CHAPTER 2

OUTSOURCING THE SUPPLY CHAIN

2   OURSOURCING THE SUPPLY CHAIN

2.1   Introduction

The last couple of years have seen a dramatic change in the way that business is done. Rapid advances in technology and increasing regulatory freedom have changed the rules of competition. Companies are now competing globally and traditional barriers between industries are breaking down. To cope with these and other changes and achieve superior performance, business leaders are moving towards new business paradigms that allow their companies to work more closely with their traditional and new business partners in order to adapt to the rapidly changing marketplace. This new collaboration can be achieved by outsourcing all non-core business activities, which in turn will lead to an improved integration through supply chain management. Supply chain leaders are reconsidering the linkages, not only between functions within their own companies, but also with other organisations up and down the supply chain.

The Information Technology (IT) industry provides a unique and compelling case for creating value through outsourcing and ultimately the total integration of supply. The industry's dramatic history of outstanding growth, its sheer pace, the magnitude of change and increasingly complex and global supply chains have created huge challenges for all participants. According to Gattorna (1999: 188), traditional channel structures and behaviours in the industry's supply chains have not kept pace with the changes. Comprehensive management which collaborates the supply chain as a whole is needed to fulfill the new demands set by players and consumers alike in the IT market of the future.

2.2   Managing existing business paradigms

2.2.1   Discontinuous business change

There is not one industry that can claim to have remained constant and unchanged over the last couple of decades. All industries have seen a change in the way things were traditionally done - these changes can mostly be contributed to the rise of

information technology. The development and constant improvements in technology (for instance mechanisation, automation, the development of the computer, cellular phones, the internet, wireless applications and many others) have had far-reaching effects in every single business sector. As it enters the new millennium, business now finds itself in a mode of *discontinuous* change. Changes are abrupt and sudden, leapfrogging ahead of predefined expectations, driven by new discoveries and the application of innovations and new technologies. Behrmann (2000: 1 – 2) defines discontinuous change as almost the opposite of change as we know it – being a 'gradual transition based on an evolution from past events'. Understanding whether this unevenly distributed revolution has arrived in a company and how much dislocation it will create, is crucial to business success.

One of the best examples of discontinuous change is the internet. There are good reasons why some industries will be turned upside down by the internet and others will not and they relate directly to the resource that the internet distributes – namely information. Where information was previously made available sequentially and then only to select groups, the internet now opens the window to massive amounts of information directly accessible by individuals. The result is an instant change in individual thinking, buying and expectation patterns throughout all business sectors, but especially in the IT industry. Rayport (2000: 10) states that:

> *'The internet may yet change everything, but the rate of change will differ wildly among industries. For some businesses the future has arrived, while for others it is still a theoretical possibility hovering on a constant horizon.'*

It is derived by many that the biggest growth and most significant change has in fact occurred in the industry that has shaped the future of all others: the IT industry.

2.2.2   Changing the mindset

It has been sufficiently concluded that the business environment of the new millennium is changing rapidly. Companies who want to keep up with the pace, or even be a step ahead of the competition, must look at new ways to better their current business operations. Only those individuals and companies who can proactively adapt

to these fluctuations and discontinuous changes will survive. It is here where each and every person can either be the most limiting or liberating factor in the organisation. Fitzgerald (in Ling: 1999: 1) states that the mark of a first rate intelligence is 'the ability to hold two opposed ideas in the mind at the same time and still retain the ability to function'. Aletha Ling, Group Chief Executive Officer of *Computer Configurations Holdings*, beliefs that everybody carries around biases and perceptions about their own abilities, opportunities and futures as well as those of their companies. Breaking out of these beliefs and being open and receptive to change, both personally and organisationally, lies within a person's own mindset.

The role that is played by these established and fixed mindsets (also referred to as paradigms or thought patterns) in a specific company, industry or business environment must not be underestimated. Although they may have some advantages, they more often than not have a negative, restraining effect on change and evolution. De Villiers (1996: 27 – 30) lists some paradigm characteristics:

i.   A mindset or paradigm invariably leads to a way of thinking, a structure of reference or boundaries within which a person handles or evaluates incoming information - this concept was first discovered and described by Thomas Kuhn in 1970. There is no such thing as a completely objective person. Paradigms colour the perceptions, decisions and actions of all people, either negatively or positively influencing the ways in which they conduct business and make business decisions.

ii.   Especially in a company that is well positioned, functioning profitably and performing close to optimum levels, paradigms will be set strongly and followed meticulously. Any new ideas, innovations or technologies (such as outsourcing current profitable business operations or processes) will therefore not be accepted easily.

iii.   A paradigm performs the same function as a sift, selecting which of the received information is to be interpreted as well as in which way. If a conflict exists between the information received and the person's paradigm, this information will in most cases be ignored. The mind is very effective in

finding and sifting the facts that will support a particular mindset or point of view. This means that a person's mind or a company as a whole will focus on the data that it needs to support its own point of view. In all people there is an inherent resistance to change, which plays a huge part in the way data is digested or processed. It is therefore imperative to challenge the mind to find some mind-opening practices and eliminate those practices that limit breakthrough thinking.

iv.   It is important to note that when a set paradigm is changed or a paradigm-shift has taken place within a leading business enterprise, it will influence all other players in the industry. When a new, improved technology or innovation is developed and implemented by one company, all other players competing in the same industry will have to follow suit. Another company that may have had a big market share before, will quickly find itself with diminishing sales and growth if it does not also adopt the new innovation in the market.

Deeply set within the collective mindset of the company is all the experience, learning and beliefs of the past. Whereas it is imperative to stimulate learning in the organisation and to capture and hold the essential intellectual property which is the company's asset, it is just as important to *unlearn* what is no longer relevant and thus stifling the ability of the company to really innovate and become a market leader. Unfortunately, bringing about mindset change is hugely difficult. Since it is a fight against a basic and ingrained behaviour or way of thinking, enormous energy will be spent in trying to prove that the person or the company has been right all along and that there is really no reason to change the mindset and adapt any new business processes.

Never before has change occurred faster nor has the effects of these changes been more far-reaching on the way we live and work and do business. In order to survive, there needs to be adaptation through change and liberation. Above all else, action is then needed to break out of the box of rigid thinking. Ling (2000c: 2) sums up the immense value that can be created by breaking through the paradigm and changing the mindset:

"It can powerfully change one's own life and success. It is the difference between mediocrity and exceptional performance at whatever level and in whatever endeavour. It is the ability to think bigger and translate that thinking into action…This is the key difference: no breakthrough results are possible without action, either personally or organisationally…Thinking out of the box is crucial but it is useless without breakthrough action…"

2.2.3 Maintaining a competitive advantage

After breaking away from the limiting paradigms of the past, the reborn company must aim at achieving and maintaining a competitive advantage over its competitors (ways in which this can be achieved will be discussed in later chapters). Every academic, author, entrepreneur and businessman holds a different view on the elements required to manage and maintain a winning company. The following four basic elements adequately sums up what needs to be done in order to maintain a sustainable competitive advantage in the discontinuously changing IT industry:

i.   Knowledge.

Only knowing is not sufficient anymore. Knowledge, which can be defined as 'having the capacity for informed action', is needed to stay ahead of the pack (Szyllo 2000:1 – 2). Knowledge is an extremely powerful business tool: it can even change set paradigms in a successful company. However, knowledge is useless if it is not managed properly.

- Firstly, companies need to obtain knowledge, whether it is through primary or secondary resources or just by learning through doing (experience).
- Secondly, infrastructures then need to be created which will ensure that the knowledge obtained is retained and shared with the relevant people at the relevant time.
- Lastly and probably most important, companies need to *act* on their knowledge. They need to at all times keep track of emerging trends, new technologies, innovations and all other possible opportunities and threats in the market. The key to success is to be proactive rather than reactive. In order to maintain a winning company the relevant knowledge gained must

move employees and management alike into motion and lead to deliberate action. This ties in directly with the statements made by Ling on the importance of not just knowing, but taking action by changing the ways in which things have always been done (*i.e.* changing the business paradigm).

ii.   Connectivity.

The more people or companies work together in a network, the higher the value of that network becomes. Internal connectivity as well as connectivity to the outside world must not only be good or sufficient, but must offer added value. In order to successfully manage either knowledge, change, transformation or any other organisational issue there needs to be connectivity and a positive flow of ideas. Connectivity and speed are needed to extract value from the above-mentioned knowledge.

iii.   Speed.

Speed to market is vital. Getting the best product there before the competition will ensure at least an initial market dominance. Just as important is speed of communication to customers and suppliers. Most companies operate in real time and need the correct and relevant information available at the click of a button. This is one of the main advantages that outsourcing selective business processes to a third party can add to any business' operations. Outsourcing will be discussed in great detail later in this chapter.

iv.   Effectiveness.

Actually doing different things instead of just doing the same things differently, is what defines success today. Companies need to differentiate themselves from their competitors by the way they do things, amongst others their ways of communication, connectivity, marketing, service levels and any other business activities.

2.2.4   Complete transformation

It often occurs that a company cannot just adapt to changes in the market by disregarding or adapting their set paradigms. More often than not a complete business

transformation is necessary to stay ahead of new technologies and innovations. This may include changing the structure, people, skills, operations, technology, procedures, philosophy or culture of the company and/or its employees. In order for this re-creation or regeneration to work, a company needs a strong strategic imperative, a plan and a capable multi-disciplinary team committed to executing change. Of primary importance is the belief of all participants that this transformation will ultimately lead to a better future. Passion, vision and insight is necessary to grasp the possibilities of where the company is heading. The point of departure is openness and trust and moving forward requires communication and motivation. Many authors view transformation management as one of the critical success factors of the new millennium (Ling 1999: 1 – 4; Szyllo 2000: 1). The challenges in managing change go far beyond the requirements of developing and managing traditional companies. In many ways it is also much more difficult than starting something from scratch. As discussed above, existing paradigms and their set structures are resistant to change. The challenge lies in maintaining both the performances of the existing structure or relevant skills while at the same time moving towards the new.

Transformation is not a single event but a series of steps in a process. In conceptualising the process of transformation it is essential that the complexity and sensitivity of the challenge be acknowledged. There exists some useful building blocks that can be used in constructing the transformation process. The programme will require strategy, marketing, technology and many other company resources. Ling (1999: 2 – 4) has identified the following building blocks in the process (includes ideas based on the Wheelwright Clarke model):

i.   The first building block is the very important *research* stage. It goes without saying that not everything that needs to be known is known at the outset of a project. Information can be gained by primary research or by consulting secondary sources. As new ideas and alternatives are considered, they must be discussed completely and challenged entirely by the research team.

ii.   The next building block is *piloting* the most likely of the ideas, which allows the team researching the possible transformation alternatives to assess some of

the ideas in a more practical environment. This will add more light to the way in which the transformation process is moving.

iii.   In the *establishment* phase the ideas which have survived the piloting phase are applied more broadly in order to create something even more practical to work from. Although this can already be seen as the start of a definite design, dynamics of the research team and the company itself will still affect the transformation.

iv.   Finally, the last building block is laid by *implementing* the best practice in a steady state. In order for the outcome to be successful, continuous assessment, communication, interaction, learning and feedback throughout the previous stages are vital.

Transformation is implemented and managed in order to change paradigms which may no longer be relevant in the present-day IT industry which is known to be undergoing rapid, involuntary and discontinuous change. Transformation management often means changing a complex system that will result in an integral reaction where one point of change will have an effect throughout the whole system. Transition through successful transformation management should be viewed as a core competence in any organisation, since being the first to implement the process of transition into the future, will be awarded with a competitive advantage, at least until the rest of the players in the market catch-up.

2.3   Evaluating the current channel strategy

After company paradigms have been evaluated and changed for the better, the company may have reached the decision that, in order to keep up with the discontinuous changes in the IT market, it needs to change its existing business strategy. One available and very viable alternative is to outsource some of its business activities to strategic partners. This will mean that company management will not only be responsible for managing their own business, but also for the chains and links with their outsource partners. This in turn will call for a channel strategy which will optimise all operations between the client company and its suppliers in the channel.

Companies must be equipped to build into each and every one of these channel decisions, an assessment of whether the transaction supports or erodes the company's strategic objectives. Strategy should be viewed as a higher-level abstract where goals must be built into and then incorporated with every day channel management decisions.

However, before any company can formulate its optimal channel management strategy, a calculated and deliberate overview of all the activities involved is needed. In an ideal world, customer demand would be smooth and growing. Demand would be perfectly predictable and therefore enable perfect planning of the supply chain. Unfortunately, this is seldom the case. Buys (2000: 1 – 4) therefore states that *demand planning* should be the first activity to receive attention as part of an optimal channel strategy.

2.3.1   Forecasting

Companies today are faced with consumers who expect global access to high-quality and reliable products. Thus, getting the right product to the right place at the right time and at the right price, is becoming more than just a competitive advantage – it is becoming a necessity for survival. This is one of the main reasons why putting together the detailed components of demand planning or forecasting is emerging as a critical factor for business success. The product of the demand plan or forecast is the anticipated sales for whatever planning period is applicable to the products or the business as a whole. Hughes, Ralf and Michels (1999: 102) state that the essence of the quick response forecasting approach is no longer about selling what you buy, but about buying what you sell.

One of the keys to excellence in demand forecasting is *collaboration* (Gattorna 1999: 131 - 133). The greater the amount of information that can be incorporated into a forecast, the more accurate it is likely to be. Gattorna explains that when different business functions each develop their own forecasts, they typically do so with different assumptions about the factors that will ultimately affect demand. A consensus process then ensures a consistent set of assumptions based on a broader base of input. In a well-functioning process, operations can have a far-reaching impact

on the accuracy of the demand forecast. Based on feedback from operations, marketing may decide to cancel a promotion scheduled for an item in short supply and rather re-direct the associated spending to items with higher inventory levels. Similarly, the sales force may be re-directed in terms of which products to push into the market. It is clear to see how the inclusion of operations in the planning process increases in importance as a business becomes more constrained by supply. While operations can then provide critical information on product supply, the primary sources of information on the actions that need to be taken to stimulate demand will always be primarily driven by the sales and marketing team of a company.

Forecasting can be a very effective business tool. Its implementation as part of the company's channel strategy offers a number of significant benefits, such as:

i.   Reduced risk accompanied by an increase in certainty of demand. The more information gathered for the forecast (be it by sales and marketing or operations), the lower the risk of receiving unprepared-for orders becomes.

ii.   By planning ahead and being aware of future orders, a company will be able to calculate its needed stock levels. A reduction in inventory levels, which in turn holds significant capital benefits, will be achieved by implementing the information gained through the forecast.

iii.   Fewer staff will be needed to cover demand peaks. If the forecasting system is accurate, increased levels of demand can be anticipated and adequately planned for. The high amounts of money which usually needs to be spent on paying over-time salaries can then be drastically reduced.

iv.   A definite improvement in the visibility of the customer or the end-user's demand can be obtained. By collaborating the research and experience of all divisions (operations, sales and marketing), a better idea can be formed of what the needs of customers will be like in future. This will lead to better planning through the use of an improved forecasting system.

v.   Improved customer service will be a direct result of proper forecasting and planning, since the right product will be available at the right time in the right place.

Even with a proper forecasting system in place, a company may still at some points in time, not be able to cope with situations of exceptionally high demand. Companies who wish never to be in an out-of-stock situation or not have sufficient goods on hand to satisfy a sudden increase in demand, may well be advised to outsource some of their business processes or operations. These out-sourced business processes (such as procurement, assembly, warehousing or distribution) will receive detailed attention in the following chapter.

2.3.2   Static and strategic components

By adding static and strategic policy components to the forecast, it is then possible to build a model of how inventory should flow during a given period. The task at hand is however how to put this theory into practice. The *static* components are relatively simple to determine. They can be assigned quantitative values by answering general questions such as:

- What is the lead-time?
- How often is the order repeated (order frequency)?
- How much is ordered at a time (order quantity)?

Any decent Enterprise Resource Planning (ERP) system will be able to incorporate the above mentioned *static* components into a report. It is, however, the *strategic* policy elements influencing channel decisions that need a lot more thought and proper planning.

Forecasts, lead times, order quantities and other variables will unavoidably and inconsistently change. It is here where the concept and advantages of *safety stocks* come into play. Unfortunately, even if it is possible to provide intelligent answers to the static questions mentioned above, no ERP system will be able to translate those answers into the optimal safety stock level. According to Buys (2000: 1 – 4), in order

to optimise the supply channel, it is necessary to ensure that the least amount of inventory is held - that means just enough to maintain the targeted level of necessary inventory. It is perceived that the better supply chain management solutions will use neural programming techniques to combine the static and strategic components and then calculate the correct safety stock level to which the business must make its replenishment decisions. In later chapters, the functions, goals and advantages of keeping a safety stock will be thoroughly researched.

2.3.3   Benchmarking

In the past it was usually deemed sufficient simply to measure internal company performance. Today, most companies use various tools such as service level agreements (SLA's) and pricing models to ensure that they receive the solutions they require from their strategic partners in the supply chain. A company can, however, never be sure that these measurement tools are in fact in line with industry's best practice. The intense level of competitive activity encountered, especially in the IT market, has led to a new emphasis on measuring performance not just in *absolute* terms, but rather in terms *relative* to the competition (Christopher 1992: 80 – 84). This is where the tool of benchmarking comes into play. Christopher defines competitive benchmarking as 'the continuous measurement of the company's products, services, processes and practices against the standards of best competitors and other companies who are recognised as leaders in the particular industry'. Figure 2.1 on page 24 successfully explains the steps in the generic benchmarking process.

Although benchmarking starts with competitive analysis, it does in fact go far beyond only that. While competitive analysis focuses on product comparisons, benchmarking looks beyond products to the operating and management skills that actually produce the product.

Kunz (2000: 1 – 3) advises that the process of benchmarking should not only be used to define solutions required and measure solutions delivered based on industry's best practice, but also to provide an adjustment mechanism by highlighting company weaknesses that need to be improved. Benchmarking breaks down the paradigm of an ingrained reluctance of operations to change. Tucker, Zivan and Camp (1987: 4) have
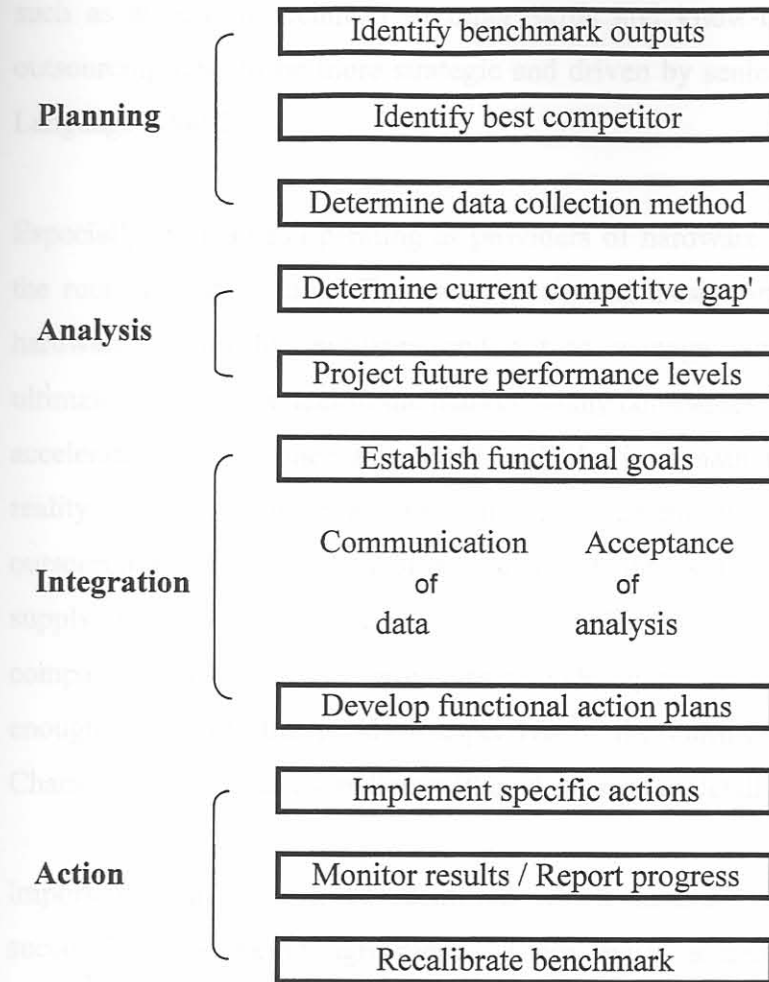
found that people are often more receptive to new ideas and their creative adoption when those ideas did not necessarily originate in their own industry.

Other principles of importance when implementing benchmarking as a channel management tool are:

i. In order to use benchmarking as an adjustment mechanism, it is important that all factors, such as the process or activities to be benchmarked as well as the benchmarking partners are predefined as part of the outsource channel agreement.

ii. It is important to note that benchmarking against companies of a similar size in the same industry is not enough to ensure success - it is also necessary to take into account the unique situations that prevail in a particular given organisation and the industry as a whole. Benchmarking studies are free to search out the 'best of a breed' of a process or skill, wherever it may be found (Walleck 1991: 5).

iii. Benchmarking can be used as a safeguard for both customers and suppliers alike, especially in instances of substantial change to the existing outsource- or service level agreement. This means that the benchmarking tool can be used as a guideline for implementation of the change requirements.

To derive the most benefits from the benchmark tool, it is imperative that it be used in all stages of the company's dealings in the supply chain. Once the requirement versus the industry benchmark is plotted, the company can decide if it wants to outsource or rather perform the function of benchmarking internally. If used correctly, benchmarking will provide an effective and objective tool to maintain realistic standards in terms of channel aspects such as pricing and service level standards.

Figure 2.1   The generic benchmarking process

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                    ┌────────────────────────────────┐
                    │   Identify benchmark outputs    │
                    ├────────────────────────────────┤
   Planning         │    Identify best competitor     │
                    ├────────────────────────────────┤
                    │  Determine data collection method │
                    └────────────────────────────────┘

                    ┌────────────────────────────────┐
                    │ Determine current competitve 'gap' │
   Analysis         ├────────────────────────────────┤
                    │  Project future performance levels │
                    └────────────────────────────────┘

                    ┌────────────────────────────────┐
                    │    Establish functional goals    │
                    └────────────────────────────────┘

   Integration        Communication      Acceptance
                           of                of
                          data            analysis

                    ┌────────────────────────────────┐
                    │  Develop functional action plans │
                    └────────────────────────────────┘

                    ┌────────────────────────────────┐
                    │    Implement specific actions    │
                    ├────────────────────────────────┤
   Action           │  Monitor results / Report progress │
                    ├────────────────────────────────┤
                    │     Recalibrate benchmark        │
                    └────────────────────────────────┘
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Source: Hines P. 1994. Creating world-class suppliers: 200.

2.4   Adding value through outsourcing

2.4.1   Collaborating with strategic business partners

When looking to break away from old business paradigms and move to a more streamlined and ultimately more profitable business alignment, modern companies often choose to outsource their non-core business activities. Maree (1998: 1 – 3) notes that businesses are evolving and becoming more effective in their traditional operations, often opting out of the race to produce everything in-house. Managing all business functions in-house have become so complex and expensive to maintain, that

outsourcing has become a viable option and in some cases, a sure means of gaining a competitive advantage. Previously companies would outsource for tactical reasons, such as a lack of technical or other skills and know-how. Now the reasons for outsourcing tend to be more strategic and driven by senior management (Nowicki in Language 2000:2).

Especially companies operating as providers of hardware and software are following the route of outsourcing. The core function of these companies is to either import hardware or develop software and not to manage the whole supply chain and ultimately get the product to the market. Many companies are increasingly wary of the accelerated obsolescence associated with the information technology industry. The reality of these and other corporate management challenges is what is driving outsourcing trends in the IT arena and this bodes well for IT service providers and supply chain managers. According to Kemp (2000: 1), the caveat is that the sourcing company must find service providers who clearly understand their role and are strong enough to deliver the goods irrespective of the culture of the sourcing company. Characteristics of such suppliers will be discussed in detail in the following chapter.

Important elements can be identified which should be seen as pre-requisites to successful outsourcing agreements. There exists a definite need for accelerated delivery of relevant information to management in order for them to execute timeous, cost-effective decisions. There are many ways in which information can be used, manipulated and delivered. New technologies are constantly emerging that can offer substantially improved cost-to-benefit characteristics. South African companies are only now catching-up to their worldwide counterparts in realising the importance of information as a vital company asset and a core economic enabler of the new millennium (Maree 1998: 2). In the next chapter, the ways in which this information is relayed from the service provider to the client company will be discussed in detail.

The benefits of outsourcing are endless and many authors have listed them in various works (Dash 2000: 8; Language 2000: 1 – 5; Maree 1998:1). Summed up below are some of the main advantages that can be derived from outsourcing non-core activities to strategic business partners:

i.   A stable budget in the form of a negotiated fee structure can be drawn up. When, for instance, a hardware importer outsources the assembly of his end-item, he will receive a fixed quote based on quantities and lead-times, from the chosen business partner. This will allow the importer to include this variable cost into a stable budget.

ii.   Service levels can be guaranteed. The company that spends more time developing the important relationships with its market – rather than performing repetitive administrative or other non-core tasks – is the one that will eventually enhance its long-term value in the eyes of the customer.

iii.   Access to scarce resources and specialised skills can be obtained. A company which possesses the skills to develop software, may not possess the resources or know-how to distribute the software into the market. By outsourcing this non-core business activity, both companies can concentrate on doing what they do best.

iv.   Increased flexibility to accommodate business changes and expansion. When needed, it is easier to change outsourcing partners than changing one's own internal operations.

v.   Most importantly, the ability to concentrate on the business' core functions will be obtained.

However, Dittberner (2000: 1 – 2) warns that outsourcing does not guarantee success. Although outsourcing brings innovation and a fresh approach to all business activities, the need for a cultural fit must not be underestimated. The delivery capability of the service provider needs to be assessed meticulously. Companies will do well to ensure that the outsourcers they select become more than mere solution providers – they must in fact be seen as critical links in the products and services delivered to clients.

2.4.2   Outsourcing integration driven by management

Despite all the movement and changes in the industry, there still appears to be considerable confusion among many IT participants about the best ways to integrate all static and strategic elements in their supply chain. Supply chain management (SCM) is one of the latest buzzword in the IT industry and is said to be saving the industry millions of Rands. However, mechanical principles dictate that any chain is only as strong as its weakest link. In many cases, significant value is being overlooked or simply not being captured. Many supply chain participants are still focused mainly on products and markets (and other *static* elements), meanwhile neglecting aggressive management of the supply chain itself as a strategic source of added value. Others are limiting their integration efforts to quick, tactical solutions, rather than launching more far-reaching strategic initiatives.

2.4.2.1 Management capabilities

A company cannot manage its way in or out of a changing environment, but needs to lead it through innovations and the development of new technologies. However, Behrmann (2000: 1 – 2) offers a note of caution to companies that wish to implement tools which will help them in managing discontinuous change: a sure recipe for failure is hiring only IT specialists to facilitate the adaptation. The process must be business-driven and not technology-driven. Technology on its own does not create wealth or growth or a new mindset, but rather the intelligent use of technology applied to business objectives. Business leadership must thus drive the process and only then allow the technologists to get on with the job of making it work.

According to Useem, professor in management at the University of Pennsylvania (in Kunz 2000: 1 – 2), the new outsource manager will require at least four important capabilities:

i.   Strategic thinking to determine what to outsource and how to add competitive advantage to the business through the outsource deal. As outsourcing develops and changes, both the customer and the supplier or service provider's management will need the skills to facilitate new trends such as risk and

reward programmes, contract interpretation and implementation as well as the constant strategic realignment of the service and the contract.

ii.   The ability to continually negotiate the right deal for the company while ensuring that the deal is in line with internal requirements. The management team needs the necessary experience, leadership skills and theoretical exposure to outsourcing in order to be aware of internal needs and requirements as well as external availabilities.

iii.   Partnership governing is essential to ensure the outsourcing deal works for both the outsourcer and his partners. These days, leading companies are outsourcing for strategic reasons and not simply as a 'quick fix'. This means that the customer's management must be fully informed and the supplier's strategy understood. On the other hand, the supplier's management structure must in turn understand the customer's strategy in order to be able to interpret it correctly. This will cause both the management teams of the partners in the relationship to work together towards achieving the same goals and objectives.

iv.   Management will need change management skills not only to counter employee resistance but also to continuously align the outsource transaction to the business requirements. Initially, business paradigms may have to be changed to allow the acceptance of the outsourcing agreement by management and employees alike.

2.4.2.2 Key success factors

The reality of corporate management challenges is what should be driving supply chain and outsourcing trends in the IT industry (Kemp 2000: 1 – 2) and this bodes well for IT service providers. The caveat is that the sourcing company must find service providers who clearly understand their role and are strong enough to meet all demands. Much has been documented recently about the opportunity of new supply chain execution technologies to provide noticeable cost- and time-savings. Most of these technologies are targeted at reducing the cost of transactions and/or improving the visibility of supply chain transactions and costs. Inventory Carrying Cost (ICC) is

the most obvious tangible goal of a project. (ICC is defined as cost of capital plus variable costs such as shrinkage, damage and obsolescence.) On the other hand, there exists less tangible, but far more strategic project objectives, of which the influence can be just as great. A good example of an intangible goal is service level improvement, in the form of maintaining gross profit by improving customer loyalty. The problem at hand is that it is very difficult to separate the strategic from the tactical (or static) in supply chain optimisation. Many experts believe that failed projects often have their root cause in management's inability to dynamically link strategy and execution (Buys 2000: 1 – 3).

Webb (1999: 1 – 3) lists some key factors which should receive attention in the management of the outsource relationship:

i. Time must be taken to ensure due diligence is performed between the parties. This must include open and honest declarations regarding expectations, goals, targets, costs and service parameters.

ii. The outsourcing company and its chosen supplier or service provider must ensure that their needs and capabilities are matched. Suppliers of goods and services vary widely in their competencies. Care must be taken that the service offering fits the requirements.

iii. Risks need to be determined early on. Some service providers will procure and warehouse their client's components at their own risk. This means that, according to the outsource agreement, they will ensure that sufficient quantities of their clients' stock are available at all times. In order to maintain safety stock levels, they will manufacture or procure components even before an order is placed. Especially with the high rate of obsolescence in the IT industry, this can lead to a situation where large amounts of capital will have to be written-off when components are upgraded or replaced.

iv. Some measure of control needs to be maintained, especially if the service provider is not manufacturing all components in-house, but employing additional sub-contractors to fulfill the outsourcing company's orders.

v. Confidentiality must be a pre-requisite to the signing of any outsourcing agreement. Many companies operating as supply chain or logistic managers in the IT channel have clients which are competitors (for instance different internet service providers such as *MWeb*, *UUNET*, *WorldOnline*, *AfricaOnline* and *IAfrica*). The intellectual property of each needs to be guarded and protected unconditionally.

The concept of SCM should thus extend an organisation's value chain forward to its clients' clients as well as backwards to its suppliers' suppliers (Theron 2000: 1). By linking to these value chains and planning in conjunction and within the context of the supply chain, inventories and work in progress can be driven down, lead times can be optimised and the entire supply chain can be made more responsive to changes in demand or supply. As mentioned before, any chain can only be as strong as its weakest link. If the operations of one or more companies in the chain are not executed properly, it will negatively influence the entire supply chain. The onus therefore lies with management to ensure that the chain has no weak links. Managers need to execute the optimised supply chain plan, manage deviations and make decisions in real time. It can be concluded that the goal of any company operating in a supply chain, must be to achieve negative working capital (i.e. sell and get paid before you pay), together with adhering to service levels that exceed customer expectations.

2.5   Supply chain management

2.5.1   Collaborating the supply chain

2.5.1.1 Present channel inefficiencies

Before examining the best ways in which to manage a company's supply chain, it is advisable to first be aware of the problems that currently characterise the channel. Three major inefficiencies discovered through extensive research are:

i.   Poor integration.

Unlike industries such as food service, consumer packaged goods, automobiles and apparel, the IT industry has not yet matured to very high levels of integration in its supply chain. Inefficiencies are emerging that are preventing potential channel growth. Supply chain inefficiencies in particular, have led to chronically delayed new products, demand distortions, scarcity and allocation problems, inventory obsolescence risks and unpredictable service levels.

ii.   Insufficient channel relationships.

With the current turbulent pace of change, participants in the IT industry are under increasing pressure to identify and exploit new value sources and then add this value to the channel. Relationships among supply chain participants (being the component supplier, the assembler, the distributor and finally the retailer) are currently insufficient to provide the necessary solutions to many of the problems relating to integration mentioned above.

iii.   Rapid and uncontrolled technological growth.

The pressures and tension among IT supply chain participants stem from several sources, most of them by-products of rapid growth which is being fuelled by the current advances in technology. Moreover, consumers are increasingly demanding products with unique configurations, which has resulted in proliferated product offerings. Competitors have become increasingly able to emulate one another within ever-shorter time frames. The result of these trends has been a rapid decline in average selling prices and profit margins. Pedroncelli (2000: 2) confirms these statements by adding that the South African IT industry is now entering a slightly more mature phase, and that one of the effects of this is that margins are dropping as competition in the channel becomes cut-throat. Bigger customers are aggregating their buying power and are putting pressure on vendors to deal with them directly.

To assess ways in which to improve integration and collaboration of the industry's supply chain, *Andersen Consulting* (now known as *Accenture*), in conjunction with two universities in the USA (Stanford and Northwestern) initiated a study of the

worldwide IT industry as a whole (in Gattorna 1999: 188 – 207). The research team undertook a mail survey of more than two hundred companies, site visits to leading companies and secondary research on supply chain performance and financial analysis – providing a comprehensive picture of each segment in the industry. The goal was to understand how companies were integrating supply chains, to identify opportunities for improving performance and value creation, and to define critical factors for successful implementation. Through the research work, it was concluded that the problems discussed above are very real in the global IT industry as a whole. The problems and inefficiencies identified by the international research, were discovered to be just as real and present in the South African IT industry.

2.5.1.2 Possible success factors

In order to deal with rapid technological, commercial and even social change, organisations are being forced to rethink their current business development strategies. Radical adjustments in focus, positioning, product or service development and relational links with trading partners are required to keep the business on course and meet the ever-greater demands of customers. Hughes, Ralf and Michels (1999: 210) have identified a number of critical success factors that will all, to a greater or lesser extent, influence the way in which IT companies eliminate present channel inefficiencies:

i.   Top management involvement.

Top management needs to give direction and be actively involved in orchestrating the overall change program. As discussed above, it is management that needs to drive the move towards outsourcing and supply chain management.

ii.   Setting goals and strategies.

Management needs to develop strategic purpose by setting explicit goals and priorities across all business activities, as well as in dealings with suppliers across the supply chain. An appropriate strategy needs to be determined that will balance the need for business development led by change, together with narrower operational process design.

iii.   Critical success areas.

It is necessary to define mission critical areas such as market management, redesign of supply chains, supplier responsiveness, product development and strategic target costing. Cross-functional and cross-supply chain integration of effort and expertise is then necessary to address these various target areas.

iv.   Segmentation.

The various supply chains and supply processes must be segmented and then resources must be allocated accordingly.

v.   Continuous change management.

The required change management capabilities, such as project management and process measurement, must be strengthened in order for change to occur. This is especially important in companies with deeply ingrained traditional paradigms.

Extensive attention and activity related to improving supply chain integration is becoming a top management priority. The market seems to have realised the immense value that can be added to their own internal business operations by being an active channel member and working closely together with partners, suppliers and outsourced service providers. *BMI-TechKnowledge Group (BMI-T)* is Africa's leading supplier of market intelligence and knowledge-based consulting in the areas of IT, telecommunications and the internet. In a recent article released on the ITWeb (Moller 2000: 1 – 2), *BMI-T* confirmed these inroads made by players in the IT market. Substantial collaboration and integration, both current and planned, is starting to develop among software developers, hardware suppliers, assemblers, distributors and retailers alike.

2.5.2   Supply chain integration

Synchronised supply chain planning is no longer a future promise – it is a reality, if not a pre-requisite, for competitive performance (Hunter 2000: 1). Rapid technological change, ever-shorter product lifecycles and increased supply chain complexity in the IT industry have all compounded the challenge of matching supply

to demand. The industry's changing supply chain structure has created further challenges for supply chain value enrichment. Until the mid-1980's, leading IT companies performed the majority of activities in the chain in-house. During the 1990's however, the industry started to evolve into a networked structure, where many independent companies joined forces to bring a product to the market. A critically under-utilised key to lean inventories and increased market agility is the degree to which supply chain partners collaborate in planning and executing the combination of tasks that bring a product from raw materials to market. According to Harris (2000: 5) the industry is definitely following a consolidating trend, with the market controlled by a shrinking number of players.

In practical terms, even though IT products have short lifecycles, these products tend to have *similar lifecycle trends* over the period from introduction and adoption, to tail-end sales and ultimately very low sales after the announcement of the product's replacement (Buys 2000a: 2 – 3). Software products often tend to replace prior products and in essence are sold or upgraded into the same customer base as the superseding product or version. This lifecycle inheritance implies invaluable corporate experience and knowledge: it almost guarantees consistency, which massively reduces the workload of product managers when new products are introduced into the market.

Linkages among the participants in a company's supply chain are a key dimension of the organisation's overall supply chain strategy. The foundation of a supply chain integration strategy can be formed by answering questions relating to the degree to which the firm should integrate across its supply chain, as well as looking at the alternative types of supply chain integration that are required. Gattorna (1999: 28 – 32) has calculated that supply chain integration can fundamentally be divided into four different forms – information, decision, financial and operational integration:

i.   Information integration enables firms across the supply chain to share useful information. It is vitally important that companies working together in a chain are aware of what the other is doing regarding any new developments, technologies, innovations, marketing campaigns or any other issues that might

influence the relationship between the parties, as well as external relationships with the market.

ii. Decision integration supports the planning and control functions of management across multiple organisations within the supply chain. Once again, this confirms the need for working together and being transparent in the relationship. Continuous communication will be necessary to achieve decision integration in the channel.

iii. Financial integration changes the terms and conditions of payment across the supply chain. A manufacturer may agree to warehouse goods for a specified period of time and then only demand payment from his client when he actually delivers the goods to the reseller. Some manufacturers only demand payment at the time its products are sold *by* a retailer rather than demand payment at the time the goods are sold *to* the retailer.

iv. Operational integration encompasses the sharing of physical and human assets between participants within a supply chain. A manufacturer may provide warehouse space to one or more of its suppliers for the purpose of producing components for the assembly line. Beyond the savings in the fixed costs of warehouse space and equipment, such arrangements enable both parties to respond more quickly to production changes and to reduce overall cycle times and costs.

As an example, the power of aligning supply chain strategy with a company's business strategy can be seen in the success of three major US companies that recently incorporated this approach into their business strategy. *Wal-Mart, Coca-Cola* and *Dell Computer* have all easily outperformed their competitors in terms of shareholder value growth over the second half of the last decade. According to comparisons in the Stern Stewart EVA 1000 Database (in Gattorna 1999: 20), *Dell Computer's* growth exceeded its industry average by more than three thousand percent. The management activities pertaining to an integrated supply chain will be discussed in detail in the next chapter, since it is here where the role of the modern-day *fulfilment house* comes into play. The IT industry has barely scratched the surface in exploiting the available

opportunities and technologies for this type of integration. Close collaboration among supply chain partners will lead to a better alignment and thus enhance the value of the network's combined activities.

2.5.3   Intelligent supply chains

According to Gordon Edwards, Chief Executive Officer of *Logical South Africa*, there will be an increased collaboration between customers, business partners and suppliers in the new digital economy. This trend will lead to the creation of an *intelligent supply chain* that represents both a series of electronic linkages as well as links through e-trading with other virtual supply chain partners.

The idea of an intelligent supply chain is echoed by Dave Morley, sales director of *GE Information Services* (in Edwards 1999: 1 – 2): "The speed of global internet adoption, which took only four years to reach fifty million users, as opposed to radio which took thirty-eight years to reach the same number of users, mirrors the speed with which technology and business is changing around us."

If a company's supply chain is optimised through efficient management, then the needs of customers will be successfully met. This success is however due as much to the supply chain as it is to the company. According to Morley, the degree to which decision-makers buy into the process of collaboration in the supply chain will determine the holistic success of supply chains and e-trading in the new global economy.

Jonathan Thornhill is the national marketing manager at *Bowline*, a South African company operating in the IT supply chain management industry. Thornhill (in Gillingham 2000:17) says that SCM will achieve substantial growth by offering cutting-edge technology and world-class service. Clients of channel management companies are demanding solutions that will add value to their businesses. This can be achieved through a combination of cost-effective and efficient integrated management solutions that are geared to meeting all global operational and logistical requirements.

2.6. Fulfilment

Chiu (1995: 4) from the National Taiwan Institute of Technology in the Republic of China, explains how the heightened intensity of competition is drastically changing the way companies operate their business systems. These changes include the application of the integrated logistics management concept to the analysis and design of their supply chains.

Fulfilment is a new trend in the world of supply chain management. Where in the past, companies were satisfied to outsource merely some of their non-core business operations (*e.g.* warehousing, assembly or physical distribution), fulfilment implies that all the businesses' operational functions are outsourced and handled by only one company - these companies are called fulfilment houses. Fulfilment is a total turn-key solution, where all aspects concerning the management of a new product (from processing artwork and masters of concept products, up to the delivery of the final end-product into the retail channel) is outsourced to one company, the chosen fulfilment house.

Fulfilment thus implies a totally outsourced supply chain. Generally, it is made up out of the following six actions:

- Processing the new product concept (receiving and evaluating the initial masters and artwork).
- Manufacturing or procuring components on behalf of the client, from a variety of resources and suppliers.
- Physical assembly of the new end-item.
- Warehousing of the components or finished goods.
- Physical distribution back to the client, or to the client's client (be it resellers or directly to the end-user).
- Feedback and control initiatives, generated by reports from the Management Information System (MIS).

Fulfilment is as much of a mindset as a reality. It is open thinking about geographies, people, information, markets, cultures and businesses. It is the exploitation of

worldwide markets by large and small businesses, literally anywhere in the world. It is increasingly about the seamless integration of the virtual networks of businesses and collaborators. While not disregarding the need for efficiency, a sometimes contradictory objective, namely flexibility, must also receive attention in the strategic processes performed by the fulfilment house and all other partners in the chain.

The ultimate goal of any fulfilment house is to offer a *total database management solution* to its client. This will mean that the client hands its whole database over to the fulfilment house, for it to manage the whole supply chain operation from beginning to end. Needless to say, a great deal of trust is necessary before this is done (trust in the capabilities of the fulfilment house management, as well as in their information and security systems). The fulfilment house needs to research the various ways in which it will be able to add value and offer a total solution to a potential client's business. Armed with knowledge and a tailor-made turn-key business solution, the fulfilment house can present itself to a new client in order for them to build a long-term, mutually beneficial outsource relationship.

2.7.   Summary

In order to remain a competitive player in the IT market, companies may need to change their set ways and existing paradigms by relinquishing control and outsourcing some of their business operations to strategic partners. It will then become necessary to transform their management teams in order to include the effective management of the total supply chain. It is widely believed that business strategies invariably fail as a result not of their design but of their execution and management. In order to be successful, a strong need for external orientation towards outsourcing and the management of the supply chain as a whole need to exist. Hughes *et al* (1999: 209) have identified a wide array of initiatives that need to be pursued in order to achieve the benefits derived from a responsive outsourcing supply chain management operation:

- Identify and simplify key supply chain processes.
- Eliminate waste and non-value adding operations.
- Rationalise and consolidate the external supply base.

- Minimise stock holding and reduce inventory.
- Shift the emphasis from push and supply to pull and demand.
- Streamline warehousing and distribution.
- Strengthen the information technology infrastructure to facilitate the flows of stock data and sales.
- Reduce lead times.
- Develop capabilities and train the supply base.

Optimising any one of these sub-processes is however most unlikely to make a significant contribution to overall business performance. Equally, addressing only individual activities within a single process, such as sourcing, forecasting or benchmarking, will also have little impact. In order to be successful, transforming responsiveness needs an integrated and holistic approach.