal with new people issues because the changes brought about by information technology definitely require a new kind of employee. Employees need to be more highly trained than in the past as work shifts from production of goods to production of services and as more tasks become automated. High on this skill set is the ability to work in an electronic environment: the ability to digest new information and knowledge, and act upon that information; and the ability and willingness to learn new software and business procedures. Most important is the willingness to engage in a lifelong learning process (Laudon & Laudon, 1998:12). The new global worker, whether in factories or offices, is a multitalented college graduate who is exceptionally productive because of an ever-changing set of skills and competencies.

1.4. PROBLEM DEFINITION

A particular development, or string of developments attributable to a technical advance is due to a strategic or market need nourishing a focused development effort with the aim of achieving a desired end result (Anon. 1997a:7), i.e. technology push. Technology providers create market need by introducing new technology that are used in innovative ways to create business value. In the latter case the requirement for skills become the limiting factor in implementing and maintaining the technology.

The following questions are posed to enlighten the problem definition and provide insight into the objective of this study:

- Technology push is the prevalent driving force in the information technology milieu, thus the question is how would companies and industries adapt to implement and maintain systems which requires highly specialised skills?
- Is outsourcing of specialised information technology services the answer for South African companies to enable knowledge management, which is critical to be globally competitive, and to maintain their competitive edge?
- Resource planning:
 - What is the risk involved in performing these services in-house versus outsourcing?
 - What is the return on investment on specialised skills?
- Strategy:
 - How do companies incorporate the requirements for knowledge workers into their company's strategy?
 - How do companies plan for technological advancement in their strategy?
 - Is outsourcing the solution for the ever-advancing technology?
 - Is outsourcing the solution for managing knowledge and maintaining a competitive edge?
- What are the advantages and disadvantages for businesses and industry to support this approach?
- Does it make business sense from the perspective of the industry?

Businesses should make greater effort in helping South Africa to become more technology driven versus commodity driven as was historically the situation. This is the information era and as such to

be globally competitive as a business, but especially as a country, the focus must shift to a technology orientated economy.

In general, knowledge workers (with the specialised skills) required for various areas in information technology arena, is a very scarce resource world-wide. The reasons being:

1. Certain skills are only obtained through years of study, and lesser degree research, and is strongly coupled with experience. Unfortunately the majority of the big South African companies in industry implicitly forces knowledge workers into the management hierarchy to obtain promotion in their workplace. The natural hierarchical organisation structure forces technically competent and experienced employees to move up the corporate ladder to be able to gain promotion, and thus they are not used in the areas of greatest competency.
2. Knowledge workers today are mobile resources, the concept of working for only one or two companies throughout the economic active years of such a resource is long gone. These resources are primarily driven and motivated by self-actualisation through their work. An ergonomically efficient workspace and financial stability is not the deciding factors any more, although it still plays a role.

What is the solution? In summary the ideal solution is strategic alliance partnerships between corporation and specialist service provider to ensure shared vision and goals, and in the process the corporation can achieve and maintain a global competitive advantage.

"... we obviously have little control over global economic trends, currency fluctuations and devaluations, natural disasters, political upheavals, social unrest, bad weather or schizophrenic stock markets. We do, however, have complete control over our own behaviour ..."

~ Roberto Goizueta,

Chairman of The Coca-Cola Company

The above quote is to sensitise people that whatever happens in the world (technology, economy, and politics), although one has little control over it, one can plan and strategise to be able to better handle human behaviour in these unknown occurrences. On the other hand, the various 'new problems' brought about by the advancement of technology created even more new opportunities.

1.5. OBJECTIVES

The objective of this study is to determine if outsourcing can be used as a strategy to create a solution for more effective knowledge management in South African industrial companies with technically orientated employees. A model is proposed that will enable better decision making and management of knowledge workers, which will be a combination of outsourcing, strategic alliances and networking organisations. This model should be used as a guideline in deciding on outsourcing, which includes strategic alliance and network organisation concepts to enable efficient management of knowledge workers and access to specialised skills.

Ultimate objective is to obtain maximum value for businesses, both industry and service providing entities, from outsourcing (and strategic alliance) arrangements that will make and keep these businesses global market players by maintaining a competitive edge through optimal use of human knowledge and technology advancement.

1.6. METHODOLOGY AND DEMARCATION OF RESEARCH

The study will be based on research material from literature, informal discussion with people in industry and personal experience.

The focus of the study will be on the South African context, i.e. economic, political and demographic environment that businesses have to operate in. A brief comparative description of the management styles and philosophies of production driven (in the process and manufacturing industry) versus technology service driven (in the information technology industry) companies within South Africa. The key aspects that will be combined is the role of outsourcing in the industry to enable better management and utilisation of knowledge workers, especially in areas where specialised skills are required to implement and maintain technology. Furthermore, the proposed model aim at maximise human capital (knowledge management) through strategic alliances and networking to ultimately obtain and maintain a global competitive edge. Therefore, significant attention will be placed on knowledge workers and the environment that is required to motivate these people.

1.7. LAYOUT OF THE STUDY

The study starts with an overview of knowledge management in the technology environment (Chapter 2). Background is then supplied on the different management paradigms and it is compared to the technology environment of production driven companies versus technology service driven companies. Management strategies are presented in the technology business environment of today focussing on intellectual capital, motivation, value-adding resource strategies. This chapter aims at providing a balanced view of the current issues in the knowledge and knowledge intensive driven business environment.

Knowledge management (Chapter 3) has come to the fore due to rapid improvement in technology, and companies moving from fixed asset capital investment to human potential investment, giving rise to the terminology of "human capital". This is the crux of the future potential of any service orientated company, and how to best manage it (harness the entrepreneurial spirit) to obtain maximum value is one of the questions that will be debated in this chapter (and for decades to come). The effect of a network organisation structure is investigated to determine whether this type of organisation structure will not be better suited to exploit intellectual capital optimally.

In Chapter 4 an overview of outsourcing is supplied, with the motivating factors that drive the outsourcing. The advantages and disadvantages of outsourcing is also discussed in detail to provide a balanced view of outsourcing that will help with deciding on what to outsource, to whom, and how to manage it.

In Chapter 5 an outsourcing model is proposed to provide criteria for deciding on what functions need to be outsourced, to whom it must be outsourced and how it must be managed. As such, it provides guidelines for the decision making process regarding what function(s) to outsource and what is the criteria for choosing an outsourcing vendor. It also provide guidelines of how to manage the strategic alliance relationship to gain a return on. The model provides a basis for discussions in the decision making process.

Chapter 6 is the conclusion and contains the summary of the most important results of arguments posed throughout this study.

Appendix A is background information on the type of specialised skills required in the information technology environment. The discussion will be on the definition of specialised skills in the

information technology arena. Technology is a resource of paramount importance to an organisation and managing this resource for competitive advantage entails integrating it with the organisation's strategy.

In Appendix B of the study some background and discussion are presented on the companies in the process and manufacturing industry versus companies in the technology and information technology industries. With a better understanding of these corporations a better understanding can be obtained for the focus of these companies, their ability to manage their human capital, and the opportunities for outsourcing functions. There is an investigation into companies that provide outsourcing services to these industrial companies, and then there is a comparison between production versus technology and service driven companies.



CHAPTER 2.

Knowledge Management in the Technology Environment

2.1. INTRODUCTION

The third wave management emerged in the knowledge age, where the culture is openness and trust, and the structure flatter, more network organised. While most companies are still finding their way in the dark with third wave management, the fourth wave is evolving and taking it even further.

“Decentralization took place and in order to be able to plan, organise, lead and control, organisation developed a need for persons who had vision, who could produce innovative ideas, and who were prepared to take risks. These individuals need to be dynamic and future orientated.”

~ Kruger (1994:7)

The concept put forward in this chapter is that the traditional focus of an organisation's strategy must shift towards human resources and knowledge management. The following explanation was given by William Bridges in an interview with Bruce Lloyd (Lloyd & Bridges, 1995:31):

“One of the points I would make is that strategy has traditionally been focused on market strategy, but I would argue that what is needed is a greater focus on resource strategy. How are we going to get the work done? We know about the customer and the product but how are we going to organise ourselves to exploit that link? Do we use our own employees? Do we “outsource” and, if so, what? Do we joint venture? That is a whole area of strategy that in the past has usually been a secondary focus, almost coming into the area of tactics rather than strategy. My argument is that market strategy is becoming more the area of tactics, while these human resources and fundamental organisational issues are becoming the key strategy decision areas.”

Based on the above mentioned premise, what is the strategic issues that must be addressed? Shared vision and mission, participative management, empowerment, managing human intellect, entrepreneurial organisation, and change management?

2.2. SECOND, THIRD AND FOURTH WAVE MANAGEMENT PARADIGMS

In the overview of the test sample of companies discussed in APPENDIX B, i.e. major manufacturing corporations and service providers in the technology arena, two major distinctions can be identified:

1. The major production driven corporations' core focus and expertise is in the processes they employ to produce their saleable products. Information technology products and services in these industries is a specialised field that requires knowledge and skills of information technology and the production environment of the company. Although these companies are aware of the complexity of these specialised services they realise that these skills are scarce and as a first option they try to nurture these skills in-house.
2. Comparing the scorecards (APPENDIX B: Table B.1 and Table B.2) it is evident that the technology service providing companies' relative scores for flexibility and innovation is on average higher than for production focused companies. It is in these categories that the service providers differ drastically from the production orientated companies. This ability of the service providers make it more viable (recruiting and retaining human capital) for performing these specialised service (niche market focus) in the longer-term.

These leading companies (APPENDIX B) in the South African industry are in the process of moving between management paradigms, in general it can be concluded that the production driven companies are between the second and third wave management paradigm, where as the technology service providing companies are, in general but to a lesser degree, between the third and fourth wave management paradigms.

Maslow described human needs in a hierarchy with priority attached to that. The basic (or lower order) need must be fulfilled first before the next need can be fulfilled. It is a fundamental growing and building process, not only reserved for the individuals, but also for societies and company structures. Therefore, the evolution of management waves are closely related to these needs as described by Pretorius (1996:36-37) in Table 2.1:

Table 2.1 – Correlation of Maslow and Waves in Management

<i>Maslow's hierarchy</i>	<i>Management Waves</i>	<i>Correlation</i>
Physical	First Wave	Fulfilled the basic physical need for survival.
Safety	Second Wave	Fulfilled the need for safety within the working environment. If you do nothing wrong you will have a job for life.
Social	Third Wave	Changed to a more people orientated approach of being accepted as an individual. Individuals in this wave start realising their needs for self esteem and actualisation.
Esteem	Fourth Wave	Fully create an environment where the self esteem can be exercised and fed.
Self-actualisation	Fifth Wave	Could emerge in the future as the euthopia of organisational structure and behaviour.

Source: Pretorius (1996:36-37)

Stitt (1990:*Managing for Excellence* as quoted by Pretorius, 1996:38) explained that as individuals and societies grow through Maslow's basic needs the healthy gratification of the higher needs requires "Adult-Adult" transactions between individuals and organisations. Individuals seek ownership, they want to help solve organisational problems, and they want authority and responsibility.

A summarised definition or mindset of second, third and fourth wave management paradigms (Kruger, 1994:20):

- Second wave: 'we are separate and must compete'
- Third wave: 'we are connected and must co-operate'
- Fourth wave: 'we are one and we choose to co-create'

The basic differences between the second and third wave paradigms are presented in Table 2.2, and the principles of the fourth wave management paradigm is presented in Table 2.3.

Table 2.2 – Differences between second and third wave management paradigms

<i>Focus – Second wave</i>	<i>Focus – Third wave</i>
Product	Customer
Output orientation	Results orientated
Hierarchical structure	Varied structure
Activity based rewards	Contribution based rewards
Large organisations	Smaller business units
Command and control method	Empowerment of people
Output at any cost	Streamlined value-added
Technology based competition	Time and cost based competition
Tolerance for defect	Zero defect
Transaction driven	Knowledge driven

Source: Adapted from Kruger (1997)

Table 2.3 – Principles of fourth wave management paradigm

<i>Fourth wave principles</i>
Global mindset
Promote economic and social justice
Quality of life and wellness in the workplace
New structural development based more on trust
Corporate community
Operations consistent with ecological laws
Small-entrepreneurial businesses

Source: Adapted from Kruger (1997)

The ability to adapt to change is one of the most important differences between second and third wave organisations. The second wave organisation is hindered by its inflexible structure and its stability and it has a strong resistance to change. Third wave companies are the emerging form, not only for high-tech companies, but for all institutions. Simply put, the source of their strength lies in change – in the ability to transform their products and organisation in response to changes in the economy, market or technology. Therefore, the basis for the preferred third wave management paradigm (above second wave) is (Kruger, 1994:8-10):

- A climate of creativity, innovation and adaptability: Management must create the climate for creativity and innovation and change must not be resisted, it must be actively sought.
- Entrepreneurship: The ability to recognise opportunities and to take risks.
- Meta strategy vision: The ability of all employees to visualise change in order to get closer to the vision.

2.2.1. Production Companies versus Technology Service Companies

Presented in Table 2.4 is the general similarities between production and technology service driven companies as deduced from the summaries presented in APPENDIX B, and in Table 2.5 is the difference between these two types of companies. Although the production driven companies strive towards the third wave paradigm, they can not fully attain it mainly because the majority of their employees are low skilled workers – education and development of these volume of people take a life-span or two to attain. Therefore, production driven companies will have to increase the skill and knowledge level of the employees, which will take time, to really be able to move towards the third wave management paradigm. Alternatively, production driven companies must look for available strategic management tools, for example outsourcing through strategic alliance partnerships, to enable itself to move closer to a third wave management company. In other areas these companies are already fulfilling some of the fourth wave principles, for example, promotion of economic and social justice through affirmative action.

Table 2.4 – Similarities between production driven and technology service driven companies

<i>Company focus</i>
Development of individual’s skill and knowledge
Strong team focus
Niche market focus
Global best practice (international experience of corporation)
Long-term approach to client and customers

Table 2.5 – Differences between production driven and service driven companies

<i>Production driven companies</i>	<i>Service driven companies</i>
More production focused than customer focused	Customer focused
Employee must fit career path into company strategy	Company strategy and employee career path coincide
Broad competency base possible – more career options available	Specialised skills required – more career scope
Skill level of majority of workforce is low with a handful of highly skilled employees	Skill level is high
Change by the majority of employees is viewed as a threat	Change is embraced – create new opportunities. develop skills and expand knowledge
Change is slow due to low acceptance and resistance to technology	Flexible organisation able to adapt to changing technology and market needs
Structured processes – promote sameness	Less structured processes – promote change
Hierarchical organisational structure	Flat organisational structure
Manager accountable	Individual accountable

It can thus be concluded that the characteristics for a winning organisation where a knowledge worker will thrive is (Kruger, 1997):

- Willingness to change, adaptability, flexibility and innovation
- Transformation leadership and management – true leaders as managers
- Lasting values, trust and quality relationships
- Correct culture – eurocentric and learning orientation
- Total identification of all team members with vision and goals of organisation
- Appropriate organisational structure and healthy internal environment
- Value and maintain advantage over competitors through the ability to deliver a world class service.

2.2.2. Changes in Managerial Practices

The South African managerial practices have a lot of catching up to do, if it is going to compete internationally. Some South African companies have made considerable progress – and some are

even ahead of the game. Many of their strategies and practices are home-grown and industry specific. Corporate cultures and leadership styles differ, but are quite distinctive and strong: they seek to empower people by putting money and effort into developing their staff. Career development is a joint responsibility – the employee also has to take the initiative. Staff must believe that continuous learning and growth are necessary for employment security. The 1990s is the era of the ‘re’-words – re-engineering, restructuring, redesigning organisations, reorganising work, retraining, redeployment and often retrenchment! Cradle-to-grave job security is no longer possible, but employment security is. People need to ensure that they are multi-skilled, with competencies that are portable. These, together with technology literacy, are a must to ensure that an employee remains marketable within the company, as well as in the wider labour market (Bidoli, *et al.*, 1998:v).

Not only have companies to be flexible in their design, staffing of core and non-core employees, reward systems, working time and employment practices – they also have to have people who are flexible. As in many developed and developing countries, employment in South Africa’s big companies is declining, as these organisations restructure and downsize. The shift is towards employment in the service sectors and high technology fields. This requires people who are flexible, service-orientated, willing to diversify their skills and who are motivated by intrinsically rewarding work (Bidoli, *et al.*, 1998:v). Companies that prosper in a competitive environment do not accept job rigidity. Flexibility is the keyword. But flexibility must be complemented with a fair employment practices, which give people a say in the way work is done. Many companies are committed to high levels of employee involvement, and most engage unions in a constructive way.

2.3. MANAGEMENT STRATEGIES

If flexibility and the ‘re’-words are the organisational initiatives of the 1990s, then ‘intellectual capital’ will become the credo for many organisations in the millennium. The notion of the ‘knowledge worker’ will become more of a reality. In the late 1990s the phenomenon of a shortage of high level people, with several sectors experiencing high labour turnover of knowledge workers, in spite of the alarming level on unemployment (Bidoli, *et al.* 1998:vi). Those companies that are able to attract, motivate and retain knowledge workers, will have a better chance of competing in global markets. Technology and information, together with the mobility of human capital, skilled people, ideas and knowledge in a global economy, and electronic communications which quicken the pace of work, all form part of the notion of intellectual capital.

2.3.1. Intellectual Capital

The ability and willingness to invest and deploy intellectual capital will make the difference between success and failure in the millennium. The full utilisation of people means attracting, motivating and retaining the best, pro-actively diversifying the workforce so that the creativity and innovation that arise from difference, enrich business solutions (Bidoli, *et al.* 1998:vi). Managing diversity and a multi-cultural workforce is far more challenging than many people realise. Treating people as individuals and as equals does not come easy for many. Most companies take a positive view of this challenge and see it as business imperative, rather than a political one.

The modern organisation is a learning organisation. Its wealth will be judged on an ability to use knowledge. Effectiveness is based on intelligence, information, and ideas: such as organisation is governed by consent and participation, rather than by command. Authority is legitimised; coercion or manipulation is not necessary. People contribute because they identify with the core values and purpose of the organisation. They have a stake in the success of the organisation. Getting commitment, not compliance, is the key (Bidoli, *et al.* 1998:vi).

2.3.2. Motivation



Excellence both requires and implies the active commitment of all employees. This in turn cannot be a one-way contract. What is required is that employees are able to feel a sense of ownership of the organisation. In the post-industrial era, the success of a corporation lies more in its intellectual and systems capabilities than in its physical assets. The capacity to manage human intellect - and to convert it into useful products and services - is fast becoming the critical executive skill of the age (Quinn, *et al.*, 1996:71).

Intellectual capitalism is different. In knowledge-intensive companies, it's not clear who owns the company, its tools, or its products. But in the age of intellectual capital, the most valuable parts of those jobs are the human tasks: sensing, judging, creating, building relationships. Far from being alienated from the tools of his trade and the fruit of his labour, the knowledge worker carries them between his ears. Employees, companies, and customers share joint and several ownership of the assets and output of knowledge work (Stewart, 1997:65).

Given the fact that intellectual capital is the value of any business that want to maintain a competitive edge in the global market. the optimal performance of these resources are a necessity (whether in-house or in the one or other network organisation form). The only way or reason why these resources will perform optimally is when they are motivated to do so. Humans aren't machines that just require maintenance. the are psychological beings that needs motivation and stimulation.

Motivation for the knowledge worker of today is essential. The type of motivational drivers can be described in general by Maslow's theory in terms of the self esteem and self-actualisation levels and according to Herzberg's theory by the motivational factors. According to the Herzberg theory (Backer, 1985:28) the group of factors that are responsible for work satisfaction is:

- *The type and content of work*: Is the work repetitive and boring. or is it creative and innovative? Is the work easy or difficult?
- *Recognition for good work*: Is achievement acknowledged by management, co-workers, clients/customers, or general public?
- *Responsibility*: Is there responsibility and authority related to that job?
- *Growth and development in skills*: Is there growth possibilities for the person's skills and knowledge? Is there career opportunities?

An analysis of the driving forces and requirements that these factors activate, indicated that personal growth and self actualisation are the key to work satisfaction, and as such motivation.

2.3.3. Managing Human Intellect

There has been a flurry of interest in intellectual capital, creativity, innovation, and the learning organisation, but surprisingly little attention has been given to managing professional intellect. What is professional intellect? The true professional commands a body of knowledge – a discipline that must be updated constantly. The professional intellect of an organisation operates on four levels, presented here in order of increasing importance (Quinn *et al.* 1996:72):

- *Cognitive knowledge* (or know-what) is the basic mastery of a discipline that professionals achieve through extensive training and certification. This knowledge is essential, but usually far from sufficient, for commercial success.
- *Advanced skills* (know-how) translate "book learning" into effective execution. The ability to apply the rules of a discipline to complex real-world problems is the most widespread value-creating professional skill level.

- *Systems understanding* (know-why) is deep knowledge of the web of cause-and-effect relationships underlying a discipline. It permits professionals to move beyond the execution of tasks to solve larger and more complex problems - and to create extraordinary value.
- *Self-motivated creativity* (care-why) consists of will, motivation, and adaptability for success. Highly motivated and creative groups often outperform groups with greater physical or financial resources. Without self-motivated creativity, intellectual leaders can lose their knowledge advantage through complacency. They may fail to adapt aggressively to changing external conditions and particularly to innovations that obsolesce their earlier skills.

Organisations that nurture care-why in their people can simultaneously thrive in the face of today's rapid changes and renew their cognitive knowledge, advanced skills, and systems understanding in order to compete in the next wave of advances. The value of intellect increases markedly as one moves up the intellectual scale from cognitive knowledge to self-motivated creativity (Quinn *et al.* 1996:72). Yet most enterprises focus virtually all their training attention on developing basic (rather than advanced) skills and little or none on systems or creative skills.

A handful of best practices for managing human intellect have been observed by Quinn *et al.* (1996:73-80) that resembles successful coaching more than anything else.

- *Recruit the best.* The leverage of intellect is so great that a few topflight professionals can create a successful organisation or make a lesser one flourish.
- *Constantly increase professional challenges.* Intellect grows most when professionals buy into a serious challenge. The best organisation constantly push their professionals beyond the comfort of their book knowledge, simulation models, and controlled laboratories. They relentlessly drive associates to deal with more complex intellectual realms of live customers, real operating systems, and highly differentiated external environments and cultural differences. Mediocre organisation do not.
- *Evaluate and weed.* Professionals like to be evaluated, to compete, to know they have excelled against their peers. But they want to be evaluated objectively and by people at the top of their field. Hence, heavy internal competition and frequent performance appraisal and feedback are common in outstanding organisations. Great organisations are unabashed meritocracies: great organisations that fail are often those that forget the importance of objective praise and selective weeding.
- *Overcome professionals' reluctance to share information.* Information sharing is critical because intellectual assets, unlike physical assets, increase in value with use. Properly

stimulated. knowledge and intellect grow exponentially when shared. All learning and experience curves have this characteristic. A basic tenet of communication theory states that a network's potential benefits grow exponentially as the nodes it can successfully interconnect expand numerically. Overcoming professionals' reluctance to share their most precious asset, knowledge, presents some common and difficult challenges. Competition among professionals often inhibits sharing, and assigning credit for intellectual contributions is difficult. Because professionals' knowledge is their power base, strong inducements to share are necessary.

But in the age of intellectual capital, the most valuable parts of those jobs are the human tasks: sensing, judging, creating, building relationships. Far from being alienated from the tools of his trade and the fruit of his labour, the knowledge worker carries between his ears. There's lots of evidence of the value of human capital. Why, then, do companies manage it so haphazardly? One reason is that they have a hard time distinguishing between cost of paying people and the value of investing in them. Thinking and invention, however, are the assets upon which knowledge companies depend (Stewart, 1997:65-67; Henkoff, 1996:116). All ideas count. Therefore, everybody in the organisation must get involved. If that is done right all the best ideas will rise to the top. To create human capital, a company needs to foster teamwork, communities of practice, and other forms of social learning.

2.3.4. Value-adding Resource Strategies

Leading companies reward people who meet and exceed performance objectives defined by core values. They are willing to restructure the company around a business core, and to delegate both responsibility and authority to all levels. Greater autonomy is given to teams of people responsible for output, personal performance and quality (Bidoli, *et al.* 1998:vii). The team-orientated company focuses in internal workgroup control and monitoring its own quality standards. This reduces unnecessary external controls and also develops a strong corporate culture, which is meaningful to employees. People must be willing to live the corporate values, and not just identify with them.

A real challenge is to ensure succession through opportunities for development at all levels. Three areas are critical in managerial effectiveness (Bidoli, *et al.* 1998:viii):

- Technical and financial skills
- Relationship skills

- Conceptual thinking skills.

As one moves up in an organisation, technical skills alone are not enough. Leadership, people management abilities and vision become critical for strategic planning. Companies that are attractive to work for, will appeal to different people for different reasons. The idea of intellectual capital is found in companies which reward people for acquiring knowledge, skills and competencies intrinsic to organisational goals. Critical to success is the linking of pay to performance of individuals, teams and work units.

2.4. KNOWLEDGE MANAGEMENT

A survey of individuals and organisations was undertaken by Bates & Bloch (1996:29) to assess how the changing world of work – in terms of delayering, outsourcing and information technology, is affecting the preparedness of people to deal with these changes. The reasons supplied for the current changes are many but the main drivers are:

- social trends and expectations including education:
- technological trends: and
- political and international trends (globalisation, deregulation, newly competitive economies).

More specifically the things happening in organisations are (Bates & Bloch, 1996:29):

- continuing change and unpredictability:
- flatter, delayered organisations:
- work grouped around processes, projects and teams rather than functions and hierarchies:
- focus on the core organisation supported by increasing use of contracts, outsourcing, alliances and the virtual organisation:
- career paths are diverted and disrupted: no longer “linear”:
- the need for continuous, lifelong learning: the learning organisation:
- growing diversity in skills, people, lifestyles and expectations.

The outcome is the end of careers as was understood for most of the twentieth century with the following implications (Bates & Bloch, 1996:29):

- no more “jobs for life”:
- a change from a paternalistic psychological contract (parent-child) to one based on reality (adult-adult):
- each individual needs to take control of, develop and manage their own career to enhance their employability and to attain satisfaction and enjoyment.

Hurley & Schaumann (1997:126-127) states that the competition for information technology skills is tight. Often, an in-house information technology department is unable to provide the environment (new technologies, tools, training, advancement opportunities) that the best and brightest information technology people are seeking. An organization with information technology as its core function (i.e. an information technology outsourcer).

Some organisations think that the big strength of keeping information technology in-house is that their information technology staff understand the business. However, in most well managed outsourcing scenarios, good business-needs analysis and a comprehensive definition of service-level requirements will quickly compensate for loss of "inside" understanding (Bull, 1996:39-40). There is an argument that an excessive dependence on inside knowledge can result in inefficient practices remaining permanently unquestioned. To that extent, a fresh perspective on business needs offered by an independent contractor can be valuable.

The overall network of companies, many of them small, that form the total active corporation is large – but each component specialises in a small subset of activity. Many of these changes are concerned with specialisation. Each of the component companies in the virtual corporation has been built around expertise and specialist knowledge. Increasingly, knowledge is the true resource of a company. Franks (1998:131) argues that without knowledge, an organisation could not organise itself: it would be unable to maintain itself as a functioning enterprise. If people, departments, units, etc are divested, there is a danger that such industry knowledge and experience may be lost. Knowledge is what each of us possess, what we have acquired in our lifetime and what we use to perform our work. Rather than losing this valuable resource, it is important that virtual organisation pay particular attention to knowledge and harness it appropriately: such knowledge should be the building block around which business will be built (Franks, 1998:130). This is one of the reasons for the growing importance of "knowledge management". Of course, outsourcing is one way in which the pool of available knowledge can be enlarged and enhanced. As consumers become more sophisticated, they expect their products to be tailored to their own particular circumstances and needs. Such flexible production methods also give rise to greater innovation – responding to technological change, varying demand patterns, perceived customer need. These factors are linked. It is the increasing concentration on core competencies that allows organisations to remain flexible (Franks, 1998:131). The "glue" that binds the various corporate components together is technology. Small firms that are bound together as part of a virtual organisation can exchange data at the same speed as internal departments of a large company.

“The answer is that component companies of the virtual organisation have to trust one another, respect one another’s skills, and accept one another’s share of responsibility and accountability.”

~ Franks (1998:131)

It was stated by Lonsdale (1999:178) that the final condition underpinning competitive advantage is resource mobility. What this refers to is the need for a firm to retain its valuable resources within its boundaries. It is argued that firms need to constantly innovate and respond, through the possession of “dynamic capabilities”, to changing market circumstances. Therefore, firms should build “unique organisational skills” rather than “accumulate valuable technological assets”.

2.5. SUMMARY

Industry, in general, are aware of the advances in technology and realises that to be able to stay competitive or to gain the competitive advantage they need to utilise technology for improving efficiency and reducing costs. This entails effective management of employees and relationships with a network of companies supplying various technology products and services. Due to risks and capital investments required in these types of products and solutions corporations are starting to realise that for specialised services international experts are required to obtain the best products and “best of breed” solutions. Therefore, the biggest constraint in the market is whether there are qualified people in the market to ensure that the technology is implemented in the most optimal and cost efficient way.

By examining the combination of the two types of industries, i.e. production and technology services, it is clear that in the case of best catering for access to knowledge worker, the symbiotic relationship between production and service driven companies must be exploited. Several management means are available to develop the symbiotic relationship, i.e. strategic alliances, outsourcing and/or networking. For example, forming a strategic alliance between production and technology service company combined with a form of networking organisation culture enables the outsourcing of certain functions, and even critical functions, by the production company to the technology service company.

Motivation of knowledge workers is the single most important aspect for maximising return on intellectual capital. Knowledge workers and their related intellectual capital are psychological

beings and need to be motivated (in the information age) in contrast to machines (in the industrial age) where maintenance ensured the optimal performance. Therefore, an environment that can enable and enhance motivation of the knowledge worker of today is of utmost importance, and as such the network organisation structure is proposed as a solution for creating the best organisational environment for knowledge workers.

Therefore, the questions that are highlighted by this chapter are:

- What is the best organisational format for the technology service companies to ensure that they retain (motivated) knowledge workers, but simultaneously retaining intellectual property within the company?
- What is the most efficient way to obtain access to specialised skills for companies that will enhance their competitive edge in the global economy?
- What is the most effective strategic “tool” for a production company to use to take advantage of the possible symbiotic relationship with technology service companies?



CHAPTER 3.

Organisational Strategy for Knowledge Management

3.1. INTRODUCTION

"Becoming a virtual corporation is an exercise in managing change – and the changes we make to people's roles are much more important than the changes we make to their technical support."

~ Daniels (1998:20)

Daniels (1998:20) states that to become truly competitive, the following management strategies could have been followed: downsizing, restructuring and re-engineering. Many organisations are working towards the concept of a core organisation dealing with core or strategic activities, surrounded by a network of smaller companies and individuals (associates) providing a range of supporting, ancillary services on a contracted, outsourced basis. Of course the network between the various parts has to be strong enough and robust enough to form real links – with a sense of shared dependence and motivation for mutual wellbeing. This requires both an effective physical network and, perhaps more importantly, a cultural network which links together the people rather than simply their machines or activities.

3.2. NETWORK ORGANISATIONS

The network organisation operates wider than just the normal boundaries of the organisation. It sets up co-operative relationships with suppliers, distributors and even competitors. These network relationships enable companies to achieve both efficiency and flexibility to exploit the advantages that various organisations and their abilities to maintain motivated knowledge workers. These organisations are in a sense boundaryless organisations (Pretorius, 1996:42).

To enable efficient utilisation and motivation of the knowledge workers in any company the concept of network organisations is suggested as a solution. This could possibly entail a combination of relationships with internal departments (within a company), strategic alliances, and/or outsourcing functions with external companies.

The role of management is defined as the process of planning, organising, leading (or co-ordinating) and controlling through people. Traditionally the focus was more on organising and controlling, but with the network structure sharing and trust is imminent. Thus the focus changed to planning and leading. The role of the leaders became more important in the network structure in that empowerment and sharing of accurately planned objectives helps inspire people to follow willingly and trustfully (Pretorius, 1996:45).

The network organisation has been born out of the need for flexibility and adaptability imposed by the information age. The rapid development of information technology has increased tremendously the volume of information. In order to align everyone with the vision and the mission, keeping everyone up to date with the day to day decision-making necessitated a constant fast and furious flow of information and transfer of knowledge (Pretorius, 1996:55).

The network structure has a total new format in which it operate, which demands new roles and responsibilities. To be able to work without boundaries, requires knowledge of both sides. In order to function appropriately in a network structure people need to work together in teams. While the network cannot survive without a co-ordinator it cannot succeed without teams. Teams consist of individuals, working towards the same goal, and as such they complement each other with their skills and knowledge. As Pretorius (1996:50) puts it: "The finest combination of skills, personalities and knowledge bring forth the best teams."

The network structure relies on uniquely defined teams, each working on a specific "assignment". Therefore a certain degree of responsibility and authority are granted to a team. One of the critical success factors is to locate the required skills and then to allocate it appropriately. For the team to succeed they must work together in a certain degree of harmony with fellow team members and other teams (inside or outside company boundaries), and be able to clarify any differences by themselves. The teams must be able to operate fairly autonomously.

Teams in a network organisation has a very specific characteristic: they need to be self-directed. This entails a shared vision of the company goals and an understanding of the direction to get there.

3.2.1. Shared Vision and Mission

For the knowledge workers of today they have to part of the generation of the vision and mission process. For those joining later, needs to be aligned on the vision and mission. It does not help if it is just a statement on the wall. The person must experience it in action from his or her fellow workers and managers. Vision and alignment of vision is strategically the most important business issues that employees in today's knowledge environment requires (Latham, 1995:65). Therefore, the vision must be shared by every employee contributing to the company's knowledge capital. Knowledge is fickle, if utmost care is not taken to focus it properly the business stands to lose a lot of profit – knowledge equates to money in the knowledge economy.

Successful visions fulfil three criteria (Latham, 1995:66): They are timeless, inspirational, and provide clear guidelines for decision making. A vision is far-reaching: it describes a utopian place where everything is perfect. You might never arrive at the vision, but arriving isn't the important part: it's trying to get there and continually improving that matters. A clear, common picture of the desired end provides criteria for decision making. This picture enables and empower employees at all levels of the organisation.

Building a visionary company requires 1% vision and 99% alignment. Creating alignment may be your most important work. The greatest competitive advantage a company can possess is a collective vision of the future (Hamel & Prahalad, 1994:67). All the re-engineering in the world will not save a company if it fails to think hard enough about where it will be a decade hence. For a start, firms need to invest in thinking about the future. Companies wishing to remain innovative also need to break down barriers, forcing business units to work together and forming alliances with rivals. Above all firms need to be able to challenge their own orthodoxy's.

Visionary leadership is one of the key parameters in a successful networking organisation. Pretorius (1996:63) describes it as follows: "There is a need for a leader with his eyes on the future, yet his feet on the ground."

According to the vision, the mission must be clearly written or verbalised in an effort to provide direction and goals that need to be achieved. People wait by nature for a leader to give direction.

Visionary firms have a burning sense of purpose. they can avoid wasting time and elicit extraordinary commitment from their employees. The dynamic of preserving the core while stimulating progress is the reason that companies became elite institutions able to renew themselves and achieve superior long-term performance. This rare ability to manage continuity and change – is closely linked to the ability to develop a vision (Collins & Porras, 1996:66).

3.2.2. Leadership

In a network organisation both management and leadership is required, but most important of all is leadership. The following are a requirements for leadership (adapted from Charlton, 1993:25-27):

- A leader is a strong individual that can give strategic direction to teams.
- In the process of leadership the quality of the leader-member relationship is very important.
- It is essential that followers must be developed and transformed into leaders and in the process elevating people by building commitment through meaning.
- Leadership is required to motivate people, by the way the leader sees the relationship with followers and the manner in which change is viewed.
- Leadership is the unique alliance between managers and workers to fully engage the talents and potential of everyone in the organisation.
- Empowerment – a process of developing subordinates who are able (competent) and willing (motivated) and allowed (authority and responsibility) to use their full potential.

Effective leadership must display the following four criteria (Charlton, 1993:29-61):

- *The management of attention through vision.* Leaders need to capture attention through inspiring vision of the future. The leader create the vision of the future and a content (realistic in relation to current reality) in which the need can be realised. Leadership must be created that empower people and unleash human potential in creating their future – it must be fuel for growth.
- *The management of meaning through communication.* This vision needs to be constantly communicated through the organisation. Communicate vision regularly to focus people's attention and to provide a sense of direction, i.e. align energies.

- *Trust*. Trust is essential to commit people to action, especially in adverse circumstances. A leader is committed to greater cause and create an environment for other people to make the same commitment.
- *The management of "self"*. The above three criteria is dependent on the leader's self-management, or ability to accept responsibility for personal action and change, and the degree to which the subordinates are given the opportunity to be responsible – acid test for leaders is empowered people.

In a network organisation leadership is not only required at the top of the organisation, but at every level where teams exist. Every team needs someone that can give direction and inspire everyone to reach the "goal".

3.2.3. Empowerment

Knowledge without the necessary permission to apply it, is useless. Empowerment authorises a person to put his/her knowledge and skills to use. Empowerment is not a characteristic of a network culture, but a prerequisite to prolong the positive effect of networking (Pretorius, 1996:56). Being in a position where a person work across boundaries most of the time, authority is needed to complete certain responsibilities.

Participative management is more well known as "employee involvement" or "empowerment". Society's collective vision of institutional governance is under-going a fundamental shift – the replacement of authoritarianism by participation (Goodale, 1993:173). Such a shift requires profound changes in our assumptions about how a successful organisation work. It will affect values, structures, roles, processes, competencies, and the nature of life and interactions in every country on the globe.

The importance of vision and the empowerment of people within organisations to accomplish that vision, has become an increasingly popular perspective to bring to strategic management. It has become clear that energy levels, empowerment and passionate commitment to achieving the purpose of the organisation is largely discretionary and that people need to be psychological empowered to be part of the success of the organisation (Binedell, 1991:9).

In summary the five critical principles for empowerment are as follows. adapted from Pretorius (1996:66-67):

- *Clarify* vision, mission, objectives, goals and job descriptions so that every employee can know what they are working towards.
- *Create* an environment where people have a desire to serve one another, by creating a sense of self-fulfilment and feeling that he/she has made a difference, and certain circumstances use organisational authority to release human potential.
- *Built* a culture on solid values that people can refer to and that can be used in decision-making.
- *Make* use and implement consensus decision-making so that everybody can be co-owners of the process to implement the best solutions and practices.
- *Provide* regular feedback for the employees so that they can know whether they (and the company) are still on the right track.

People empowerment and participative management is inevitable because the capacity for participation is widespread and becoming more so. Firstly, it is necessary because the issues that management face in the workplace are too complex and interdependent to be solved by a few people in authority (McLagan & Nel, 1996a:14). Secondly, the network organisation can't function effectively without participation of the various teams (companies) empowered to perform their required tasks and stay motivated.

People in traditional systems often guard and hoard knowledge and use it for power and position. In participative institutions, such behaviour is considered to be theft of knowledge capital. Learning and sharing knowledge are two key values. People teach one another and everyone is a learner (McLagan & Nel, 1996b:16).

Therefore, participative management is more than simply employee involvement and refers to real influencing of management decisions. Five levels of involvement have been identified by McLagan & Nel. (1995:193), ranging from high staff involvement (Level 1: Prescriptive participation) to high executive involvement (Level 5: Vision participation). Some of the key aspects that are aimed at by implementing a participative management system is to make the organisation flexible in the fast changing business environment, enhance open communication between managers and subordinates, show recognition for employees pulling their weight, and respect the individual's ability by allowing them to reach their full potential in their careers.

Technology is changing the nature of work and thus freeing up time, because technology reduces the number of people required to produce given goods or services. It increases the size of the individual's job and associated responsibility. Technology in the work itself makes each person's impact more significant and his or her commitment and involvement more critical. Quality is rapidly becoming the minimum prerequisite for customer satisfaction. In practice, the person who receives the customer's request must be empowered to do whatever it takes to get and keep the customer.

3.2.4. Change management

In an economy founded on innovation and change, one of the premier challenges of management is to design more flexible organisation, which in itself is a unique innovation. Managers in flexible organisations must focus on boundary management. They must teach people what new boundaries matter most, then how to recognise such boundaries in their relationships with others. Good boundary managers encourage employees to enact the right kinds of boundaries (Hirschhorn & Gilmore, 1992:106).

With the changing and fast moving business world, managers have to keep on changing the system and to adapt to new conditions that evolved. Pascale *et al.* (1997:129) identified the vital signs of an organisations overall health and adaptability, and the strength and vigour of their functional systems. The four vital signs are:

- Power – Do employees believe they can effect organisational performance?
- Identity – Do employees identify with the organisation as a whole?
- Conflict – How do members of the organisation handle conflict?
- Learning – How does it deal with new ideas? How does the organisation learn?

Surprisingly, it is evident that in industry managers do not focus on the troublesome areas more than on the other areas, whereas these areas need the most attention. Managers tend to be reactive and to see change as an unwelcome surprise (Eisenhardt & Brown, 1998:65). These managers must be able to adapt and keep up with the marketplace by changing and innovating through difficult times.

3.2.5. Culture

Culture is determined by the atmosphere created through the way a group of people within an organisation interact, communicate, awareness, willingness, information and empowerment. A culture is a born mix of structure, management, processes and procedures, individuals with their roles, personalities, values and attitudes employed in the organisation (Pretorius, 1996:51-52). It is an environment where everyone share the same interests with same kind of values systems. It is not something that can be forced, it is something that develop according to the leaders in the organisation's values, personalities, rules and regulations, and the way the organisation operate. To elaborate a bit more on the key elements that influence organisation culture:

- the history of the organisation.
- the ownership.
- the operating environment.
- the mission.
- the people.
- the management style, and
- technology and information technology focus.

The organisations culture manifests itself in the values and beliefs of the organisation, the ethical standards and practices employed, key policies and procedures, the style things are done, the tradition the organisation maintain, and the people's attitude and feeling towards each other and the company.

The cultural aspects that are very important in a network organisation are (Pretorius, 1996:72-75):

- *Learning environment.* The network structure is an environment comprised of different parties (or companies) that require constant interaction, which leads to learning from one another, sharing information and knowledge, and plan and co-ordinate.
- *Teamness.* The most prominent feature of network structure is its teamwork approach. Everything that happens, happens through a node point, where it joins the required skills and knowledge, and from where the broad direction is supplied and co-ordination of the end result of the team activities occur.
- *Trust.* Trust is a fundamental requirement to ensure a lasting relationship. Relationships between the various members of the network organisation can only survive if they can trust each other for complete knowledge and information transfer, and open and honest communication.

- *Communication.* Good and effective communication is not just essential in a network organisation, it is a prerequisite for survival. The team can only perform if they are completely informed of the strategy and the vision, and if knowledge and information flows freely between the teams.

Maybe the most crucial part of the culture of a network organisation, or any organisation for that matter, is that the culture and the structure of the organisation must promote change, or at least accommodate change.

3.2.6. Entrepreneurship

"The essence of competitive advantage lies in adaptability, flexibility, speed, aggressiveness and innovation. Stated more succinctly, there is a fundamental need to make organisations more entrepreneurial ... to tap the entrepreneurial spirit in all our people, at all levels and in all functional areas."

~ Morris & Erlank (1996:14)

Entrepreneurship is a way of thinking and a way of acting built around the concepts of innovation, calculated risk-taking and pro-activeness. Entrepreneurship refers to an organisation's willingness to encourage creativity and flexibility, and to support risk. For large established firms entrepreneurship becomes a process of organisational vitalisation and revitalisation necessary to overcome the bureaucratic tendencies frequently associated with bigness.

In a network organisation corporate entrepreneurs are essential because they acquire their power through mobilising others (and being mobilised by them) as collaborators: they are not "solo artists", but team players. They secure information, support, and resources by building an actual or implicit team of people who will maximise goals of their own through their involvement. Corporate entrepreneurs produce innovative achievements by working in collaborative/participative fashion: persuading much more than ordering; team building, including creation of formal task forces or committees, frequent staff meetings, frequent sharing of information; seeking input from others; and last, willingness to share rewards and recognition (Kanter, 1983:237).

There are eight generic dominant factors that determine or define an entrepreneur (Morris & Erlank, 1996:14):

- motivation to achieve:
- creativity:
- tolerance for risk and uncertainty:
- self-confidence:
- commitment and determination:
- opportunity obsession:
- leadership: and
- approach towards resources.

The skill of corporate leaders, the ultimate change masters, lies in their ability to envision a new reality and aid in the translation of entrepreneurial ideas into concrete terms. Innovation and change are bound up with the meanings attached to events and the action possibilities that flow from those meanings. Therefore, it is difficult to see change or enhance change, associated with entrepreneurial developments, as a mechanical process and extract the "formula" for producing it entrepreneur (Morris & Erlank, 1996:15).

- *Systems.* Systems are developed to provide stability, order and co-ordination to increasingly complex organisations. However the trade-off can result in a strong disincentive for entrepreneurship. This may be reflected in inappropriate reward and measurement schemes, overly rigid planning procedures that focus on form instead of content, inflexible budgets and arbitrary cost allocations systems.
- *Structure.* Excessive hierarchical levels slows a firm's ability to identify market opportunities and implement strategies. Communication is hampered and top-down management becomes a constraining factor. An overly narrow span of control can restrict creativity.
- *Strategic direction.* Without strategic focus on innovation, organisations are in danger of leaving it to chance. Entrepreneurship requires strategic direction from senior management to drive specific goals for product and process innovation.
- *Policies and procedures.* Entrepreneurs are typically dealing with the unknown which is why current policies and procedures based on experiences of the past may not be relevant. Long and complex approval cycles with excessive documentation requirements work against nimble actions to outpace the competition.
- *People.* Entrepreneurship is concerned with change. People have a natural tendency to resist change and therefore it is important to involve people in change processes. A short-term orientation, an inappropriate mix of skills and talents and an emphasis on parochial turf are

all further examples of obstacles to entrepreneurship. Entrepreneurial spirit is frequently stifled by pervading fear of failure prevalent in many companies.

- *Culture.* Companies noted as successful innovators tend to foster a strong organisational culture. This culture is built around a clearly defined values that pervade every aspect of company operations. Entrepreneurship must become part of the organisation's value system where entrepreneurial behaviour is acknowledged, fostered and rewarded.

Entrepreneurship is an essential competency in the network organisation and any other organisation. The entrepreneurial ventures of today is the competitive edge of the future.

3.3. INTER-ORGANISATIONAL NETWORKING

The key objective of the virtual corporation is to maximise flexibility – to be able to respond quickly to changes in the environment and the market. To achieve this, organisations need to exploit both technology and their human associates fully (Daniels, 1998:20). Technology is used for the accumulation, sharing and communication of information, while the people involved have to be entrusted with judgement and decision making. The virtual corporation should naturally be smaller (in terms of permanent employee numbers) than its more traditionally-organised competitor. It is also likely to have a flatter organisation structure. If the role of the “supervisor” is much reduced, the numbers of such supervisors not surprisingly drops significantly. This reduction in the layers of management helps communication and improves the flexibility. The benefits – to the corporation – are obvious, but to realise them needs careful attention to planning the change. It also needs a clear vision of the nature of the new organisation – and, above all else, to its values in general and the value it places on its associates. If they do not feel valued, they are unlikely to give full value.

“It is widely understood and accepted that trust is a fundamental prerequisite to any successful networking arrangement. That is, trust among partners is an essential prerequisite in inter-firm collaboration.”

~ Zeffane (1995:30)

3.3.1. Strategic Alliances

Strategic alliances and networks have become an integral part of contemporary strategic organisational thinking. The symbiotic benefit that companies can obtain from creating effective

outsourcing activities through strategic alliances and networks paramount to maintain a competitive edge in the global economy of today. On the other hand it is becoming increasingly one of the key goals for resource-poor (small) entrepreneurial organisations seeking to build network exchange structures with outsiders that are identified as crucial resource suppliers, and that can stabilise the new firm as a player in its targeted markets. Inter-organisational networking is also used as a way for traditionally bureaucratic organisations to become more innovative (Zeffane, 1995:26). The social dimensions of network transactions are central in explaining control and co-ordination in the exchange structures. As companies continue to flatten and rely on teams, managers are increasingly made to rely less on their authority and more on understanding informal networking. The basic social exchange character of networks also implies that networks not only tie firms to one another but also penetrate the firms and tie individuals across their boundaries and create channels for effective knowledge transfer and personal growth.

The strength of a network also depends on how the various actors perceive the value of the relationships, and this might vary over time. Emphasis on the social fabric and informal relationships can therefore mediate the relationships between organisational and individual factors. Appropriate socialisation processes then become the substance of the networked organisation. Such emphasis recognises networks as essentially "information-based organisations" where individual responsibility for relationships and communication is of prime importance. Zeffane's (1995:27) findings suggest that co-operation is a function of the friendliness of the bidding company and the social networks shared by executives. In particular, their results underline the relationship between social fabrics and the willingness to co-operate.

Networking is the ability to develop and cultivate a large and diverse group of people who will gladly and continually refer business to one another, formally through outsourcing contracts or informally. In a structural sense, networks offer a promising alternative to the two-dimensional lens of strategy and structure through which most senior managers evaluate their organisations. Over time, the members of the network influence values and behaviour both above and below them in the larger organisation. Networking is, in effect, reaching out and creating visibility for the client and service provider in niche or target markets.

Zeffane (1995:31) concludes that alliances are therefore constructed as effective means to acquire access to new markets (for the service provider) and special expertise (for the corporation). Strategic alliances are also becoming increasingly necessary to support innovative activities. In these

perspectives. strategic alliances are increasingly required to pool resources, skills and risk capital to maintain industrial competitiveness in a hyper-competitive global marketplace. The need for alliances is also driven by rapidly advancing technology.

3.3.2. Corporate Partnering

Corporate partnering is the first step towards outsourcing, and the same principles apply to partnering than for outsourcing. Partnering is meant to be distinguishable from traditional client-contractor or buyer-supplier relationships. Jones (1995:24) believes that the keys to success in partnering are:

- *Clear vision* – embracing the past, the present and the future. As in the word of the individual, so with the company. In respect of understanding how a person lives and acts, the key lies in being aware of how the past influences the present, through the value system held. Change, it is said, can come only through self-awareness. The corporate constructs or decision-making factors in partnering derive from the collective cultures of both the buyer and supplier and form the base line for all decision making.
- *Open communication* – both internally and with the supplier. This has to be clear and in a common language covering both generalities and specifics, and action as well as words.
- *Commitment* – this must be from the top and become part of the shared culture – “the way things are done around here” – the traditions, values, beliefs, policies and attitudes, the importance of the dominance and coherence of cultures as a fundamental tenet of excellence and patience, since it takes time.
- *Rewards* – these must be creative, reflect performance and motivate at all levels.

These taken together are the foundation stone for trust. Business risk is always perceived to be higher at the time of change. A focus on trust in a relationship enables this risk to be controlled.

3.4. SUMMARY

The network organisation is particularly suited for knowledge workers due to the fact that is a boundaryless organisation structure that is based on teams (internally) and alliances (externally). The significant advantage of the network organisation is the inherent flexibility and adaptability that enable change, and the ability to change is the competitive advantage of organisations in the information age. The salient points of network organisations that make this organisation structure a prerequisite for successful organisations in the information age are:

1. *Shared vision and mission* provide shared goals and objectives for the company and the employees to use to guide and direct the various autonomous teams.
2. *Leadership* provide the strategic direction and empower employees in decision-making through alignment of goals, creation trust relationships and building self esteem of each individual.
3. *Empowerment* authorise people to use their knowledge and skills to create value for the organisation.
4. *Change management* – innovation and change – require flexible organisations, and as such the essence of the competitive advantage of an organisation lies in the flexibility, adaptability, speed, aggression and innovation of the organisation.
5. *Culture* is the end-result of the people and operations of the organisation is primarily a function of history, therefore, a few critical aspects are required to obtain the correct culture, i.e.:
 - a learning environment.
 - teamwork.
 - trust, and
 - communication.
6. *Entrepreneurship* ensures innovation and creativity that could result in products or services for the future, which enables the organisation to maintain a competitive advantage in the global market.

The network organisation is specifically suited for the knowledge worker of today, in that it is a flat organisation structure, it is team based, information sharing and communication is implicit, provide exposure to different technologies and promote innovation, and is entrepreneurial in nature. For the technology service companies it is imperative to have a network structure to facilitate and motivate knowledge workers – because that is where the human capital of the company is kept. The production driven companies relative to technology service companies are less pressurised on employing a network structure, because they are in general more dependent on the technology service company to supply the necessary expertise in areas of non-core activities.

A network structure organisation is essential for technology service companies to be able to provide a world-class outsourcing service to client companies.

The Theory of Outsourcing

4.1. INTRODUCTION

Outsourcing is a business tool that can enable better knowledge management. Like all tools, it must be used properly to achieve the desired results. Managers that define the process as a one-dimensional strategy will be doomed to failure. Effective implementation requires a tailored solution. "one size does not fit" all firms. Outsourcing must be part of an overall corporate strategy and management must ensure that all employees are aware of the overall situation. It is for these reasons, that most organisations may find that some combination of insourcing, outsourcing and contracting out, may be the optimal solution for any particular scenario. The correct management tool to implement outsourcing will be one, or a combination of the following: contracting out, networking or strategic alliance partnerships, but it will depend on the activity being outsourced.

The PA Consulting Group describes outsourcing as a fundamental part of the universal search for more effective performance in its International Strategic Sourcing Survey, which states that "Organisations aspiring to be world class in their own markets cannot themselves be world class at everything, but only by gaining access to world-class services in all the areas significant to their future business can they achieve the combination of quality and efficiency needed for success" (Barrett, 1997:18). Companies taking this path do so because they recognise that others can do particular jobs better and/or to focus their in-house resources on their core business and/or to reduce their cost base.

4.2. OUTSOURCING

Outsourcing is the procurement of products or services from sources that are external to the organisation. Firms should consider outsourcing when it is believed that certain support functions can be completed faster, cheaper, or better by an outside organisation. Tasks that are not core competencies of the organisation are candidates for being contracted out. However, any skill or

knowledge that allows you to serve your customer base better. that deals directly with the product or service you are trying to put out of the door. is one that must remain in-house (Embleton & Wright, 1998:94). It should be noted that outsourcing is not a synonym for contracting out. Contracting out refers to work assigned to an outside supplier on a job-by-job basis. usually involving a cost-plus arrangement. Outsourcing on the other hand. entails a long-term relationship between supplier and beneficiary. with a high degree of risk-sharing (Embleton & Wright, 1998:94).

4.2.1. Overview of Outsourcing

Today. the outsourcing of selected organisational activities is an integral part of corporate strategy. For corporations. benefits of outsourcing are substantial: reduced costs. expanded services and expertise. Outsourcing allows companies to refocus their resources on their core business. Corporations can buy technology from a vendor that would be too expensive for them to replicate internally. For outsourcing to be successful the decision needs to be an informed one. Effective management of the outsourcing relationships is an organisational imperative. It is estimated that every Fortune 500 company will have considered outsourcing during this past decade and that approximately 20 percent of them will have entered into a contract by the end of year 2000. A recent study indicates that outsourcing is a trend of the future and that organisations already outsourcing activities. are pleased with the results (Lankford & Parsa, 1999:310).

According to Blumberg (1998:12-13) there are a total of eight major classifications of service providers to the general outsourcing market. These include:

- Computer systems providers and integrators.
- Office automation manufacturers.
- Telecommunications providers.
- Specialist management consultants.
- Functional support vendors.
- Facilities management firms.
- Systems software vendors.
- Systems consulting firms.

Outsourcing in the 1990s includes management and operation of computer facilities and networks. as well as the development and management of systems applications. The computer system providers not only can provide experienced personnel with a high level of expertise. but also have the opportunity to upgrade their own systems and technologies into customer sites. Systems

consulting firms control a dominant share of the information technology outsourcing support market. These firms provide full-scale systems development and systems integration projects. These companies originally entered the outsourcing market by providing the required personnel assets and technology to operate information technology functions during transition periods with large scale systems consulting and integration projects. However, now many system consulting firms provide systems outsourcing on a stand-alone basis to integration projects.

According to the KPMG survey of Hurley & Schaumann (1997:127) on the current information technology outsourcing practices in Australia the group was asked which functions could never be outsourced effectively. Not surprisingly, these were the tasks most closely related to business knowledge:

- business/strategic planning:
- justification of projects:
- effective use of the technology:
- benefits capture:
- line-of-business application support: and
- ownership of company's technology strategy.



4.2.2. Why consider Outsourcing?

The most obvious reason behind outsourcing (Table 4.1) is that it provides very effective means of reducing costs by contracting with a third-party who can provide better service and high quality at a lower cost. By reducing costs through outsourcing, you gain the ability to improve operating efficiency, increase return on assets, and improve profitability (Blumberg, 1998:6). Outsourcing is also an effective means of generating new revenues. For example, the firm which outsources can contract with a third party to provide products and services which it cannot offer on a profitable basis. This form of outsourcing enables a client firm to test market demand for a service or product in a less risky, more cost-effective way than creating the service internally with scarce resources. Outsourcing can also occur in the form of collaborations or alliances with two or more like parties in the same business line to offer complementary products or services. These hybrid situations enable the two organisations supporting the same market to share resources and increase revenue through synergistic relationships. Benefits of these hybrid situations also include the ability to increase capacity utilisation, improve return on investment, and create economies of scale (Blumberg, 1998:6).

Table 4.1 – Reasons why companies outsource and the types of outsourcing relationships

<i>Rationale</i>	<i>Description</i>	<i>Benefits</i>
Cost reduction	Outsourcing to a third party to reduce cost of operations	Improve efficiency Increase return on assets Improve profitability
Revenue generation	Contracting with a third party to provide products or services which the outsourcing firm cannot offer on its own	Reduce risk Improve efficiency Increase revenue
Hybrid situations	Collaborations, alliances, partnerships, etc., with two or more like parties in the same business line to offer complementary products or service	Improve return on investment Increase capability utilisation Create economies of scale

Source: Blumberg (1998:7)

Outsourcing involves much more than subcontracting individual activities to reduce costs. A more accurate definition of outsourcing would be contracting the management function and its associated components to an outside party who can perform it on a more proficient and efficient basis than the outsourcing firm. In essence, outsourcing involves delegating to a third-party, the responsibility and authority for managing and operating a portion of the outsource firm's business at an agreed fee for a fixed period of time.

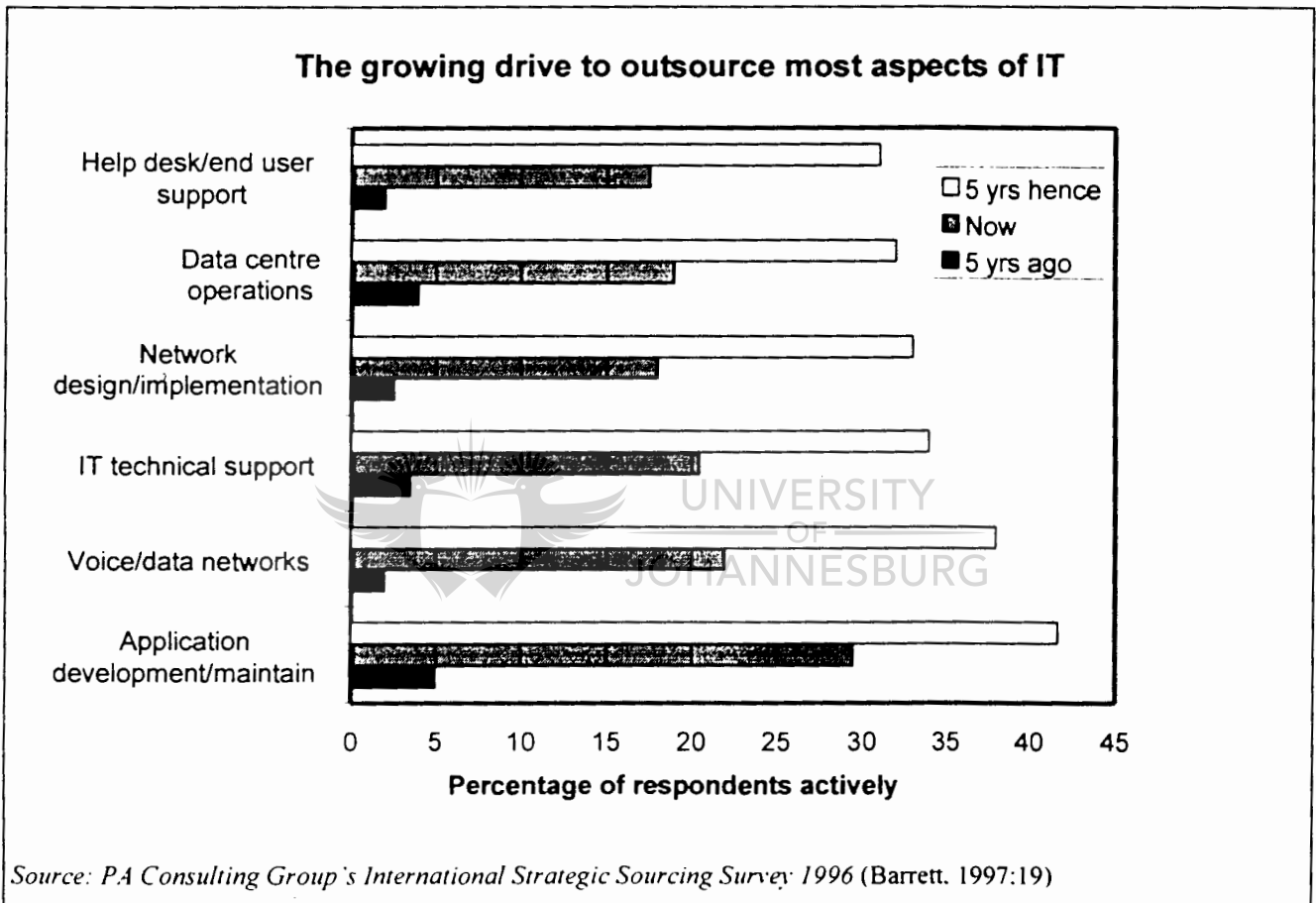
Outsourcing can be defined in various ways, i.e. capacity outsourcing and non-capacity outsourcing or outsourcing in terms of full outsourcing, selective outsourcing and everything-in-between outsourcing. Outsourcing can therefore be considered as a continuum. At one extreme outsourcing can be seen in the form of hiring temporary labour or machines and at the other extreme, complete responsibility for the regular and continuous design, build and delivery of manufactured parts for integration into other assemblies (Fill & Visser, 2000:43). In management terms it can take the form of anything from subcontracting to strategic alliances and networking organisations.

4.2.3. Growth of Outsourcing

According to PA Consulting Group's survey – based on input from over 1000 directors and senior managers in major public and private sector organisations in eight countries – there has been

substantial growth and penetration of outsourcing in the last five years, which is set to continue in the future. Information technology activities are already one of the most frequently outsourced services – technical support, for example, had grown from under 5% of survey respondents five years ago to over 20% in the 1995/1996 survey, and is expected to grow to over a third by 2000 technology (Barrett, 1997:18). The growth of other information technology activities is shown in Figure 4.1.

Figure 4.1 – The growing drive to outsource most aspects of Information technology



Information technology is a particularly popular area to outsource because it gives a client access to the latest technology, which it might lack in-house, and specialist staff in areas in which there might be a skills shortage. A move from in-house operations to outsourcing offers additional benefit of a shift from fixed to variable costs. It can prove more cost-effective to tap into skills, technology and resources of a specialist service provider than to build and maintain a complex system – as in the case of manufacturing industries – that is not what the business is about.

4.2.4. Drivers

What is different is first the range of service organisations are now asking outsourcers to provide and second, the extent to which outsourcing has become the politically correct response to changing market and corporate conditions. Outsourcing is not just a costing exercise, it has a strategic dimension as the organisation attempts to find the right size to fit new environments. There are two basic drivers behind the growth of outsourcing, cost reduction and a strategic shift in the way organisations are managing their businesses a further two drivers for outsourcing are market forces and technical considerations. To summarise, the drivers for outsourcing can be defined (Fill & Visser, 2000:43-44):

- *Quality (capacity)*: Actual capacity is temporarily insufficient to comply with demand. The quality motive can be subdivided into three aspects: increased quality demands, shortage of qualified personnel, outsourcing as a transition period.
- *Cost*: Outsourcing is a possible solution to control increasing costs and is compatible with a cost leadership strategy. By controlling and decreasing costs a company can increase its competitive position.
- *Capital (finance)*: A company has a limited investment budget. The funds must be used for investments in core business activities, which are long-term decisions.
- *Core-business (knowledge)*: Core-business is a primary activity with which an organisation generates revenues. To concentrate on core-business activities is a strategic decision. All subsequent activities are mainly supportive and should be outsourced.
- *Co-operation*: Co-operation between companies can lead to conflict. In order to avoid such conflict those activities that are produced by both organisations should be subject to total outsourcing.

The decision to outsource should address the critical role of information and processes in organisations, including the role that systems play. In this era of the virtual organisation, outsourcing traditional corporate tasks has become popular. And doing so can be cost-effective – provided that the right tasks are contracted out.

In a survey (Anon. 1997b:27) of senior human resource professionals from diverse industries across the USA, respondents say that the most frequent problems they have encountered in their outsourcing experience are:

- cost;
- selection of the contractor;

- choosing which functions to farm out: and
- monitoring the contractor's performance.

Outsourcing can help practitioners by lightening workloads, providing direct and immediate access to expertise and technology and freeing more time for strategic initiatives.

According to the KPMG survey of Hurley & Schaumann (1997:127) on the current information technology outsourcing practices in Australia improved access to required skills scored highest among a list of objectives in outsourcing information technology. Not only has this objective been achieved in highest measure, it was also the one for which the expectations were highest. Cost considerations were well down the list, after such factors as improvements to service quality and improvements in defined service levels. The list in relative order of highest influence to lowest influence is (Hurley & Schaumann, 1997:127):

- access to skills:
- improved service quality:
- defined service levels:
- focus on core business:
- additional flexibility:
- access to technology:
- improved performance parameters:
- cost savings: and
- changed fixed asset basis.



More surprising is the high ranking of applications development and maintenance, according to Hurley & Schaumann (1997:127), having long been considered an area too closely related to business operations and proprietary business knowledge, i.e. competitive approaches, to be entrusted to a third party.

4.2.5. Core and Non-core Activities

Non-core activities remain important to the overall success of organisations, and are best provided by specialist organisations who make those activities central to their business. Every organisation has core activities where the organisation has a competence for satisfying specific customer needs which other organisations do not possess. A core competency lies in an ability to differentiate outputs so that they match a market segment very precisely. Market research informs organisations where customers see their competitive edge, and enables management skills to be focused on

meeting their needs (May, 1998:136). They may also detect that changing demand requires a re-focusing of their competencies either to increase their added value or to maintain market share. Achieving management focus on core activities concerns long-term survival as much as adding value. However, business support activities must also be managed, and management equipped with the skills to do so. Many organisations spend a disproportionate amount of management time managing non-core business process activities. May (1998:136) suggested to identify the core competencies requires assessment of the contribution of every activity undertaken in an organisation, to decide whether:

- it has a direct effect on satisfying customers' needs:
- outsourcing would achieve comparable quality more cheaply:
- re-allocation of resources to other activities would earn a superior return: and
- other benefits might arise from outsourcing such as: lower inventory cost: reduced management time: and improved production flow:

McIvor (2000:23) argue that the real sources of competitive advantage are to be found in management's ability to consolidate corporate-wide technologies and production skills into competencies that empower individual businesses to adapt rapidly to changing business opportunities. Therefore, core competencies are "the collective learning in the organisation, especially how to co-ordinate diverse production skills and integrate multiple streams of technologies". Competencies are the skills, knowledge and technologies that an organisation possesses on which its success depends. These core competencies underpin the ability of the organisation to outperform the competition and therefore must be defended and nurtured. Core competence concerns those resources that are fundamental to a company's strategic position. Instead of developing a strategy based on thinking only of dominating markets, it is more beneficial to think in terms of core competencies, which will segment the organisation in a totally different way. Core competence is also defined as the combination of individual technologies and production skills that underlie a company's myriad product lines. These embedded skills that give rise to the next generation of competitive products cannot be "rented-in" by outsourcing (McIvor, 2000:24). Outsourcing may provide a shortcut to a more competitive product, but it typically contributes little to build the people- embodied skills that are needed to sustain future product leadership. Some companies were defining core activities as "those things that we do best". Such an application has clear risks in that it may lead companies to outsourcing activities with which they are having problems. Again, these activities may be of significant value to the company currently and in the future contributing to the company's competitive advantage.

Information technology outsourcing to some organisations means losing a core function. The fact that information technology today is often regarded as “core” reflects the extent to which computing has pervaded every aspect of business and made itself “indispensable”. Bull (1996:39) states that information technology is certainly business-critical for most organisations, but it is a core function for relatively few. To be justifiably described as core, information technology would either have to constitute the deliverable product of the company concerned or be somehow inseparable from that product. However, it is increasingly clear that organisations recognise that their information technology strategy is driven by business needs which are inseparably linked to business goals. It is in an organisation’s interest to maintain a core information technology strategic competence so that it does not lose sight of its business’s future.

4.2.6. Internal Service Department – justifying their existence

Throughout business and government, the role of internal service departments is being re-appraised as the fashion for outsourcing reaches new peaks. The emphasis on quality, quality control and client care and the increasing competitiveness of the service sector has given additional impetus for a reappraisal of the role of internal service department. Wilson (1998:59) stated that the perception of most internal service departments, most particularly those which provide professional services, is that of:

- discrete operations within corporate structure:
- marginal to core company function:
- reactive rather than proactive to internal requirements:
- little involvement in developing company interests:
- purveyor of professional or technical mystique and superiority: and
- allowed to follow own agenda.

It has already been indicated that one of the reasons why external competitors have been so successful is because of their superior marketing skills and motivation (Wilson, 1998:59). Additionally and critically, all internal departments have one benefit which cannot be matched by external competition. That is intimate, timely and often confidential knowledge of the organisation which enables them to structure the service much more closely to the client and corporate needs. The external service supplier, lacking this knowledge, must perforce seek that which is available. The internal client has to pay for the external supplier to climb the learning curve. It has to be said

that to balance this where freedom from bias and political pressure is critical, the external supplier may have an advantage (see Table 4.2).

Table 4.2 – The internal service department world-wide

	<i>External consultants</i>	<i>Internal consultants</i>
Entering	Source clients Build relationships Learn company jargon “Presenting problem” challenge Time consuming Stressful phase Select project/client according to own criteria Unpredictable income	Ready access to clients Ready relationships Knows company jargon Understands root causes Time efficient Congenial phase Obligated to work with everyone Steady pay
Contracting	Formal documents Can terminate project at will Guard against out-of-pocket expenses Information confidential Loss of contract at stake Maintain third-party role	Informal agreements Must complete projects assigned No out-of-pocket expenses Information can be open or confidential Risk of client retaliation and loss of job at stake Act as third party, driver (on behalf of client), or pair of hands
Diagnosing	Meet most organisation members for the first time Prestige from being external Build trust quickly Confidential data can increase political sensitivities	Has relationships with many organisation members Prestige determined by job rank and client stature Sustain reputation as trustworthy over time Data openly shared can reduce political intrigue
Intervening	Insist on valid information, free and informed choice, and internal commitment: Confine activities within boundaries of client organisation	Insist on valid information and internal commitment: free and informed choice is a luxury Run interference for client across organisational lines to align support
Evaluating	Rely on repeat business and client referral as key measures of project success Seldom see long-term results	Rely on repeat business, pay rise and promotion as key measures of success Can see change become institutionalised Little recognition for a job well done

Source: Wilson (1998:61)

4.3. ADVANTAGES OF OUTSOURCING

Cutting costs is often seen as a major benefit of outsourcing. However, this can lead to disappointment. A much better reason is the specialised knowledge that the contractor can provide (Lankford & Parsa, 1999:311). Outsourcing works best when it is an outgrowth of re-engineering. Re-engineering means stepping back to take a fresh look at a whole process with an eye to discovering how it can be reconceived and rebuilt, from the ground up, as something that works better. When re-engineering looks at who is best suited to performing a particular task – who can do the task with the greatest efficiency and the highest quality – and then determines that it is not the in-house staff, outsourcing is likely to result. Outsourcing is not a new fad but a solution with a long, distinguished track record. There are several primary reasons why a firm considers outsourcing (Lankford & Parsa, 1999:311-312):

- Outsourcing allows companies to refocus their resources on their core business.
- Corporations can buy technology from a vendor that would be too expensive for them to replicate internally.
- Outsourcing partnerships provide businesses with a viable solution to the productivity problem.
- Corporations can develop flexible outsourcing partnerships and programs designed to meet their unique needs and culture.
- Outsourcing lets companies re-examine their benefit plans, make them more efficient, and save time and money while improving efficiencies.
- Companies outsource to improve the benefit plan service level to their employees by making the information more consistent and more available.
- A final possible reason is to reduce costs, certainly over the longer term.

One opinion is that moving to a less integrated but more focussed organisation is imperative for competitive advantage (Fill & Visser, 2000:44). Organisations that understand this new approach strip themselves down to the essentials that are necessary to deliver to customers the greatest possible value from its core service skills.

In an outsourcing arrangement, the using organisation actually sells the operation to an outsourcing vendor. The key to outsourcing is the concept of economies of scale. Furthermore, outsourcing vendors are betting they can perform the activities cheaper. However, users have no security in the expected return on investment for an outsourcing deal (Zeffane, 1995:26). This often entails

building close collaborative alliances with a limited set of suppliers, which in turn enable the firm to stabilise itself while remaining flexible and responsive to a changing market.

Embleton & Wright (1998:98) presented the following summary of the possible advantages outsourcing can (and did) have for companies:

- *Cost savings.* Small companies can benefit from economies of scale ... large companies benefit by shedding what usually are ill-managed peripherals.
- *Time savings.* More than a third (37 per cent) of those surveyed said that the time they would save was their foremost consideration.
- *Hidden costs.* Many organisations have hidden costs that are not discovered until a process is outsourced.
- *Core activities.* If speciality areas outside the core business have been monopolising management attention, outsourcing is a way to get respite from these issues.
- *Cash infusion.* Certain assets can be sold for a cash infusion if a process is outsourced.
- *Talent availability.* Outsourcing provides access to skills that are not available in-house.
- *Re-engineering.* Bringing in an outsourcing partner allows managers to re-evaluate their business processes.
- *Corporate culture.* An outsourcing partner may have a corporate culture that is compatible with an organisation. The intent, however, may be to create a certain amount of upheaval, to jolt a firm into accepting some changes.
- *Share performance.* Stock performance often is enhanced, as investors expect cost reductions.
- *Greater flexibility.* Management has greater flexibility in allocating human resources.
- *Accountability.* The commercial supplier is bound by contract to provide agreed levels of service, while internal departments do not always control expenditures.
- *Labour peace.* Outsourcing certain key areas can lead to labour peace.
- *Free in-house staff.* In-house staff can be freed up for more interesting tasks.
- *Access to specialists.* Specialist skills, tools, technology and independent advice can be gained from outsourcing firms.
- *Greater productivity.* Outsourcing can be used to increase productivity.
- *Geographical.* Outsourcing can be used to handle problems with geographical distance.
- *Distractions.* Outsourcing relieves management of the distraction of managing another staff function.
- *Quality.* Outsourcing can improve quality, as the provider is a specialist in a key area.

4.4. DISADVANTAGES OF OUTSOURCING

Zeffane (1995:26) states that in making the change-over from an internally managed network to one that is operated by an external organisation, human issues are probably the most complex. The growth of global strategic alliances between firms is fundamentally reshaping the nature of international business. Inter-firm co-operation has become a crucial component in the pursuit of global competitive advantage. Yet such alliances are complex to manage successfully because of the opportunity and incentive to cheat and profit at the partner's expense. Consequently, strategic alliances are frequently subject to high instability, poor performance and premature dissolution.

The fact that at least one level of one layer of technical management is removed in the process of downsizing implies that much more training is required. Udo & Kick (1994:17) mentions that some case studies in the literature have indicated the detrimental effect of downsizing is poorer product quality, customer alienation, and productivity decline. This has pointed to the widespread disenchantment with which organisations regard downsizing, in terms of inferior staff services and loss of control.

According to Hurley & Schaumann (1997:129) the primary inhibitor was the potential for the outsourcing arrangement to result in higher long-term costs, a risk that very few managers would be willing to take. The relinquishing of control and the loss of independence of action were also high on the list of factors making information technology managers skittish about the outsourcing option.

Outsourcing cannot be looked at as the answer to a situation where more unknowns exist than can be dealt with and the solution is simply a technique to address an undefined problem (Gavin & Matherly, 1997:116). It is not intended to be a vehicle used to escape from internal fact finding and analysis. Generally, operating flexibility becomes more constrained as the outsourcing contract period lengthens, when more than one element of capital is required, when core business processes are involved, when the risk of the firm recovering from an inappropriate outsourcing decision is larger, and when the knowledge acquisition and analytical skills related to the outsourcing decision are beyond those possessed by executives within the organisation. As the number and extent of these general business characteristics related to a specific outsource decision increase, the likelihood of successfully negotiating the transition to, operating within, and monitoring an outsourcing decision becomes more difficult.

Embleton & Wright (1998:99) presented the following summary of the disadvantages of outsourcing for companies if the wrong decision is made, or the wrong strategy implemented, or the outsourcing process is not managed properly:

- *Control*. Outsourcing cedes control to the provider.
- *Reversibility*. Once a process has handed over to an outsider, it will be extremely difficult and costly to bring it back in-house.
- *Current costs*. The initial contract can be very competitive, however, the inevitable changes may cost significantly more.
- *Morale*. Severe cuts in staff can damage the morale of existing workers. The human aspect of outsourcing often is overlooked.
- *Contract costs*. The time required to manage the contract may make it more expensive.
- *Quality of service*. The quality of the good or service must be monitored because of the contractor's incentive to save money.
- *Multiple clients*. Providers have multiple clients and consequently, may not be able to give priority to each one.
- *Staff degradation*. Reduction in employee morale may encourage the most talented and marketable staff to seek opportunities elsewhere.
- *Outsourcing capacity*. Certain processes are not easily outsourced.
- *Loss of flexibility*. Most outsourcing vendors require long-term contracts that provide them with stable revenues. Contracts must be negotiated to allow variability in demand and cost. This flexibility comes at a high cost.
- *Technology change*. Vendor-owned outsourcing services are less likely to tap opportunities presented by competitive vendors.
- *Lost opportunity*. Selling a strategic resource may end up costing a firm in the long run.
- *Outsourcer profit*. Providers have to make a profit on work the organisation did at cost.
- *Public image*. Large employee lay-offs are not beneficial to a corporate image

The fear of losing control is a major emotional stumbling block to outsourcing. Some questions that should be asked are (Lankford & Parsa, 1999:312-313):

- What are the proposed savings measured against?
- Does the outsourcer have economies of scale not available to you?
- Is the guaranteed price a good deal?
- Can the outsourcer buy equipment and hardware cheaper?

- Tend your own knitting and leave support operations to the specialists.

Blumberg (1998:8) confirms that the biggest obstacle to outsourcing is that it requires a change in management mind set. Many managers fear the loss of control or conflict of interest and fail to compare the cost and benefit of using outside suppliers with the cost and benefit of using internal support organisations. Unfortunately, motivating employees and effecting change within internal support organisations is not as easy. In essence, the risk associated with outsourcing can be offset and controlled if managed properly.

4.5. SUMMARY

Outsourcing is a specific form of a relationship between the service provider and the client. it is not the same as contracting out, and is generally a hybrid relationship combining aspects of collaborations, alliances and partnerships. The management of these relationships are complex and a company's competitive advantage is determined by the ability of management to consolidate the use and application of technology. The major driving forces for outsourcing are the expectation of reduced cost, expanded services and access to expertise.

The activities that are suited for outsourcing have to be defined carefully, and as such an organisation must have a clear definition of what activities are core activities and what activities are non-core activities. A core activity can be defined as the competence to satisfy a specific client's need. Furthermore, it was found in a survey that certain activities could not be outsourced:

- business/strategic planning:
- justification of projects:
- use of technology:
- benefits capture:
- line-of-business support: and
- ownership of technology strategy.

In the process of making the outsourcing decision the question of keeping the service in-house or to outsource also needs to be answered. The internal service department has the benefit of intimate and confidential information, whereas the external service provider will enhance the quality and efficiency of the service.

The advantage of outsourcing non-core activities are:

- it refocus the business on its core functions which is imperative in the global economy;
- technology is bought from a vendor and does not need to be invented internally;
- outsource partnership could be a viable solution to improve productivity;
- reducing costs; and
- partnerships and alliances create a form of network organisation that enhance exposure, opportunities and motivation for knowledge workers – which is a crucial component of global competitive advantage.

Disadvantages of outsourcing are:

- managing the relationship with an outsourcing partner is complex;
- in the long-term it can be costly if outsourcing function has to be reversed in future; and
- outsourcing is not the answer for an area of unknowns. the area or function must be well understood by the client organisation.

A major stumbling block in the process of outsourcing is the mind shift that is required from the client organisation in that control of the activity is ceded to the service provider. But, possibly the biggest obstacle to overcome is to affect the necessary change in the client organisation to effectively and successfully implement an outsourcing strategy.

The Outsourcing Model

5.1. INTRODUCTION

The decision to outsource can lead to competitive advantages for businesses. For outsourcing to be successful the decision needs to be an informed one. Good, hard, detailed information in the hands of strong management can help avoid a costly step, one that is not easily reversed. Ultimately, for outsourcing in any form to be successful, quick response times to strategic opportunities and threats are essential (Blumberg, 1998:6). Effective management of the outsourcing relationships is an organisational imperative.

The switch that many organisations are now making, from an as-needed contractor arrangement to a longer-term outsourcing one, is a grey area. The main reason for the short-term, trial and error approach to outsourcing arrangements is the poor definition of role and service which permeates the practice of outsourcing (Hurley & Schaumann, 1997:130).

5.2. OUTSOURCING STRATEGY

Blumberg (1998:5) argues that the issue of outsourcing and downsizing is much more complex than most authors and speakers on the subject have described. It is not simply a matter of deciding whether to outsource or not. This is particularly true of service issues, the usual focus of outsourcing. The question of outsourcing requires the firm and its consultants to carry out a full strategic assessment and evaluation in which a number of factors must be considered, including, but not limited to:

- The importance of service to the organisation's customers and users.
- The market or use community's observed perception of the vendor's service quality and responsiveness.
- The current levels of service efficiency and productivity compared to other equivalent service organisations in the market.

These key issues will, in turn, determine whether or not the consultant's client organisation would be best advised to make any strategic changes (to outsourcing) in order to significantly reduce the firm's costs and improve flexibility, efficiency and performance (Blumberg, 1998:5). In point of fact, there are three possible ways that this could be done:

- *Significantly grow the service operation* beyond the areas of product support. Specifically, the company would develop product lines or new technologies to build a comprehensive multi-vendor equipment service and third party maintenance service concept. The result of this action should be a significant increase in the economies of scale and, therefore, reduction in cost.
- *Outsourcing or subcontracting* all or part of the services under the following circumstances: service is not critical; and the current level of productivity and efficiency of the internal service organisation is not commensurate within industry standards, benchmarks, and performance.
- *A joint venture with, or divestiture* to another service vendor currently in or considering the outsourcing market. The objective of this strategy is to create a larger organisation with immediate economies of scale, as well as a framework to significantly increase the portfolio of services and reduce the price to the company's own end-user constituency.

In substance, the process of reducing costs and improving efficiency can be achieved through a variety of ways, including outsourcing, downsizing, or growth, and can be implemented through a number of different mechanisms.

While outsourcing can often help control costs, simplify operations, and keep a company focused on its core competencies, it won't work unless it is properly implemented (Lankford & Parsa, 1999:313):

- *Determine what business you're in.* Determine what is the company's core competencies and primary sources of revenue. Obviously, these functions and processes are areas that you don't want to outsource. Whatever isn't on this list, however, may be outsourced.
- *Look for outsourcing opportunities.* Similarly, find the functions or processes within the company that don't make the company unique or offer a clear competitive advantage over other businesses. Such non-strategic areas can often be outsourced.
- *Evaluate costs.* Try to determine just how much is being spent on a function and whether or not it can be done more cheaply by an outside company. Whether it is to cut costs, improve focus, or free up resources, make certain the goals are attainable.

- *Be cautious.* Don't select an outsource partner without careful examination. After all, that business will be your company's representative to both employees and customers.
- *Monitor.* If you decide to outsource, set up regular performance reviews or similar criteria to measure the provider's performance.
- *Be flexible.* Even after deciding to outsource, look at ways it can be improved. Don't be afraid to make changes in the ways a process is being handled.
- *Don't jump on the bandwagon.* If a change isn't needed, don't make one just for the sake of it.

Embleton & Wright (1998, 100) specified that keys to successful outsourcing fall into three categories:

- strategic analysis:
- selecting the providers: and
- managing the relationship.

Obviously, the downsizing that results from outsourcing does not always achieve the desired objectives. This kind of information underlines the importance of making the right decisions.

A strategic approach for evaluating the decision to outsource against several key factors is summarised in Table 5.1.

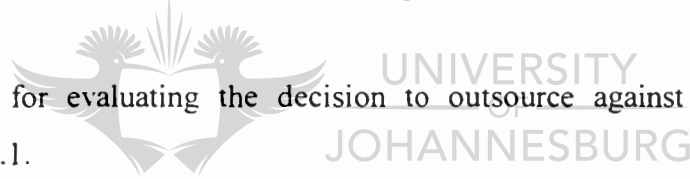


Table 5.1 – Outsource decision criteria

<i>Outsource decision criteria</i>	<i>Outsource/buy</i>	<i>In-house/make</i>
Customer view of function	Customers are concerned with the outcome of functions performed: functions are not visible	Customers are concerned with the process of functions performed; function is a key differentiator
Capabilities and physical assets to perform function	Capabilities and assets are available on the mass market from qualified providers	Requires specialised capabilities and assets for which there are few qualified, independent providers
Technological requirements	Technology is either very stable with limited applications or very dynamic, changing quicker than rate of adaptation	Relatively fluid technology and possession of technology can be a clear advantage
World-class ability	Average performance is sufficient: resources to achieve world class are not available	Resource and capabilities exist to remain/achieve world-class performance
Performed capability versus alternative resources	External vendors are clearly more competent	Leadership position exists
Time and cost required to close performance gaps	Significant capital and resources are required to improve gap	Internal source is clearly competitive cost advantage over external suppliers. rate of improvement is high
Length of commitment	Plan to harvest or exit business in near future	Long-term planning horizon exists

Source: Blumberg (1998:9)

5.3. STRATEGIC ANALYSIS

Embleton & Wright (1998:100) determined that the key to the viability of outsourcing lies in analysis of the organisation.

- *Determine candidates.* Which areas within the organisation are not core? Where will the company get the best return on investment in outsourcing? There are five criteria that help determine whether or not a function can be outsourced:
 - they are routine:
 - they are well delineated:
 - they can be measured and managed at arms length:
 - they can be readily provided by established vendors: and
 - they are offered in a competitive environment.
- *Cost of providing the service.* It is imperative to have a clear understanding of the type and the amount of all costs associated with the function to be outsourced. Labour, resultant level of service, impact of corporate culture and real estate costs such as space, utilities taxes and insurance, all need to be considered.
- *Quality level of service.* Develop a clear understanding and quantification of the type and the level of service being given with the current provider, then come to a clear understanding of the type and the level of service that will be acceptable in the future.
- *Impact on corporate culture.* Can outsourcing a service produce a negative cultural impact? If the outsourced component is an integral part of the organisation, then the negative impact may progress from insidious to overwhelming.
- *Quantify outsourcing goals.* It is important to define goals explicitly. Without measurable goals, it will be impossible to quantify current results, or to define the level of service required in the future.
- *Look at long and short term.* Costs and other factors vary in importance, depending on the time period involved. Start-up costs, flexibility, reversibility and termination fees will vary greatly, according to the terms of the contract.

Outsourcing should primarily be viewed as a long-term measure when deciding what to outsource, selecting a vendor, cultivating an outsourcing relationship and making other outsourcing decisions. First, each service should be broken down into its three aspects – strategic, operational and maintenance (Anon. 1997b:28). Fill & Visser (2000:45-46) determined three similar key aspects from the review of factors driving and influencing outsourcing decisions:

- The contextual factors represented by an organisation's particular *internal and external conditions*.

- The *strategic and structural aspects* associated with an organisation's decision to reconfigure. For a more qualitative approach a set of nine guidelines are presented in Table 5.2.
- The *cost* associated with the process or activity under review.

Table 5.2 – Nine guidelines to help with the decision process on the strategic and structural aspects

<i>Nine Guidelines</i>	
1.	How unique are the production process?
2.	How severe are the market cycles? And how frequent?
3.	Just how much capital does internal manufacturing require?
4.	How does geographic dispersion of customers influence resourcing decisions?
5.	Does the market expect the firm to be a manufacturer?
6.	How long will the process be viable?
7.	Are there suppliers capable of doing the work, in terms both of technology and capacity?
8.	Are there idiosyncrasies in the product, the manufacturing processes, or the market that force a sourcing decision?
9.	Can the corporate culture be changed.

Source: Fill & Visser (2000:46)

The question is not whether to outsource, but whether to outsource the planning and thinking that underlie the outsourcing activity. There are five steps to making this decision (Anon. 1997b:28), divided according to Fill & Visser's criteria presented above:

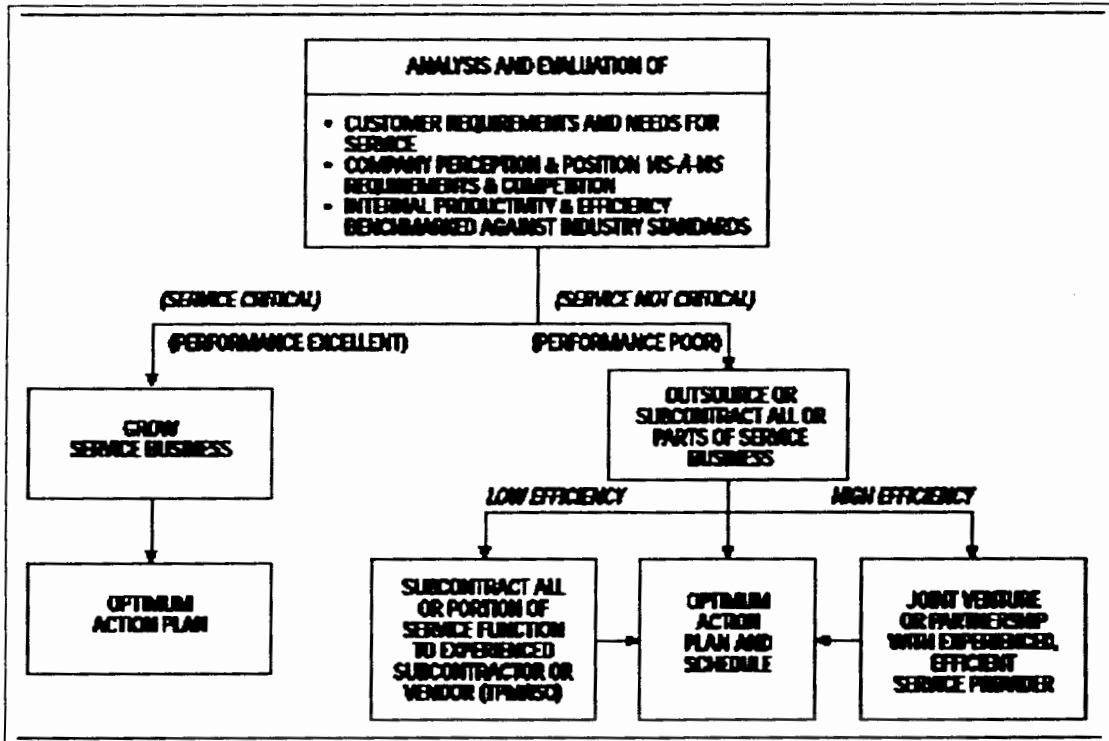
- Factor 1 – Internal and external conditions:
 - *Assess the impact on the customer of outsourcing the operation of the service.* Can an external vendor operate the service better than you? Does the vendor have access to superior technology? Will the vendor be able to do the work faster? Will the vendor offer more options for customisation? Does the vendor offer any other advantages in terms of quality or effectiveness?
- Factor 2 – Strategic and structural aspects:
 - *Formulate your human resources vision.* How does your overall human resources practice help to create and sustain competitive advantage for your company? How does

the human resources department serve the company's overall business needs, strategic objectives and core competencies? What is your human resources philosophy?

- *Assess the organisational aspect of outsourcing the operation of the service.* Does the organisational aspect of the service bear any relationship to your organisation's core competencies or core values?
- Factor 3 – Cost:
 - *Assess the cost of outsourcing the operation of that service.* How much does it cost to operate the service in-house? What will it cost in future? How much would an external vendor charge?
- Factor 1, 2 and 3 combined:
 - *Against the backdrop of your human resources vision, balance the effect on costs, customers and the organisation of outsourcing the operation of the service.* This is the most critical step in the process. Sometimes the variables will point in different directions and you will have a tough time balancing the factors. But at least you will have asked yourself the right questions.

In essence, the key approach to determining the optimum outsourcing and downsizing strategy to improve general efficiency, effectiveness, and reduce cost, is outlined in Figure 5.1. Under this process, information is collected on trends, customer installation base, levels of service, perceptions and assessment of service criticality, and "best in class" vendors, viewed from the perspective of the service end-user. This initial effort would then be continued and extended to develop the appropriate action plans based on the results of both an internal survey/benchmark analysis and evaluation, and an external survey of the customer or user base.

Figure 5.1 – Key decision process in outsourcing, subcontracting, and downsizing

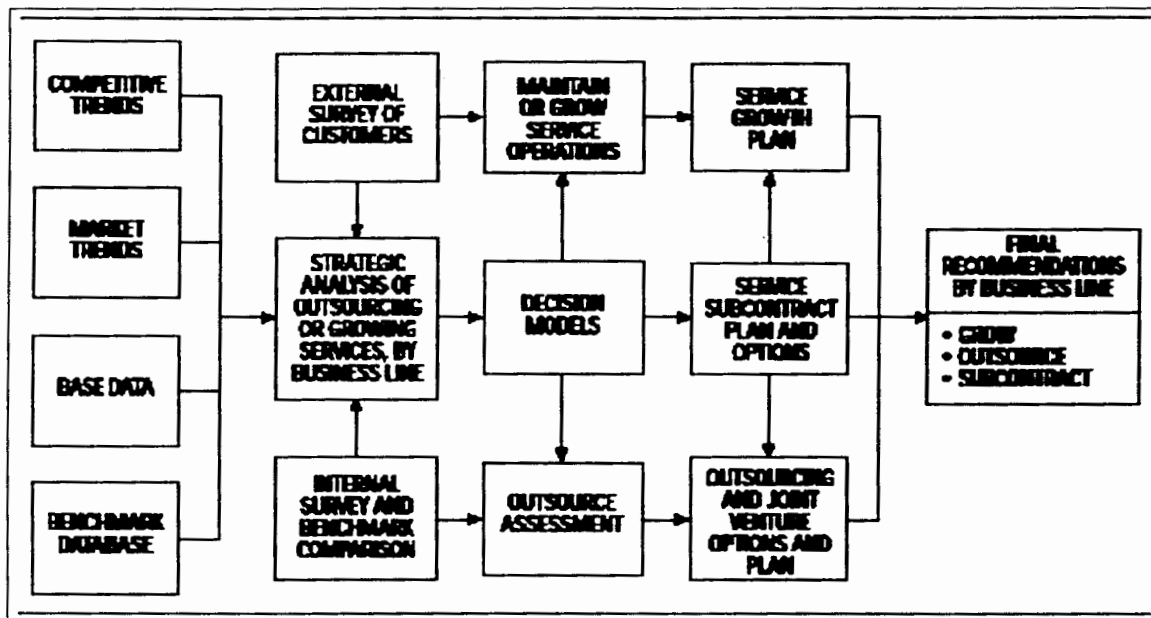


Source: Blumberg (1998:10)



The pursuit of the process methodology, as outlined in Figure 5.2 should result in a rapid assessment and evaluation of the options and alternatives. It is suggested that this process be assisted by an experienced professional consultant or consulting organisation working closely with the client company.

Figure 5.2 – General method of approach for the decision process in outsourcing, subcontracting, and downsizing



Source: Blumberg (1998:11)

5.4. SELECTING THE PROVIDER



A plethora of vendors are available to support customers' outsourcing needs: and with so many alternatives available, it becomes increasingly more difficult to select the "best of the best" when outsourcing. Blumberg (1998:14) proposes a step-by-step approach needed in selecting an outsource vendor once the decision has been made to use one.

- The first step is to determine what skills, activities, and physical assets will be required to perform the function. This must be evaluated in terms of personnel requirements, experience levels, technical capabilities, tools, assets, and skill levels. Once the function is dissected, the outsourcing firm now has an understanding as to exactly what it needs to buy from an outside vendor.
- The next step is to determine the goals and objectives of outsourcing. For example, by outsourcing, is the company trying to minimise overhead and technology costs, or grow its customer base through service expansions into a lucrative market with limited competition?
- In evaluating vendors, it is important to understand why outsourcing deals can fail. Most deals fail because the vendor lacks depth and breadth of service capability, lacks the experience, or cannot provide the full array of services to support all the components of the

function being outsourced. In essence, outsourcing contracts fail because vendors cannot deliver on what has been promised. Qualified outsourcing vendors should possess the following characteristics:

- breadth and depth of experience:
- financial solvency:
- commitment to quality improvement and customer satisfaction:
- unique service capabilities:
- understands customers' business and market:
- commitment to technological innovation:
- willingness to offer performance guarantees:
- long-term service commitment:
- availability of customer references:
- reputation:
- skill and experience of service personnel: and
- full range of service portfolio.

The most important characteristic is financial solvency. Because outsourcing deals can be long-term, it is critical that the vendor has financial strength. Knowledge of the customer's business is also an important criteria. It is important not only that the vendor is skilled and experienced in performing a function, but also that he understands his customer's goals, objectives, mission, and culture. Above all, the outsource relationship requires partnering (Blumberg 1998:14). In addition to possessing these qualities, the vendor must be able to provide outsourcing customers with a commitment to quality improvement and customer satisfaction, as well as the commitment to technological innovation. These commitments can be supported with guarantees that a requisite level of performance will be obtained, and with assurances that new technology will be applied in performing the functions as that technology becomes available. The vendors should be able to provide and demonstrate an understanding of your business and offer customer references to demonstrate a track record of success. A further means of differentiating superior vendors from average ones is to determine whether the vendor possesses any unique service capabilities. This may include a leadership position in developing a specific technology or possession of expert knowledge in performing an industry-specific, narrowly focused task relevant to the function. The vendor's knowledge of dynamics and requirements of specific markets is also a key differentiator (i.e. vertical market focus). In addition, the ability to provide a full-range service portfolio can be a distinguishing factor in the long run, especially if the customer has plans to outsource additional activities in the future.

It is essential that the right vendor is chosen and to enable the correct choice a strict process must be followed. Typically, outsourcing is a long-term relationship, which requires the supplier and the purchaser to work closely together. It is worthwhile, therefore, to spend the time and the money on the process of choosing the correct supplier the first time (Embleton & Wright, 1998:101):

- *Determine the supplier profile.* Research the market to identify a pool of suppliers who may be able to meet the company's needs. Similarities in corporate culture are important, for example, as it is beneficial if both companies are moving in the same strategic direction.
- *Conduct request for information.* Circulating a request for information will determine the level of interest, capabilities, corporate culture and strategy among potential suppliers.
- *Conduct request for proposal.* The request for proposal describes in detail, the outsourcing requirements. This document provides general information about the purchasing organisation and the scope and the objectives of outsourcing.
- *Conduct site visits.* The on-site visit is to make sure that an organisation that looks good on paper, is equally good in reality. The focus is on people, cultural fit and corporate processes. If any new ideas surface, choose the best ideas and see if the preferred supplier can accommodate them.
- *Negotiate a mutually beneficial deal.* Both management teams must have an agreement with which they are comfortable. Do not be abrupt or hasty in dismissing finalists before an agreement is signed. Treat all finalists professionally, as it is possible that they may be needed in the future.

5.4.1. The Outsourcing Vendor Decision Model

Akomode, *et al.* (1998:115) presented a model of how a manager can combine key qualitative and quantitative components associated with an information technology outsourcing process, that structure, measure and prioritise key elements, in order to obtain relevant information to support managers in decision making. Different managers may have different motives for embarking on an information technology outsourcing arrangement. Some of the basic and often common motivating factors identified by Akomode, *et al.* (1998:115) which may trigger a manager's interest to engage in an information technology outsourcing contract include the following:

- cutting of costs at operational and management levels;
- quality improvement in products and services for better competitive position;

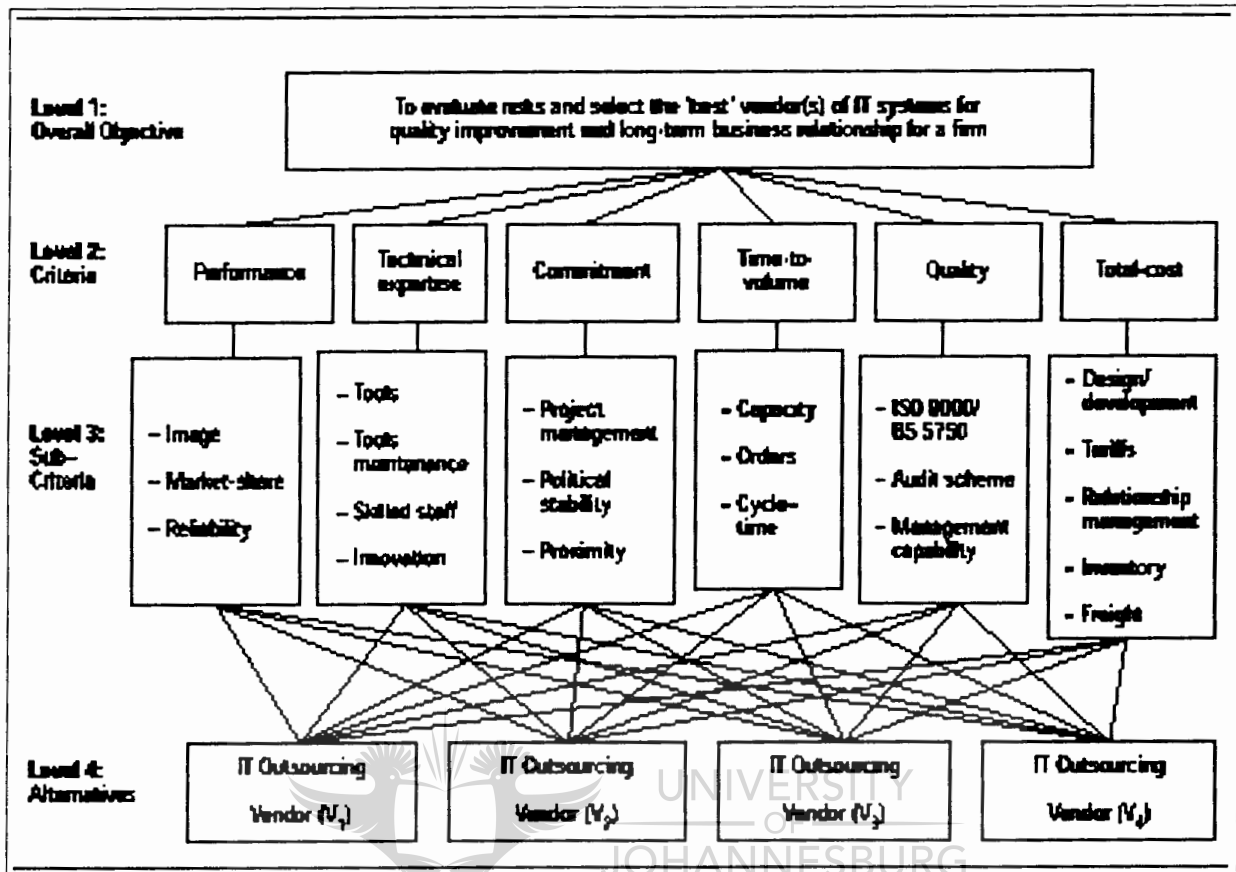
- an attempt by a firm to share risks and responsibilities associated with timely delivery of input products/services in order to effectively focus energy and time on core activities/competencies. then be able to provide unique value for customers:
- an attempt to obtain and maintain continuously superior technology gain from specialist vendor(s) for information provision towards better performance:
- an attempt to exploit economies of scale and scope of the chosen vendor(s).

But inadequacy in satisfying the above motivating parameters may result in numerous business risks to an organisation. Consequently, some of the key risk factors in information technology outsourcing may be analytically specified as being due to lack of:

- performance:
- technical expertise:
- commitment:
- adequate time-to-volume:
- quality; and
- adequate forecasting of total-cost.

These risk elements have other associated risk components (or sub-elements) of which some examples are presented at Level 3 of Figure 5.3. The aims of employing Figure 5.3 include structuring risk elements associated with outsourcing operations and management, in order to enhance the development of an information technology-based model to support outsourcing decision making.

Figure 5.3 – Hierarchy structure for modelling risk elements and vendors of information technology systems



Source: Akomode, et al., (1998:117)

The structure presented in Figure 5.3 is based on data/information obtained from an experiential investigation involving action research “learning” process in an enterprise. As indicated in Figure 5.3, Level 2 is made up of six criteria elements which the managers (or experts) considered to be key areas (or elements) of risk that require proper evaluation before an outsourcing relationship can be established on a long-term basis. The associated elements are shown in groups at Level 3. For example the performance criterion has three associated sub-criteria elements:

- image:
- market-share: and
- reliability.

The technical expertise criterion has four sub-criteria elements:

- tools:
- tools maintenance:
- skilled staff: and

- innovation.

Similarly, the commitment criterion has three sub-criteria. Both the time-to-volume and the quality criteria have each three sub-criteria elements while the total-cost criterion has five associated sub-criteria elements given as:

- design/development:
- tariffs;
- relationship management:
- inventory;
- freight.

Akomode, *et al.* (1998:126) concludes that where a number of evaluators (or managers) in an organisation or a department are involved in the use of the computer-oriented model, each individual is expected to use the model to arrive at his/her own overall priorities based on the available criteria, sub-criteria and alternatives. At the end the different results obtained by the individual managers may be used as a basis for further discussion in order to enhance the capability for reaching a better consensus for the "best mix" of information technology outsourcing vendor(s). It is expected that the results from a computer simulation exercise will help managers in the provision and prediction of useful outsourcing risks information: especially with regard to the measurement of intangible elements or subjective judgements associated with an information technology outsourcing process. Such information may be useful to interested organisational managers in effective decision making towards quality improvement, risk minimisation and enhancement of partnership relations in an outsourcing arrangement. The situation may in turn help managers effectively to:

- cope with the fast changing technological climate;
- cope with the enhancement of core competencies and activities;
- pro-act rather than react to information technology outsourcing contract(s).

5.5. MANAGING THE OUTSOURCING RELATIONSHIP

Many companies have been dissatisfied, ranging from being mildly annoyed to extremely unhappy. But there is no question that outsourcing is here to stay, so the question is how to get the most out of it. The way to do that is to pay attention to managing the relationship. As much time and effort must be put into this step as was put into defining and creating the relationship (Embleton & Wright, 1998:101):

- *Management structure.* Regardless of how the task or process is being handled currently, outsourcing must be managed differently, often requiring new management skills.
- *Monitor and evaluate.* A procedure must be implemented to enable management to monitor and to evaluate adherence to the outsourcing contract.

May (1998:137) motivated that management teams require an expertise in outsourcing management. The principal tasks of outsourcing management vary between organisations, but there are common ones. The competencies needed for outsourcing management are similar in many respects to project management, but extend beyond it.

- *Identifying activities for outsourcing.* A starting point is to make an inventory of all activities undertaken in the organisation. For each activity:
 - detail the volume and cost of goods or services produced;
 - the external or in-house customers served; and
 - the added value created.
- *Specifying standard of performance.* A detailed specification of each activity which is a possibility for outsourcing must be prepared. Levels of outputs, quality and delivery times and frequencies are determined and agreed with the output recipients.
- *Sourcing and appraising suppliers.* The main concerns will be:
 - ability to meet the specification at an acceptable price;
 - supplier's reputation for delivery on similar contracts;
 - flexibility in dealing with difficulties;
 - supplier's credit terms; and
 - financial soundness.

Most organisations dependent on external suppliers for key business processes will develop their systems to keep them informed on output delivery. Some organisations go further than merely adapting existing systems, integrating operating procedures with those of the supplier, and even adopting common terminology to avoid a supply break-down.

- *Negotiating outsourced services.* Negotiating with a chosen supplier is the first step in a relationship that should be built to last the course. All successful negotiation is predicated on the fact that both parties must gain from the resultant agreement.
- *Co-ordinating outsourced relationships.* Managing the relationship well is the key to successful outsourcing, and achieves the benefits sought from moving away from in-house provision. Managing outsourced relationships needs to be pro-active, enhancing the working relationship and transferring best-practice to achieve economies in both supplier and

purchaser organisations. It is important, however, that the purchaser organisation does not attempt to take over management of the supplier.

- *Monitoring the effects of outsourcing.* Reviewing the synergies of outsourcing in an organisation relies on depth of analysis. The impact of outsourcing on the purchaser spreads widely across an organisation, affecting cash flow, management accounting, production and, ultimately, sales. If in-house arrangements give way to outsourcing, there are bound to be ripple effects within the organisation. Close monitoring will detect unanticipated costs arising, for instance, in quality control, customer service or expenditure of management time.
- *Risk assessment and planning.* Risk assessment plays an important part in the management of outsourcing. Moving business processes out of the organisation raises exposure to a risk of loss from failure in the supplier's systems or organisation. Risk management starts with assessing whether a business process can be outsourced, and whether the organisation can afford to lose direct control over an activity.

5.5.1. Performance Contract

A service level agreement must be negotiated as part of the outsourcing contract to enable proper management (and measurement) of the outsourced function(s). There is a saying: "If you cannot measure it, you cannot control it." The other purpose of a service level agreement is to provide the user of the service with the information necessary to understand and use the contracted services. It is imperative that the service level agreement contain the necessary information to use and manage the service delivery. Well-defined services and their associated service levels are fundamental components of any successful outsourcing contract for the management or operation of part, or all, of an organisation's services by an external source, particularly information technology services.

The stewardship role in an outsourcing contract is focused primarily on the measurement and auditing of the service provider's performance against the defined service levels (Larson, 1998:130-131).

- *Availability:* Measurement of availability identifies the proportion (percentage) of the time that the contracted service scheduled is actually accessible and useable over a defined measurement period (e.g. weekly or monthly).
- *Reliability:* Reliability defines the frequency with which the scheduled service is withdrawn or fails over a defined measurement period (e.g. not more than three failures per week).

- *Serviceability*: Serviceability is an extension of reliability, and measures the duration of available time lost between the point of service failure and service reinstatement (e.g. 95 percent of network failures in any working week will be restored within 30 minutes of the failure being reported).
- *Response*: Response measures the time delay between a demand for service and the subsequent reply. Response time can be measured as turn-around time, transfer time (as in the case of a help desk call) or cycle time (as for recurring system batch processing).
- *User satisfaction*: A measure of perceived performance relative to expectation. User satisfaction is often measured by survey using a repeatable process to track change over time.

5.6. SUMMARY

Before the decision to outsource is made a strategic assessment of the organisation must be conducted. because of the decision is to outsource is made based on proper analysis it will be a competitive advantage. In the process of decision making the on outsourcing based on cost reduction, improved flexibility, efficiency and performance managers have three choices:

- grow the service internally;
- outsource or subcontract; and
- joint venture or divestiture.

A successful strategic assessment process for outsourcing can be divided into three categories:

- Strategic analysis – cost of providing the service; quality level required for the service; impact on corporate culture; long and short term impact on organisation; and determine possible candidates.
- Selecting the service provider – determine skills, activities and physical assets required; goals and objectives of outsourcing; experience and financial solvency of provider; obtain long-term service commitment; and commitment to technology innovation.
- Managing the relationship – require expertise to manage the relationship; specify the standard of performance, i.e. performance agreement; negotiate a mutual beneficial agreement; co-ordinate outsourcing relationship; monitor effect of outsourcing on the organisation; and perform risk assessments.

A vendor decision model is presented that enable a systematic evaluation of the of the choice of the vendor, as well as facilitating the decision making process. This model can be modified to evaluate the outsourcing decision by changing the Level 1: Overall Objective to the outsourcing decision, the Level 2 and 3 criteria and sub-criteria to the relevant agreed or determined criteria defining the issues for the outsourcing decision. Supplying weights to each criteria (Level 2) activity and to each sub-criteria (Level 3) activity, each manager can perform an independent evaluation of the outsourcing decision. These results can then be used as a basis for further discussions and ultimately decision making.



Conclusions and Recommendations

6.1. INTRODUCTION

Industry, in general, are aware of the advances in technology and realises that to be able to stay competitive or to gain the competitive advantage they need to utilise technology for improving efficiency and reducing costs. This entails effective management of employees and relationships with a network of companies supplying various technology products and services. Due to risks and capital investments required in these types of products and solutions corporations are starting to realise that for specialised services international experts are required to obtain the best products and “best of breed” solutions.

Statement: Knowledge and information are key ingredients for creating wealth.



6.1.1. Production Companies versus Technology Service Providers

By examining the combination of the two types of industries, i.e. production and technology services, it is clear that in the case of best catering for access to knowledge worker, the symbiotic relationship between production and service driven companies must be exploited. Several management means are available to develop the symbiotic relationship, i.e. strategic alliances, outsourcing and/or networking. For example, forming a strategic alliance between production and technology service company combined with a form of networking organisation culture enables the outsourcing of certain functions, and even critical functions, by the production company to the technology service company.

6.1.2. Knowledge Workers

Motivation of knowledge workers is the single most important aspect for maximising return on intellectual capital. Knowledge workers and their related intellectual capital are psychological beings and need to be motivated (in the information age) in contrast to machines (in the industrial

age) where maintenance ensured the optimal performance. Therefore, an environment that can enable and enhance motivation of the knowledge worker of today is of utmost importance, and as such the network organisation structure is proposed as a solution for creating the best organisational environment for knowledge workers.

6.2. NETWORK ORGANISATION

The network organisation is particularly suited for knowledge workers due to the fact that is a boundaryless organisation structure that is based on teams (internally) and alliances (externally). The significant advantage of the network organisation is the inherent flexibility and adaptability that enable change, and the ability to change is the competitive advantage of organisations in the information age.

The reasons why a network organisation is specifically suited for the knowledge worker of today are:

- it is a flat organisation structure;
- it is team based;
- information sharing and communication is implicit;
- provide exposure to different technologies and promote innovation; and
- is entrepreneurial in nature.

For the technology service companies it is imperative to have a network structure to facilitate and motivate knowledge workers – because that is where the human capital of the company is kept. The production driven companies relative to technology service companies are less pressurised on employing a network structure, because they are in general more dependent on the technology service company to supply the necessary expertise in areas of non-core activities, through outsourcing. A network structure organisation is essential for technology service companies to be able to provide a world-class outsourcing service to client companies.

6.3. OUTSOURCING

Outsourcing is a specific form of a relationship between the service provider and the client, it is not the same as contracting out, and is generally a hybrid relationship combining aspects of collaborations, alliances and partnerships. The management of these relationships are complex and a

company's competitive advantage is determined by the ability of management to consolidate the use and application of technology. The major driving forces for outsourcing are the expectation of reduced cost, expanded services and access to expertise.

The activities that are suited for outsourcing have to be defined carefully, and as such an organisation must have a clear definition of what activities are core activities and what activities are non-core activities. A core activity can be defined as the competence to satisfy a specific client's need.

In the process of making the outsourcing decision the question of keeping the service in-house or to outsource also needs to be answered. The internal service department has the benefit of intimate and confidential information, whereas the external service provider will enhance the quality and efficiency of the service.

The advantage of outsourcing non-core activities are:

- it refocus the business on its core functions which is imperative in the global economy;
- technology is bought from a vendor and does not need to be invented internally;
- outsource partnership could be a viable solution to improve productivity;
- reducing costs; and
- partnerships and alliances create a form of network organisation that enhance exposure, opportunities and motivation for knowledge workers – which is a crucial component of global competitive advantage.

Disadvantages of outsourcing are:

- managing the relationship with an outsourcing partner is complex;
- in the long-term it can be costly if outsourcing function has to be reversed in future; and
- outsourcing is not the answer for an area of unknowns, the area or function must be well understood by the client organisation.

A major stumbling block in the process of outsourcing is the mind shift that is required from the client organisation in that control of the activity is ceded to the service provider. But, possibly the biggest obstacle to overcome is to affect the necessary change in the client organisation to effectively and successfully implement an outsourcing strategy.

6.3.1. Outsourcing Strategy

Before the decision to outsource is made a strategic assessment of the organisation must be conducted. because of the decision is to outsource is made based on proper analysis it will be a competitive advantage. In the process of decision making the on outsourcing based on cost reduction, improved flexibility, efficiency and performance, managers have three choices:

- grow the service internally;
- outsource or subcontract; or
- joint venture or divestiture.

A successful strategic assessment process for outsourcing can be divided into three categories:

- Strategic analysis – cost of providing the service: quality level required for the service; impact on corporate culture: long and short term impact on organisation; and determine possible candidates.
- Selecting the service provider – determine skills, activities and physical assets required; goals and objectives of outsourcing; experience and financial solvency of provider; obtain long-term service commitment; and commitment to technology innovation.
- Managing the relationship – require expertise to manage the relationship; specify the standard of performance, i.e. performance agreement; negotiate a mutual beneficial agreement; co-ordinate outsourcing relationship; monitor effect of outsourcing on the organisation; and perform risk assessments.

A vendor decision model is presented that enable a systematic evaluation of the of the choice of the vendor, as well as facilitating the decision making process. This model can be modified to evaluate the outsourcing decision. These models can be used in the decision making process to form the basis of discussions.

6.4. KNOWLEDGE MANAGEMENT

Network organisations provide a strategic mechanism for technology service providers (and production driven companies) to enable and ensure an appealing company environment for the knowledge workers of today. This form of organisation enable and enhances the ability of the technology service provider to provide a world-class outsourcing service to the client organisation. The client organisation then also have the advantage of making use of the ability of the technology service provider to attract and maintain world-class skills (knowledge workers). The outsourcing

arrangement that result from this symbiotic relationship enables the client company in obtaining a global competitive advantage by focussing on its core activities.

6.5. RECOMMENDATIONS

It is recommended that the outsourcing vendor decision model is further developed to enable the use thereof for supporting the outsourcing decision process, as well as the performance evaluation of the outsourcing activity. This will entail that the criteria for the different decision making scenarios must be specified with their relative weighting to provide a consistent measure for managers to evaluate the combination of the criteria. As a further development, it would be beneficial to verify this model with (historical) case studies.



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APPENDIX A.

Specialised Skills of Knowledge Workers

A.1. INTRODUCTION

The objective of this section is to present a better understanding of the specialised skills that knowledge workers require in the technology environment. Because one key task of a manager is to acquire, develop, and allocate an organisation's resources. Technology is a resource of paramount importance to many organisations: managing this resource for competitive advantage entails integrating it with the firm's strategy. A second key task of the manager is to develop and exploit the firm's capacity for innovation. This requires the manager to be able to assess the firm's innovative capabilities and identify how they may be leveraged or improved. As such a clear grasp of the technology is required as well as the skills level required for implementing and maintaining these systems.



This discussion will provide insight into the requirements of specialised skills in these companies to support technology advancement. Indicating that there are areas where knowledge management is critical for maintaining the competitive edge of the company in the global market. Furthermore, it gives an indication of the strategic fit that strategic alliances and partnerships, by means of outsourcing or networking, can be for these large corporations in improving their globalisation drive, innovativeness (human capital investment), and above all profitability (maximising shareholder value).

A.2. TECHNOLOGY

Technology refers to the theoretical and practical knowledge, skills, and artifacts that can be used to develop products and services as well as their production and delivery systems. Technology can be embodied in people, materials, cognitive and physical processes, plant, equipment, and tools (Burgelman, *et al.* 1996:2). Key elements of technology may be implicit, existing only in an embedded form. Craftsmanship and experience usually have a large tacit component, so that

important parts of technology may not be expressed or codified in manuals, routines and procedures, recipes, rules of thumb, or explicit articulations. Technologies are usually the outcome of development activities to put inventions and discoveries to practical use. Given the influence of information technology on the general technology environment the human capital of a company can be measured by the intellectual property vested in the company. In the accounting profession major progress has been made over the last 10 years to value intellectual property of a company, especially in the light that in technology companies, "technology" is vested in its employees.

The criteria for success of technological innovation are commercial rather than technical: a successful innovation is one that returns the original investment in its development plus some additional returns. Entrepreneurship is a fundamental driver of the technological innovation process. Technological entrepreneurship refers to activities that create new resource combinations to make innovation possible, bringing together the technical and commercial worlds in a profitable way. A core competency relies on knowledge which is gained over many years of experience (embedded knowledge), and a first-class research organisation or just key people who follow the literature and stay abreast of new external knowledge (tacit knowledge). Any system that encourages the sharing of knowledge between knowledge workers enhances competency (Burgelman, *et al.* 1996:4).

Any of these technologies can change the industry structure or a firm's differentiation or cost position – and, therefore, its competitive advantage. Technological change is one of the most important forces affecting a firm's competitive position, and research suggests that firms find it difficult to respond to such changes. Integrating technology and strategy should therefore be a dynamic process, and it requires that the firm understand the dynamics of the life cycle of the various technologies it employs. Senior managers are responsible for managing the innovation process. They must make difficult decisions about which innovations will receive managerial attention and resources. Insight into the firm's innovative potential and into the barriers of innovation are necessary to make effective proactive strategic choices (Burgelman, *et al.* 1996:5).

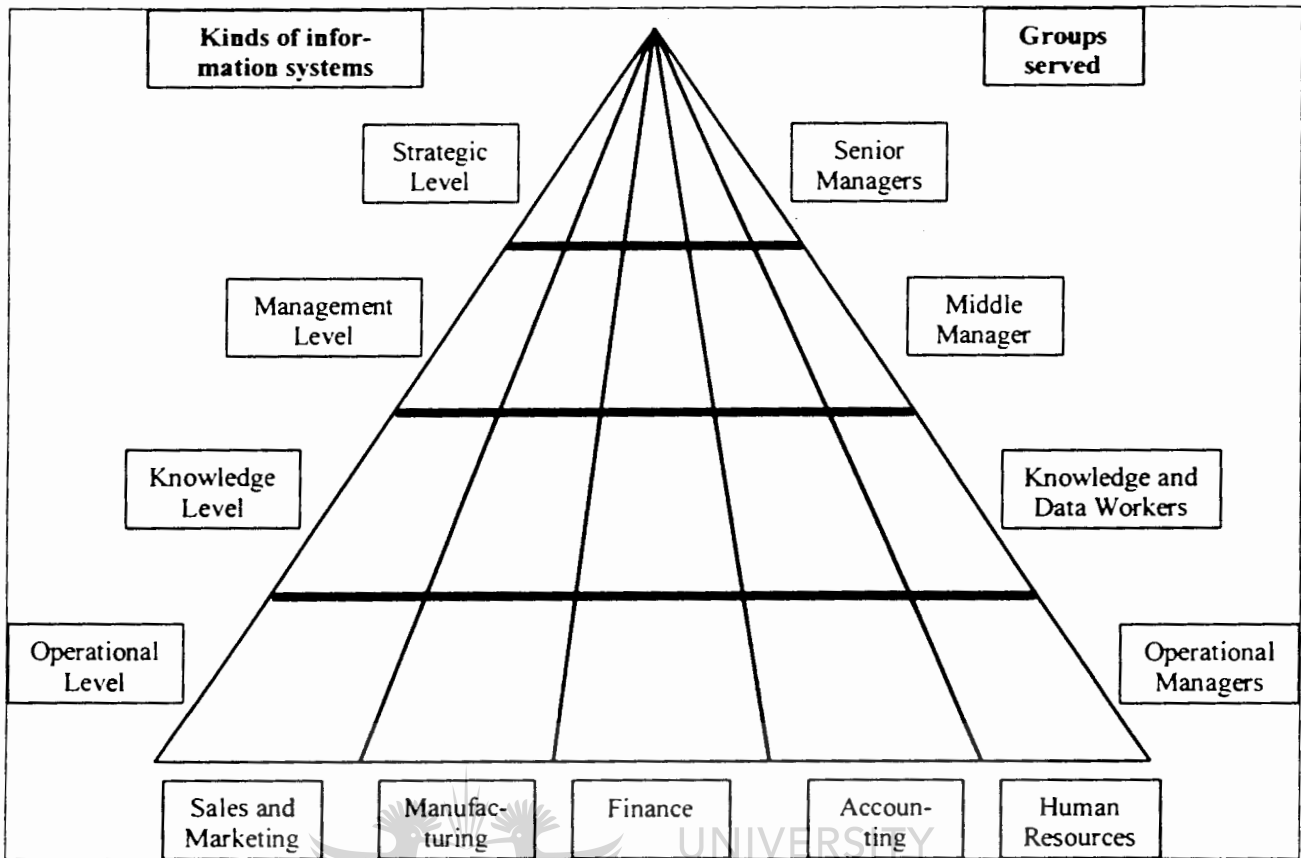
"Advanced technology requires the collaboration of diverse professions and organisations, often with ambiguous or highly interdependent jurisdictions. In such situations, many of our highly touted rational management techniques break down."

~ Burgelman, et al. (1996:29)

A.3. INFORMATION SYSTEMS

An information system can be defined technically as a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organisation. Information technology as it is known encompasses a very broad range of business. The most compact explanation of information technology in general is as illustrated in Figure A.1. Four main types of information systems serve different organisational levels (Laudon & Laudon, 1998:37-38):

- *Operational-level systems* support operational managers by keeping track of the elementary activities and transactions of the organisation, such as sales, receipts, payroll, and the flow of materials in the factory.
- *Knowledge-level systems* support knowledge and data workers in an organisation. The purpose of knowledge-level systems is to help the business firm discover, organise, and integrate new knowledge into the business.
- *Management-level systems* are designed to serve the monitoring, controlling, decision-making, and administrative activities of middle managers. Management-level systems typically provide periodic reports rather than instant information on operations.
- *Strategic-level systems* help senior management tackle and address strategic issues and long-term trends, both in the firm and in the external environment. Their principal concern is matching changes in the external environment with organisational capability.

Figure A.1 – Information architecture of the organisation

Source: Laudon & Laudon (1998:37)

Therefore, the information technology environment comprises of a whole range of specialised products and services. For over 100 years South Africa has been exploiting its rich mineral wealth. Thus developing leading techniques and technologies to deal with the conditions encountered in deep mining, shallow mining and surface mining. Now that South Africa is taking its rightful place on the world economic stage it must be noticed that the leading industrial nations never base their economies on primary industries like mining and agriculture. Instead, secondary and tertiary industries such as manufacturing, services and technology form the backbone of an international, world-class economy (Richards, 1997:2). In comparison to the technological innovations in mining processes as a whole the development of local instrumentation and control systems to support these innovations have been neglected.

A.3.1. Operational Systems

For discussion purposes the focus will be on the operational level in the "Manufacturing" branch of the information technology spectrum to illustrate the skills requirement for the implementation of

advanced technologies. As a focus area of information technology in this research specific reference will be made to operational systems that forms part of the knowledge-level systems as defined in Figure A.1.

The business environment is changing and the process industries need improved operating performance and increased profitability. These industries need to improve return on capital, and it is imperative that the process automation industry ensure that its future product offerings are an investment that users will eagerly make because the benefits are noticeable and demonstrable. The challenge for process automation suppliers is to provide solutions that help customers operate in ways that lead to improved profitability for customers – as well as suppliers (Blickley, 1997:16).

The driving force for implementing advanced process control is optimal (i.e. effective and efficient) operation of a process that will increase profit, reduce labour requirements, and as a whole improve international competitiveness of the firm. This will invariably necessitate the development of skills and higher levels of education. Technology for advanced process control is available; the problem is bridging the gap between theory (research) and practice. Therefore, people are required that have the technical knowledge of the processes and also have the experience with data mining, modelling and simulation.



A.3.2. Specialised Skills

Most organisations in the processing and manufacturing industries spend a considerable amount of resources in evaluating new process-modelling-based technologies such as real-time optimisation, model-based control, and neural networks. Unfortunately, though, many of these organisations assume that if they acquire the best technology its effective use across the whole organisation should be automatic. In reality, without a strategic plan, these technologies are applied sporadically and, therefore, do not produce continuous and consistent business benefits. With more-established process-modelling-based technologies like steady-state modelling and data regression programs, the difficulty is not in their use, but in actually quantifying the value they create (Ranade, 1997:46). Translating this statement into more direct words:

Statement: The problem is not in the technology, but in the people (skills) that implement the technology.

Brown (1996:10) stated: "Maximising return on investment is always an important goal of plant management. To achieve this it is necessary to continually try and achieve higher product quality, increased production, lower cost and higher profitability. A good control system that is operating really well can do much to help attain these objectives. However, simply purchasing the latest control equipment, transmitters and a digital control system loaded with the latest advanced control software does not guarantee good control. If not managed, understood and properly optimised to match control objectives, for which these purchases were made, they can result in poor return on investment." Therefore, the skills of the people is more important than the advanced status of the technology. This will invariably be an issue that people have to face in the advanced process control field (and the information technology environment): to a certain degree they will act as consultants for the industry for optimising the processes and not just applying advanced process control.

A study by the Process Control Society of the Institution of Engineers, Australia had the objectives of accurately determining the current level of awareness of advanced process control and predicting the future trends in benefits, technology and application. The study was conducted by survey (McKee, 1997:4). Of the 73 respondents from the mineral processing industries, 50 claimed to be currently engaged in a program of implementing advanced control strategies. The same group also saw a requirement within the minerals industry for more than 150 extra advanced applications engineers, control system engineers and process engineers to assist in the implementation of advanced process control strategies over the next 2-3 years. Operating closer to optimum was seen as the major perceived benefit of implementing advanced process control, while the major resistance's to implementation was seen to be insufficient appreciation of the benefits, insufficient process knowledge and lack of funds. More advanced control techniques were seen to be overtaking variations of other simpler control in importance within the next 2-3 year trend period.

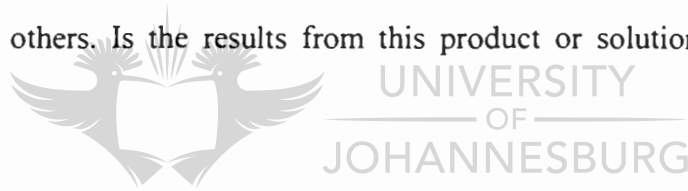
The rate of acceptance of this technology is slow (in South Africa) and is due to the nature of the industry that is very slow to adapt to technological advances. Also, companies have little faith in unproved technologies, usually the returns cannot be guaranteed initially (based on gut feel until proven), and it could be capital intensive with high risk. Each control system needs to be a customised system, one cannot sell a packaged system across the counter for the different industrial processes.

The complexity of this market is the bridging of the gap between theoretical research and practical applications, because advanced techniques are available to model processes, but it needs to be

applied in practical systems. This inherently necessitate people with knowledge of these advanced modelling techniques, as well as knowledge of the processes in this industry.

Kotler & Armstrong (1996:169-170) identified five characteristics influencing the rate of adoption of any new innovation:

- *Relative advantage* – the degree to which the innovation appears to be superior to existing products. Is the perception of the client that the product or solution is the best available in the market?
- *Compatibility* – the degree to which the innovation fits the values and experiences of potential consumers. Is the product or solution in line with the requirements and level of technological-advanced state of the business?
- *Complexity* – the degree to which the innovation is difficult to understand or use. Is the product or solution complex to maintain and understand?
- *Divisibility* – the degree to which the innovation may be tried on a limited basis. Is this product or solution only viable on a limited scope of applications?
- *Communicability* – the degree to which the results of using the innovation can be observed or described to others. Is the results from this product or solution easy to interpret and understand?



A.3.3. The Challenge of Information Systems

Building, operating and maintaining information systems are challenging activities for a number of reasons (Laudon & Laudon 1998:26):

1. *The strategic business challenge*: How can businesses use information technology to design organisations that are competitive and effective?
2. *The globalisation challenge*: How can firms understand the business and system requirements of a global economic environment?
3. *The information architecture challenge*: How can organisations develop an information architecture that supports their business goals?
4. *The information systems investment challenge*: How can organisations determine the business value of information systems?
5. *The responsibility and control challenge*: How can organisations design systems that people can control and understand?

APPENDIX B.

Knowledge Management in the South African Business Environment

B.1. INTRODUCTION

The objective of this appendix is to provide more background information on companies and their requirements and views on technology and implicitly knowledge workers. The focus is on a test sample of industrial and information technology companies, specific to the South African context. The format of the information is presented to give a better feel for the size of the organisation (turnover and employees), relative performance on different aspects of business, i.e. flexibility, innovation, human resources, quality of management, etc. and brief description of each company's management strategy.



B.2. SOUTH AFRICAN CONTEXT

The problem that the South African corporate sector faced over the past ten years or so genuinely merit that much misused adjective, unique. Modern South Africa, based on exploitation and export of gold and diamonds, has always had a very open economy. For a long time, most manufactured goods were imported, but gradually a domestic manufacturing industry developed – first as a supplier to mining but later serving other markets. Fundamental structural change started to emerge soon after World War II. The development of the Free State goldfields from the late 1940s – seen at the time initiating a major new phase of expansion – turned out to be the apex of the industry's history. The long decline in gold's use as a store of value was paralleled by its declining importance to the South African economy, both as an employer and as a generator of foreign exchange earnings. The slack was taken up by the manufacturing sector and the tertiary sector also grew. In particular, a remarkably sophisticated financial sector developed, with the emergence of large commercial banks and insurance companies (Ashurst, *et al.*, 1998:v).

B.2.1. Political Reform – 1994

The political reforms of 1994 brought a radical new set of challenges to business. Apart from the need for corresponding economic reform and black empowerment, they opened up unprecedented new opportunities – and threats. On the one hand, South African companies regained access to international markets and technology; on the other, multinationals flocked to enter or re-enter what they saw as one of the world's great untapped markets. Many South African companies were ill-equipped to face this new competition, which inevitably had resources greater than our own. Some lost out, but others have risen – and are still rising – to the occasion (Ashurst, *et al.*, 1998:v). The companies that have survived and are prospering are those who have shown that the best practice strategic management and future orientation that are likely to have the greatest impact on the economy over the next decade.

B.2.2. Internationalisation

Re-entry to the world economy has a different set of consequences. Many South African companies have run up against the problem that their share of the local market is so great that expansion at home is difficult. Now the natural export market of Africa has opened up and many have gone even further afield. At the same time, companies face renewed foreign competition at home. Companies whose technology has fallen behind, as a result of the complacency, isolation or South African companies' generally low spending on R&D, are particularly vulnerable; those who have maintained their research spending, or have access to international owners or associates, are much better placed, but may well be in minority. The greatest advantage of all, of course, are to operate in sectors that have superior growth prospects, as well as to enjoy dynamic leadership. Many of the most impressive companies fall into one (or both) of these categories: financial services, health care, information technology and media.

B.3. MAJOR INDUSTRIAL CORPORATIONS

The table presented below (Table B.1) is a summarised scorecard of the ratings of a test sample of companies from the South African industry. The companies are scored in terms of:

- *Flexibility*: Ability to adapt to changes in the market, technology and focus
- *Innovation*: Ability to realise, foster and motivate entrepreneurship and creativity
- *Human resources*: Commitment towards development, training and skill acquisition of employees

- *Growth markets*: To what extent is the company's focus on growing markets
- *Quality of management*: What quality is the management strategies employed and what is the ability of management to positively influence employees on motivation, team work, etc.
- *International orientation*: What is the company's focus towards globalisation and what is its ability to be internationally competitive.

Table B.1 – The scorecard for 7 of the most promising companies in South Africa

<i>Company</i>	<i>Flexibility</i>	<i>Innovation</i>	<i>Human resource</i>	<i>Growth markets</i>	<i>Quality of management</i>	<i>International orientation</i>
Engen	3	4	4	3	4	4
Iscor Ltd	4	3	3	4	4	5
Polifin	5	5	5	5	5	5
Sappi	3	4	4	3	4	5
Sasol	4	5	5	5	4	5
Shell SA	3	4	4	3	4	4
Toyota	4	4	3	3	4	3

* Scoring scale: 1 – Poor ... 5 – Excellent

Source: Adapted from Ashurst, et al. (1998:68, 104, 206, 236, 242, 254, 290)

Polifin is by far outclassing all the other companies in all aspects. The only other company that can compete with Polifin given this scorecard is Sasol. The specific areas of interest for the purposes of this study is flexibility, innovation and quality of management.

B.3.1. Engen

Engen is the leading brand of petroleum products in South Africa (mainly petrol, diesel and jet fuel) (Ashurst, et al. 1998:68).

A restructuring project was launched in 1995. Project Discovery. Individual responsibility and accountability have featured strongly in this transformation, indicating a strong shift away from the 'jobs-for-life' approach of the past. This did not go down well with some of the employees, but others were invigorated by being transformed into partners who had to take responsibility for their development for the benefit of the group. Human Resource General Manager, Mpumelelo Tshume, says that this was achieved by taking staff through intensive change management programmes to explain and show them that this is not a company specific change, it is a world-wide phenomenon

(Ashurst. *et al.* 1998:70). The group believe in setting aside a big enough budget for development and training, because they believe their real competitive advantage is not how superb their systems and strategies are – it is how good their people are. Therefore, the company need to play a role to grow these competencies, skills and knowledge of their employees. Unlike the multinational oil companies with their vast global resources, Engen does not invest heavily in research and development. Instead, it has a business intelligence system that keeps in touch with best-practice trends in products and systems in the industry.

B.3.2. Iscor Ltd

Iscor Ltd has three main areas of activity: the production of iron and steel, the mining of iron ore, coal, dolomite and quartzite, and associations and joint ventures with a variety of metal and minerals companies (Ashurst. *et al.* 1998:104).

Iscor's management philosophy has been to reduce the role played from head office in favour of more decentralised management at each business unit. Iscor is adherent to the benefits of entering joint ventures and international alliances, because their one credo is: If Iscor doesn't get an internationally competitive mind-set, then there is no hope for its survival (Ashurst. *et al.* 1998:106). One of the smart moves in the re-engineering process has been to solicit the co-operation of national transport body Transnet, which is working closely with Iscor to optimise the efficient transport of raw materials and finished goods while exploring the concept of total logistics service. Iscor has also invested in improving the management information systems. Information Technology Services is now an independent business unit, systems structures are decentralised, Iscor Mining is leading the group in respect of deploying an integrated systems solution.

B.3.3. Polifin

Polifin is a major player in the plastics and chemicals industries, with bold expansion plans, i.e. ethylene cracker with downstream polymer plants. The company benefits from its association with major shareholder Sasol (Ashurst. *et al.* 1998:206).

Polifin expects to maintain operating margins, one of the main considerations is efficiency. The focus is on looking to improve efficiencies all the time. Getting more tons out of the plants has been achieved by running them better, more efficiently and by using advanced process control wherever

possible. The big focus is on upgrades. Squeezing the last molecule is what their business is all about (Ashurst. *et al.* 1998:209).

The main thrust of Polifin towards its employees is the development of their skills and creativity. Munday says if the company is to meet its goal of being truly world class competitor, it must invest in individuals (Bidoli. *et al.*, 1998:212). A value-driven organisation has to invest a lot into training. What is important is that people are informed about where they are going. As long as people are dealing with certainty the motivation and morale is good. It is when they are dealing with uncertainty that the company begin having problems. Uncertainty sows doubt, therefore, dealing with honesty and certainty creates a good environment.

Polifin went through a set of 26 workshops involving 500 people right across the spectrum to determine the core values of the company. What came out was a set of five values, what are now called shared values for the company. Inevitably these values focus on the customers and they focus on the people in the organisation. The values also include the environmental responsibility to the communities around the operations (Bidoli. *et al.*, 1998:212). An incentive scheme was introduced which was underpinned by the things that really make money for Polifin, such as running the plants at a high level of efficiency, converting raw materials efficiently, and working safely. The aspect that has driven the acceptance of the scheme is not only motivation or the excitement of earning a bonus, it's being part of a team. A large part of the philosophy is of this is team driven. There is a very strong support system in the team. They are individually very focussed. Their accountability in terms of areas of responsibility is unambiguous. There is a very strong form of management culture, so it's a highly motivated happy, well focussed, well directed team of people (Bidoli. *et al.*, 1998:214).

B.3.4. Sappi Limited

Sappi is a global forest products group and the world's largest producer of coated woodfree paper, with processing facilities on three continents and an international marketing network that sells the group's produce in over 100 countries (Ashurst. et al. 1998:236).

Sappi's strategy, with its focus on world leadership in coated papers, is part of a trend by big players to dominate particular product lines globally (i.e. defined niche markets), thereby creating greater market stability. The culture of the company is governed by its stature in the industry. It's an

entrepreneurial, challenging culture, hard-working and globally focused. Sappi's management style can be described as actively participative. Sappi has introduced world-class manufacturing standards and is also focusing on an initiative called "total productive management". Third party management is a management initiative that reinforces the benefits of individual involvement and functional responsibility of all employees (Ashurst, *et al.* 1998:239). Small workgroups focus on a problem area and discuss it with their peers and supervisors. Significant changes are taking place at grassroots by involving staff in the decision-making process. The company offers many unique opportunities and a stimulating and fascinating work environment since it encompasses a complete cycle of production. Employees tend to appreciate the relevance of their roles in the process from the beginnings in nature, through hi-tech manufacturing techniques, to the finished products, and the marketing, distribution, and sales across the world.

Sappi subcontracts much of the planting, maintenance and harvesting of the forests, as it is an ideal vehicle for black economic advancement. Consequently, the top human resource priority at Sappi is training and development of potential within the workforce at all levels (Bidoli, *et al.* 1998:222). Sappi has been at the forefront of international technological innovations since the 1970s. The company patented a non-toxic oxygen bleaching process, which is still the global standard in all new mills. It has large research function, largely devoted to tree cultivation, environmentally-friendly manufacturing processes, as well as the development of new products and processes. Sappi has made many innovations to conserve South Africa's scarce water resources, and is the world's lowest consumer of water per ton of pulp produced. In order to improve customer service, Sappi's most recent innovation is a computer-based ordering system called "Maximiser". Merchants order by computer and gain immediate access to Sappi's stock control, place the order directly and monitor where in the production cycle their order is at any moment in time (Ashurst, *et al.* 1998:240).

B.3.5. Sasol

Sasol is the only company in the world to conduct oil-from-coal conversion on a commercial basis. Divisions within the group include Sasol Mining, Sasol Synthetic Fuels, Sasol Chemical Industries, Sasol Petroleum, Sasol Technology and Sasol Oil. There has been a surge of interest in Sasol's Fischer-Tropsch gas technology – indicating the need for clean-burning fuels and the urgency of finding an economic use for the world's huge natural gas resources (Ashurst, et al. 1998:242).

The oil-from-coal company is perhaps one of the biggest technology success stories the world has seen. Sasol – as world's only synthetic fuel operator – has gained its independence and now has a reputation as a profitable and internationally competitive corporation. The company is busy repositioning itself as a global player. Its structure enables it to extract value from its coal mining operations and chemical by-products, as well as from fuel. Even though there has always been limited demand for oil from coal, its slurry phase distillate process that converts natural gas into diesel is attracting global interest. Its Fischer-Tropsch technology offers a competitive advantage in the production of not only fuels, but also waxes, chemicals and low-cost feedstocks, such as propylene and ethylene, from coal. Sasol will not license its technology, but is instead establishing joint ventures through Sasol Synfuels International (Ashurst, *et al.* 1998:243).

At Sasol there is a multitude of professions, trades, and occupations found in few conglomerates. This structure allows employees the freedom to alter career plans should they show academic and practical ability to change track. The basic philosophy of the company is to grow their own employees (Bidoli, *et al.* 1998:229). But the real attraction is that Sasol is an integrated business, where the whole cycle is in-house. Sasol's scientists have researched and proven ground-breaking technologies, which are now internationally recognised. Their latest achievement is a world-beating process converting unprofitable deposits of natural gas into high-quality diesel.

B.3.6. Shell SA

Shell is an international petroleum company with a strong presence in South Africa and its neighbouring countries (Ashurst, et al. (1998:254).

Like other South African oil companies, Shell has had to undergo radical restructuring in recent years as the whole liquid fuels market opened up with the lifting of apartheid-era sanctions. This had focused attention closely on the need to improve cost-effectiveness and strengthen the presence of the Shell brand in the local market (Bidoli, *et al.* 1998:240). The competitive environment is changing fast and customer service and cost-effectiveness is becoming paramount. If you asked Shell a couple of years ago who their major competitors were, the likes of BP and Caltex would have been on the tip of their tongues. If you ask them today, they would have to ask you which sector: if it is about retailing of fuels over the next five years, Pick 'n Pay could be the toughest competitor; if it is about convenience stores, it could be Seven Eleven; if its about the lubricants business, it could be the car service companies. It is a very different competitive environment now

and each business has a quite distinct competitive environment. This called for the concentration of different kinds of skills in different divisions. while the drive to increase competitiveness and cost-effectiveness has seen a change in corporate culture. not only in South Africa but internationally (Ashurst. *et al.* 1998:256).

Employee numbers have been halved and the group can no longer offer "jobs for life" within a structured hierarchy. Instead it could offer worthwhile careers to self-motivated people with greater concentration on project-driven technical skills. Employees are continually encouraged to develop themselves and their skills so that they remain employable in an ever-changing market in which new demands will always be made on the group (Ashurst. *et al.* 1998:256).

B.3.7. Toyota

Toyota SA builds and distributes Toyota cars and light commercial vehicles. as well as Toyota, Hino and Peterbilt trucks (Ashurst. et al. 1998:290).

Toyota has a long-standing reputation as the leading value-for-money vehicle producer. and has been the market leader in South Africa for nearly 20 years. Management generally has displayed the same values as Toyota products: value for money without fuss. Toyota was the first to recognise the importance of after sales service and other value-added features as a means towards customer retention. When it comes to management control. the speed with which the company can respond to changes is important. On the whole there can be no doubt that the Japanese management involvement in Toyota SA is beneficial as the company strives to come to terms with global competition (Ashurst. *et al.* 1998:295).

B.4. TECHNOLOGY SERVICE PROVIDERS

The table presented below (Table B.2) is a summarised scorecard of the ratings of a test sample of selected service and technology orientated companies from the South African industry. The companies are scored in terms of:

- *Flexibility*: Ability to adapt to changes in the market. technology and focus
- *Innovation*: Ability to realise. foster and motivate entrepreneurship and creativity
- *Human resources*: Commitment towards development. training and skill acquisition of employees

- *Growth markets*: To what extent is the company's focus on growing markets
- *Quality of management*: What quality is the management strategies employed and what is the ability of management to positively influence employees on motivation, team work, etc.
- *International orientation*: What is the company's focus towards globalisation and what is its ability to be internationally competitive.

Table B.2 – The scorecard for 6 of the most promising service and technology companies in South Africa

Company	Flexibility	Innovation	Human resource	Growth markets	Quality of management	International orientation
Andersen Consulting	4	5	3	5	4	5
*BSW Data	5	5	5	5	5	3
*EDS Africa	4	5	4	5	3	3
*Gemini Consulting	4	4	4	5	4	5
IXChange	5	5	5	5	5	5
The Internet Solution	4	5	3	5	4	2

* Scoring scale: 1 – Poor ... 5 – Excellent

* Inferred scores

Source: Adapted from Ashurst, et al. (1998:14, 110, 200, 284)

B.4.1. Andersen Consulting

Andersen Consulting is the world's largest management and technology consulting group.

The demand for professional consultancies stems from a belated realisation among businessman world-wide that many of their own company re-engineering projects weren't working. According to one study, over 50% of projects didn't give the expected results, even with the most up-to-date technology. The problem, according to Andersen Consulting, is that systems and re-engineering alone aren't the answer: these are merely part of an integrated and balanced strategy. The key isn't strategy, but how a client implements that strategy (Ashurst, et al. 1998:15). Andersen Consulting comments: "We maintain that strategy, processes and technologies alone are not enough to win competitive advantage. Effective execution by people is a key – and often missing – requirement."

Perhaps Andersen Consulting's greatest competitive advantage is its 'knowledge bank' – information and experience gained from working with thousands of clients around the world. By drawing on best practices or the best ideas from around the world, the company's advice is practical, not theoretical. Andersen Consulting uses Knowledge Exchange, a global electronic network, to link staff all over the world. It offers online access for personnel to project results, best practices and other knowledge bases (Ashurst, *et al.* 1998:17).

Andersen Consulting's alliances fall into three main categories: suppliers, co-service providers, and clients. Andersen Consulting has shifted its focus from servicing businesses, to business partnering, which ensures deeper commitment to success for the client (Bidoli, *et al.* 1998:21). As a starting point Andersen Consulting tries to set up alliances with suppliers of goods, services and complementary services.

B.4.2. BSW Data

BSW Data operates under the broad umbrella of telecommunications and information technology, applying these two disciplines to businesses to make them more efficient. The company uses technology as a core around which different skills are applied in order to do better business.

The skills of BSW's people, provide the vital link between their understanding of the customer's domain and computer technologies (Bidoli, *et al.* 1998:51). The business of merging telecommunications and information technology structures can be complex. It takes skills, patience and teamwork to put together systems such as an itemised billing system for telecom operators. The essential ethos is to work in an open, collaborative way and accept the responsibility for the task at hand. By adopting a long-term approach to business dealings and pursuing excellence in all the work, BSW has built very strong customer relationships based on trust and understanding – this ensures the mutual benefit of all concerned.

Because BSW business is essentially knowledge-based, people are its biggest asset and are managed with special care. Recognition of employees worth is what makes employees interact well with customers, who walk away feeling they have received a high level of service. A core issue in this is respect. Individuals, their expertise and their careers must be respected, and with this respect comes a high degree of trust. This attitude creates an openness as well as a flatness within the organisation.

BSW has developed a business-based performance model in the form of a Leader's Guide which enables staff to combine their performance with their career goals as well as BSW's business strategy direction (Bidoli. *et al.* 1998:52).

B.4.3. EDS Africa

EDS Africa is South Africa's largest information technology outsourcing company. EDS Africa is involved in the application of idea information and technology to improve business performance of companies in a wide variety of industry sectors.

EDS Africa has made world headlines with its innovative and symbiotic partnerships, based on shared risk-and-reward fee structures with customers. R1.5 billion outsourcing contract signed with First National Bank (FNB) in 1997 is the largest outsourcing contract yet signed in South Africa, it saw EDS take over the management and operations of FNB's cheque processing and centralised back-office ledger functions. The outsourcing of cheque processing by FNB to EDS is a dramatic step, that will not only reduce costs to a significant degree but is in line with the bank's policy of refocusing on its core businesses. The cheque processing function for FNB was a critical function but not strategic, because there is no value added in cheque processing (Bidoli. *et al.* 1998:78).

In the project teams seniority plays a much smaller role than the expertise and skills people can bring to the party. The main focus is on satisfying the client. Staff is the greatest asset at EDS and as such the company have to unlock that potential (Bidoli. *et al.* 1998:79). The EDS environment is a lot less structured environment (relative to their clients) where employees are empowered to take control of their careers and fly.

B.4.4. Gemini Consulting

Gemini Consulting is global management consulting firm that helps major corporations restructure or transform in an integrated and holistic way by focusing equally on strategy, operations, people and information management.

There are few businesses that are more results-driven than consulting, and this requires a unique blend of project management and implementation skills. Another prerequisite for any consultant is an ability to get on with others, from senior executives down to factory workers. New consultants gain experience as part of a team of more experienced colleagues, and their progress and

performance is closely monitored, with corrective action, in the form of additional training or mentoring (Bidoli, *et al.* 1998:116).

B.4.5. Ixchange Technology Holdings

Ixchange is an information technology group that focuses mainly on Customer Management Solutions, Enterprise Resource Planning (ERP), Internet Business Solutions and has a large software project development division.

The ability to meet the challenges to change is far easier with the right people on board. Buys, Chairman of Ixchange, believes that it is essential to have a culture within the organisation that understands that change is not necessarily a bad thing, as it affects how quickly the business can be built and also affects its long-term growth (Ashurst, *et al.* 1998:112). People in many South African organisations are still scared of change, but the reality is that you have to change before the market forces you to change. Because the organisation must drive the change rather than being driven by external market forces beyond your control. Employees must view change as opportunity and must be closely involved in it.

Management and staff are key to flexibility within the company. Ixchange's employees must be independent, self-sufficient and innovative. With employees with those characteristics, management is only required to implement structures to get the company to a predetermined destination. Employees need to creatively think of solutions to solve those long-term ideals, management also can not afford to sit there everyday cracking the whip. Ixchange is purely in the intellectual capital business, people are the core assets – if they are the right kind of people, the company can go forward. This industry is different to, for example, manufacturing, where the skills are a lot lower (Ashurst, *et al.* 1998:113). Because everyone working for the company has a valuable marketplace for their skills, to have employees part of the process and part of the company by offering them share options is a critical aspect. Training of resources is key to growth. Education is provided to employees in return for their long-term commitment to stay with the firm.

How can a software developer in South Africa possibly hope to compete against large, established players in the US and elsewhere? Buys feels that the only way is to focus on narrow niches (Ashurst, *et al.* 1998:113). It is important to sit in niche markets where the company has a competitive advantage and where it can build defensible market share.

B.4.6. The Internet Solution

The Internet Solution (IS) is South Africa's leading provider of internet infrastructure and applications. The company holds a dominant position in the South African corporate market.

The Internet Solution focuses on three broad areas: the provision of internet infrastructure, integration with a company's other information technology components and, increasingly, provision of internet applications. The partnerships between The Internet Solution and its corporate customers is a classic business relationship based on mutual interest. It has a distinct advantage for The Internet Solution: it is difficult for clients to switch to other Internet Service Providers because of The Internet Solution's technological domination of the corporate server market.

In South Africa the story of The Internet Solution is exceptional. South Africa is a country that is cautious of technological advances, there are no venture capitalists to back a few techno-nerds and many of the country's information technology skills are departing for greener pastures. Management is well aware that it would be more difficult to convince clients to add value to the internet without constant customer service and support. The Internet Solution's success is based on understanding the requirements of the client and the relationship of connection to the rest of the operation (Ashurst, *et al.* 1998:287). The Internet Solution is very much what one would expect from a company at the edge of technological innovation in terms of employees and management: the average age of employees is 27 to 28 and the management culture is informal. One of the biggest constraints facing information technology companies in South Africa is the shortage of information technology skills. What The Internet Solution look for in new staff members is cleverness, a bit humility and a lot of creativity.

B.5. SUMMARY

The comparative discussions on the production and technology driven companies in South Africa led to the following conclusions:

- Production driven companies cannot fully move from the second wave management paradigm to third wave, because of the spread of skill levels throughout these organisation, which brings the following phrase to mind: "One cannot be everything to everybody."

- The relatively low level of skills and knowledge give rise to the secondary effects of: resistance to change due to job insecurity and slow to adopt technology.
- The production driven companies have a suitable environment for people, highly skilled people, i.e. managerial skills (or researchers where such departments are maintained), that are interested in purely production management functions (in general). On the other hand for the pure knowledge worker these environments is not conducive for long-term career opportunities in terms of technical work.
- Knowledge workers are in the bigger picture part of the majority low skilled employees, although distinctions are made, the company cannot purely adjust itself for the knowledge worker's needs – at the end of the day the 'low skilled' production employees still make the day-to-day money for the company.

It can be concluded from the discussions of the two test sample of companies presented, i.e. production and service driven companies, that all these companies view their human capital (i.e. knowledge workers, or skilled employees) as a critical part of their competitive edge in the global marketplace. All of the companies cater or try to cater for the knowledge workers of today. It is however evident that your knowledge worker in the technology and information technology industry will be better catered for in one of the technology service companies, that provide career opportunities in this specialised field internationally, exposure to various clients and systems, and a better experience based on the core focus of information technology. In terms of entrepreneurial possibilities the technology and information technology companies are in general more flexible, in most instances smaller, less hierarchical and thus better able to realise the self-actualisation (as per Maslow's motivational theory) drive of the driven individual or knowledge worker. The production driven companies in general consist of a majority of "blue collared" workers and as such most of the systems and structures are in place to primarily cater for them. Due to the majority of "blue collared" workers these companies, with their production driven focus, are in general less flexible and slower to adopt technology.