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IT STRATEGY AT THE NATIONAL PORTS AUTHORITY OF SOUTH AFRICA

By

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CONFIDENTIALITY CLAUSE

15 September 2003

TO WHOM IT MAY CONCERN

RE: CONFIDENTIALITY CLAUSE

Due to the strategic importance of this research it would be appreciated if the contents remain confidential and not be circulated for a period of five years.

Sincerely

A. Govender

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DECLARATION

This research has not been previously accepted for any degree and is not being currently submitted in candidature for any degree.

Signed.....

Date.....2003/09/15.....

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ABSTRACT

This study on IT strategy was conducted at the National Ports Authority of South Africa. Firstly literature review was undertaken in the field of Business Strategy and to a larger extent on IT strategy. This culminated in a model that could be used to benchmark against the IT strategy being used at the National Ports Authority of South Africa.

Due consideration was also given to the implementation of strategy in the literature review which could be compared with the implementation of strategy at the National Ports Authority of South Africa.

The company situation was thereafter presented and discussed in context with what was covered in the literature review. An impact study of the IT strategy on the business processes at the National Ports Authority was also conducted. Interviews were conducted to determine what was working well and also what was not working well at the National Ports Authority of South Africa. Finally Recommendations were provided to the National Ports Authority of South Africa on how to improve the business processes and the strategy formulation process.

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Chapter 1 Introduction

1.1 Introduction

A company's strategy consists of the competitive efforts and business approaches that managers employ to please customers, compete successfully, and achieve organizational objectives. Strategy is both proactive and reactive. Because the march of external and internal events make it commonplace to initiate fresh strategic moves and business approaches of one kind or another, an organization's strategy re-forms over time as the number of changes and adaptations begin to mount. Consequently, strategy making is an ongoing process, not a one-time event (Thompson & Strickland, 2003, p17). Many situational considerations enter into crafting strategy. The interplay of theses factors and the influence that each has on the strategy-making process vary from situation to situation (Thompson & Strickland, 2003, p60).

According to the Gartner group, "a strategy takes a vision or objective and bounds the options for attaining it. Without a strategy, all roads lead to the future. With a strategy, a selected set of roads is designated for travel. The value of a clear strategy is that all middle and first-line management, as well as employees, can see where they are expected to go and can focus on the options that are available. Without a clear strategy, enterprises are perceived as being unfocused; employees see inconsistency in the actions taken by management; and a new plan is tried every year."

Strategy management is, without doubt, an art, an abstract art because, most Information Technology strategy documents never manage to develop beyond the initial stages of abstract thinking. Too often declared stratagems are little more than high-level ambitions, or mission statements, painted with an extremely broad brush in many cases (Beveridge, 2002).

Many studies of information systems issues place IS strategy at the top of the list. Improving the planning process for information systems has consistently been ranked as one of the top concerns of IS executives (Wetherbe, 1991).

In today's connected and competitive business environment, Information Technology (IT) is increasingly recognized as a strategic asset that can help companies achieve superior performance and gain competitive advantage. Therefore, IT must be assessed, adopted, and implemented in a manner consistent with competitive needs in order to maintain or enhance market position. In many organizations, IT serves a supporting role in the realization of strategic objectives; in others, it provides a basis for enabling radical changes in strategy. In both cases, the effective management of technological resources is critical for fulfilling the strategic plan of the company.

One of the most significant challenges facing organizations today is the effective alignment of technology with business goals, and the need to connect its future vision with an actionable technology plan for supporting it. Increasingly, business relies on technology to deliver tangible value to every aspect of a company's operations. Cost reduction, cost avoidance and revenue increases are all reliant on technology's alignment with and support of the business vision, goals and objectives. At the same time, companies are confronted with the added pressure of the current environment. Increased budget scrutiny, higher expectations for better security, and performance and efficiency of operations, all require the pragmatic and effective use of technology solutions across the enterprise.

Increasingly, high-level strategic planning is becoming an all-inclusive process, conducted by the senior management team, including the CIO. This is the only way companies will achieve true strategic alignment, with IT at the table helping to shape enterprise goals.

The following methodologies are very useful in formulating an IS strategy:

- Competitive strategy.
- Value Chain.
- Customer resource life cycle (CRLC) &
- Future Perfect

The best way is to build a sustainable strategy model - a tangible definition of the intricate framework of the various factors that influence strategic management. A 'tangible definition,' refers to something that can be physically manifested and manipulated, either in the form of a printed report, or as an interactive computer model on a workstation.

Without a sustainable strategy model, technology investments and management will inevitably suffer from a lack of contextual intelligence, seriously impacting their strategic value to the business.

With a sustainable strategy model, you will have not only a better understanding of the nuances of your current and future operations but also a practical framework for effective dialogue with everybody who is expected to contribute to, or influence, successful strategy delivery.

The IT strategy model is best considered as a three-dimensional structure. But three-dimensional maps are hard to represent easily within a two-dimensional format such as this paper. So we have to logically dismantle the strategy cube to make it easier to understand. The three layers of a sustainable IT strategy model are:

- The foundation layer.
- The management layer.
- The strategic influences layer

Understanding the principle that *everything is connected to everything else* is absolutely essential to effective strategy management and we ignore this simple rule at our peril.

However, in very many organisations, high-level 'strategic' decisions still appear to be made regularly without due regard to the likely impact of change and the effects that this might inadvertently generate.

The following diagram is a high-level representation of the principal connections between the three layers:

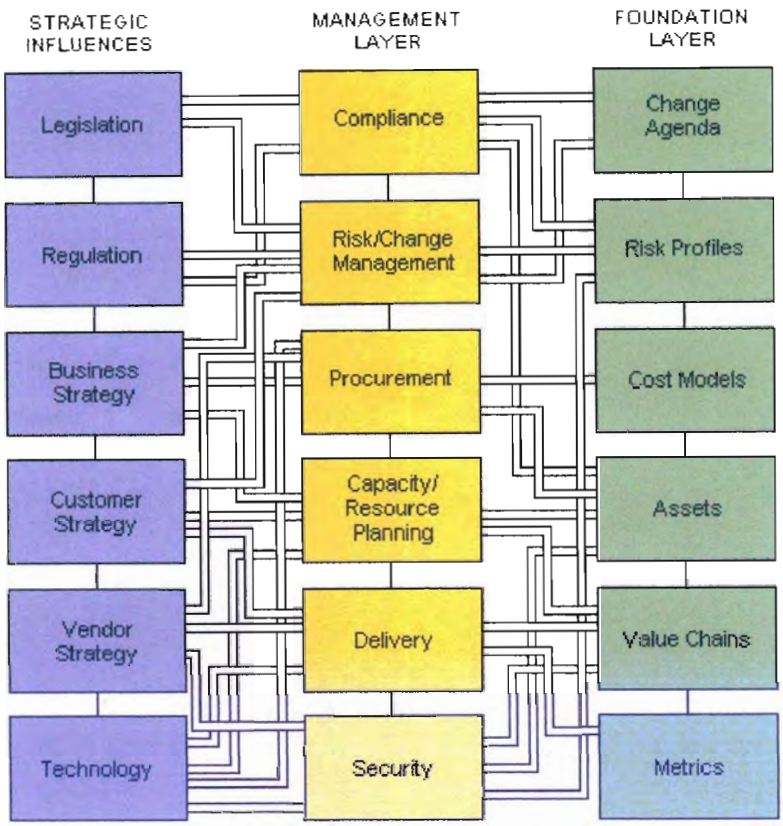


Figure 1.1: Connections between the 3 layers of the Sustainable Strategy Model

Source – http://www.ncc/myitadvisor/archive/issue23

The principle of complete connectivity is fundamental to the Sustainable Strategy Model and the simple device of using primary linkages between layers, supplemented with backbone connectivity within each layer, allows us to create a completely connected model, without becoming totally overwhelmed by showing every possible point-to-point connection.

The three layers (Strategic Influences, Management and Foundation) of strategy components are linked together, thus forming a framework of interconnected relationships - within the model everything is connected to everything else, even if not directly.

While many erroneously believe that the key to competitive advantage lies in defining a blockbuster strategy, the most successful managers recognise that the ability to flawlessly execute strategy day after day and year after year is the real key to success.

It has been suggested that in the face of an increasingly turbulent business and technology environment, the keys to success for the 21st century information technology organization might well lie in its ability to be adaptive, responsive, and aligned to the business needs (Ross et al, 1996). Accelerating pressures to assume the role of a partner, or perhaps even a leader, in driving business strategy is forcing chief information officers to reconsider the role and responsibilities of their information technology (IT) organizations. In today's global and digital economy (Tapscott, 1996), business leaders often look toward IT to suggest new and innovative ways in which internal and external processes might be improved. Indeed, a common view is that IT can serve as a key source of competitive advantage (Ross et al, 1996). As Information technology organizations reposition themselves to become strategic business partners, it is evident that they require a new set of capabilities that will enable and facilitate such a transition (Clark et al, 1997).

The leadership imperative requires managers to alter their leadership behaviors from a command and control approach toward one characterized by collaboration and participation. The movement from command-and-control to collaboration is consistent with many writings that focus on empowering those at the lowest hierarchical levels to be involved in critical decisions. For example, (Seng, 1997), notes that top-down directives do not foster genuine commitment that harnesses the courage, imagination, patience, intelligence, and spirit of the people at all levels of an organization.

Developing new competencies for a new world will not be easy, nor will it be enough. Because the world is changing so fast and so many of the changes are likely to be unforeseen, the relative importance of these competencies will ebb and flow and we can be sure that others will surface. Perhaps an organizations greatest challenge and the one by which its top executives can truly measure success, will be its ability to

continually recognize and develop the as-yet-unidentified competencies that our ever-changing world will demand.

1.2 Research Problem

The National Ports Authority of South Africa (NPA) has recently replaced its legacy systems with Systems Applications Products (SAP R/3), an integrated system that co-ordinates business activities and supports the flow of information across the organisation. Some critical processes remain inefficient even after the introduction of the new system. The aim of this study is to investigate the impact of the Information systems strategy at the NPA on business processes.

1.3. Background of the Study

Organisations that develop incrementally are likely to suffer from strategic drift. Formal evaluation is one way of attempting to minimise this danger whilst acknowledging the preference for incremental or reactive change. It can help to promote learning and communication within the organisation. Many strategic choices are ultimately made by one individual or a small group who have the authority to make such decisions. So the role of the 'analysis' is to 'raise the level of debate' amongst decision-makers.

Many studies of information systems issues place IS strategy at the top of the list. A number of studies have been undertaken at the Wits Business School over the last decade which provide the information systems issues facing South African organisations. IS strategy is a set of decisions made on the direction information systems are to take to support the strategic thrust of an organisation.

The best approach to using methodologies such as competitive strategy, customer resource life cycle, and future perfect is to have an annual planning retreat where senior executives and customers brainstorm to arrive new directions in the application of technology. Strategic IS planning is the process of transforming the organisational strategy set into an IS strategy set consisting of IS system objectives, constraints, and design strategies. Information needs' for top managers can be derived from critical success factors. These are the key activities for any organisation in which performance must be satisfactory if the business is to survive and flourish.

Commercial ports play a crucial role in South Africa's transport system and its economic development, and are therefore treated as strategic entities. Combined with the strategic geographical position of South Africa's coastline, the port system can have a multiplier role on the economy of the country and the Southern African Development Community (SADC) region. From a strategic perspective, the pursuit of government's national port policy is to ensure an internationally competitive port system. Efficient ports are known to be catalysts for increased trade, and thus provide a comparative advantage for international trade.

Today, globalisation pressures make it essential that nations integrate their transport systems into the global logistics network. Ports are naturally being incorporated into this changing system and have to adjust to the new challenges and environment. Government recognizes the strategic value of the commercial ports system in South Africa, in the context of international trade initiatives and the changing global transport environment. It was for this reason that it devised the recent national policy on ports in support of the efforts to improve the functioning of commercial ports.

Ports are integrated and crucial nodal points in a transport system, and play a strategic role in the country's economic growth and social development. By virtue of being part of the transport network, port activity facilitates the meeting of the demand of the international market with means of production available in the country. In other words, the ports system, by virtue of being nodal points in the transport system, facilitates trade, which in turn fosters greater national economic activity. To maximize the benefits alluded to above, the aspects of efficiency and effective management have to be introduced to the transport system.

An efficient port requires not only adequate infrastructure, superstructure and equipment, but also good communications and Information Technology (IT) systems, and especially a dedicated and skilled management team with a motivated and trained work force.

The National Ports Authority will be responsible for the management of the national commercial port system. The Corporate Office is made up of six functional portfolios. However, there are two revenue generating businesses which are represented by the Maritime and Landlord Services which operate through the ports as service delivery platforms. There are three core support portfolios namely Trade and Logistics, Corporate Services and Ports and Corporate Affairs. In addition, NPA has established PORTCON as a revenue generating business and it acts as NPA's international arm which prospects for port business including port operations and advisory services outside South African borders.

Maritime Services is the only business portfolio within the National Ports Authority of South Africa (NPA) that provides operational services. It consists of four business units, namely: Marine Services, Shiprepair Facility Services, Lighthouse Services and Dredging Services. Maritime Services are facing a major challenge of a regulatory and commercial nature. The Ports Bill will introduce a new regulatory and legislative framework which will place certain obligations on Maritime Services. The focus of the regulatory demands will be on safety, whereas there is a demand for the business units to become profitable and sustainable. The balance of these two factors (safety and efficiency) constitute a critical challenge to the business units into the future.

The need for integrated systems to support maritime services remain, the biggest shortcomings in the areas of financial management, computerised maintenance systems as well as human resources. It is anticipated that the implementation of SAP will improve this situation and deliver the required systems focus. It is believed that SAP will also address the shortcomings of the procurement systems of the past.

Some of the critical success factors, risks and enablers are:

Critical Success Factors

- Clear strategic direction communicated to all – customers, suppliers and staff;
- An entrenched performance management system that is IT&S enabled;
- An entrenched project management culture and skills base;

- Skilled and appropriate human resource support functioning in a matrix structure;
- Efficient internal business process support with continuous business re-engineering;
- An in-depth understanding of the South African economy and the role that NPA needs to play to enhance its competitiveness;

Critical Risks

- Misalignment between Government's economic and industrial strategy on the one side, and NPA's business strategy on the other side;
- Diminishing skills and competency base;
- Incorrect business and financial assumptions and planning;
- Availability of finances in Africa to pursue business opportunities;
- South African operational ports performance;

Enablers

- Stable and growing South African economy;
- Port community support and partnership relationship approach;
- Commitment and resoluteness of NPA staff in terms of strategy implementation;
- Customer satisfaction (quality of completed projects and acceptance thereof);
- Growing and diverse NPA market base;
- NEPAD alignment;
- Market intelligence base;
- Stakeholder collaboration;
- Smooth port restructuring;

The future competitiveness of the port system and infrastructure will be influenced by amonst other things, Advances in information technologies and navigational systems. Despite the large-scale security concerns, the IS department is not involved in any security related projects and furthermore a recent audit report has highlighted a serious lack of security measures in so far as the IT systems are concerned.

During Port Authority strategic planning sessions in the last quarter of 2000, the criticality of Enterprise Resource Planning (ERP) became quite evident. With Port Authority poised to tackle the challenge of reduced wharfage whilst being a leader in superior infrastructure development and provision, it is essential that its management information needs must be met to the highest standard. The theorem of "you can only manage what you can measure" holds true to the vision of Port Authority to become a superior business in the South African economy.

As part of the IT strategy, the SAP ERP has now been implemented. However, management claims not to have realized the benefits that were promised. Business processes have not improved but rather gone worse in many instances. There are integration problems between the various modules resulting in many manual interfaces. Legacy systems processes seem to have been implemented with minimal process improvements and it is a nightmare for the NPA to determine that all revenue due by clients has been received, due to inefficient system processes and system integration problems.

The IT department is undergoing a restructuring phase whilst most IT personnel are sitting around without any work. It was initially thought that with the ERP implementation a considerable scale-down of the IT workforce would be realized. However, this has proved contrary to the initial thinking and new structures are in the process of being created.

A CIO has been appointed, and where previously the IT executive was not involved in the business strategy, the CIO now is. A business process improvement and knowledge management structure has been created in addition to an IT structure under the office of the CIO.

Communication is a major problem between management and the IT staff, being reduced to virtually nothing, causing motivation levels and staff morale to be at an all time low.

IT Staff are also not equipped to support NPA's strategic direction in terms of Information systems and technology and the issue of outsourcing the IT function seems to be coming up time and again with no finality or answers to this important issue.

Senior management have currently embarked on a project of high priority, termed SAP business case realisation to try and resolve all of the issues surrounding the SAP implementation. The NPA is also aware that it has other high profile IT projects that are urgently required such as security, port community and CRM, that it has had difficulty for a considerable period of time to get off the ground; some even as much as 5 years now.

1.4 Motivation for the research

The IT department at NPA has been functioning in a reactive mode for the last decade with the IT strategy and the business strategy not in alignment with one another. Furthermore, NPA has no management framework in terms of development of a sustainable IT strategy model.

An efficient port requires not only adequate infrastructure, superstructure and equipment, but also good communications and Information Technology (IT) systems, and especially a dedicated and skilled management team with a motivated and trained work force.

In order for South African ports to become globally competitive, information systems planning and implementation will have to play a more meaningful role in the future.

1.5 Value of the research

Undertaking this study will hopefully reveal weaknesses in the IT strategy formulation process. This in turn could result in recommendations to senior management with regards to improving the Information systems strategy formulation process.

It is further hoped that the study will reveal areas of frustration where staff are unhappy concerning the various business processes which are inefficient. This in turn could lead to a more efficient information systems emergence with the possibilities of increased revenue and cash flow. The findings of this study could also be the basis for further studies in Information systems at the NPA.

1.6 Problem Statement

What is the impact of the Information Systems strategy at the NPA on the existing business processes?

1.7 Research Objectives

The objectives of the study can be defined as follows:

- To investigate the impact of the Information systems strategy at the NPA on business processes.
- To make recommendations to senior management with regards to improving the Information systems strategy formulation process.

1.8 Research Design and methodology

In analysing this study a case study method will be used, as the study is more exploratory. The busiest port, which is the port of Durban, will be chosen for the study. The study will be confined to only two locations namely, the port of Durban and Johannesburg (Head Office).

Key staff members at these locations will be interviewed with the aim of understanding the various problems encountered. Finally secondary data from texts, journals and the Internet will be consulted and used to make recommendations in so far as improving the Information Systems Strategy at the National Ports Authority of South Africa.

1.9 Limitations

Due to financial and time constraints, only the Port of Durban and Johannesburg has been chosen for this cross-sectional study. Only key system users will be identified and interviewed and the study will therefore not be comprehensive in the sense of looking at all business processes within the NPA. Furthermore within these locations no financial information will be made available or analysed.

1.10 Structure of the Study

The study will be structured into four remaining chapters as follows:

Chapter Two will concern itself with a literature review concerning strategy in general before embarking on a more detail study on IT strategy and implementation.

Chapter Three introduces the South African Ports and the role of the National Ports Authority (NPA) in the ports system prior to sailing into the difficulties and challenges that faces the NPA.

Chapter Four connects the discussion from chapter Two and chapter Three through the use of the Interviewing research methodology.

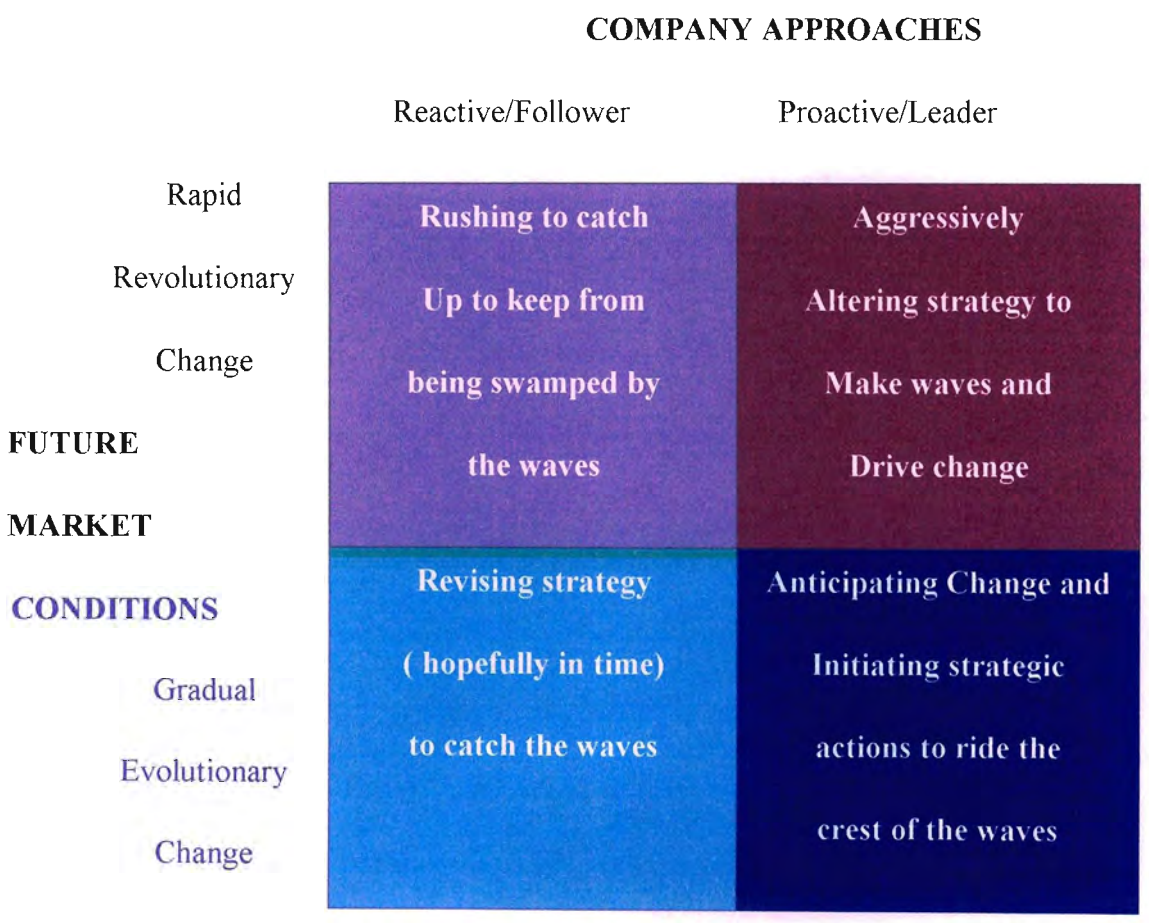
Finally Chapter Five concludes with recommendations to the NPA in terms of improving business processes and the IT strategy formulation process.

CHAPTER 2 Business & IT Strategy

2.1 Introduction

A company's strategy consists of the competitive efforts and business approaches that managers employ to please customers, compete successfully, and achieve organizational objectives. Strategy is both proactive and reactive. Because the march of external and internal events make it commonplace to initiate fresh strategic moves and business approaches of one kind or another, an organization's strategy re-forms over time as the number of changes and adaptations begin to mount. Consequently, strategy making is an ongoing process, not a one-time event. Figure 2.1 illustrates the strategic postures a company can adopt in preparing for future market conditions and coping with the waves of change in the marketplace (Thompson & Strickland, 2003, p17).

Figure 2.1: Strategic Approaches to preparing for Future Market Conditions



Source: Adapted from Derek F. Abell, Sloan Management Review 40, p. 75

The starting point for formulating your strategy is not your company or your competitors. Far too many companies begin by looking internally, while keeping one eye on the competition. But neither actions are the ultimate arbiter of your fate – the world is. Economic, social, technological and other powerful forces occurring in the world will determine the shape of your industry and the future of your business. Those are the forces that should drive your vision, and they do not originate inside your company. Moreover, they dwarf any single corporation.

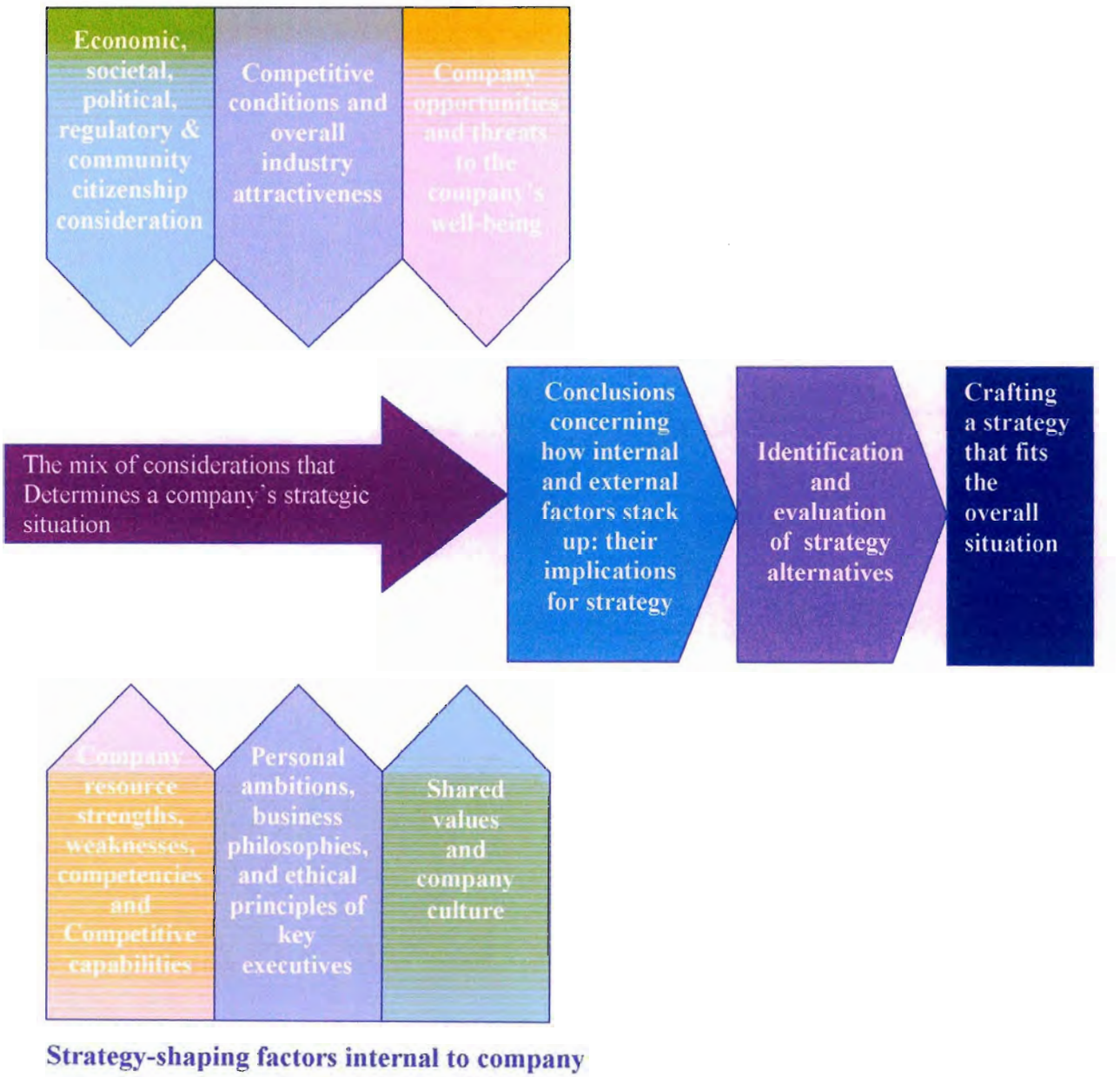
Some years ago, Bill Gates warned his colleagues at Microsoft – a seemingly invulnerable company with a lock on the future – that the firm must confront the coming Internet "tidal wave". It is an apt comparison. The forces in the outside world are like enormous waves threatening to engulf your industry and your company. It is at those oncoming waves that you should look first, not at your particular boat bobbing in the water.

The ability to respond to emerging issues requires more than just flexibility within the organization. Richard Pascale uses the term "agility" to describe the "the sustainable capacity for change". Agility carries connotations of poise and balance, as well as flexibility and responsiveness. It suggests that emergent strategy requires considered managed change, which is equally mindful of the need for continuity. Above all, organizational agility requires managers never to think they have finally "got it right" (Pascale, 1996).

2.2 Factors that shape a company's strategy

Many situational considerations enter into crafting strategy. Figure 2.2 depicts the primary factors that shape a company's strategic approaches. The interplay of theses factors and the influence that each has on the strategy-making process vary from situation to situation (Thompson & Strickland, 2003, p60).

Figure 2.2 Factors Shaping the Choice of Company Strategy



Source: Adapted from Thomson & Strickland, Strategic Management, p. 60

2.3 IT Strategy

In today's connected and competitive business environment, Information Technology (IT) is increasingly recognized as a strategic asset that can help companies achieve superior performance and gain competitive advantage. Therefore, IT must be assessed, adopted, and implemented in a manner consistent with competitive needs in order to maintain or enhance market position. In many organizations, IT serves a supporting role in the realization of strategic objectives; in others, it provides a basis for enabling radical changes in strategy. In both cases, the effective management of technological resources is critical for fulfilling the strategic plan of the company.

As technology continues to evolve at a rapid pace, many organizations feel rushed to implement IT applications in a patchwork manner in order to resolve near term issues. This often results in an increasing number of stand-alone IT applications without any direction aligned to organizational goals. With medium to large enterprises, the problem can grow to where each strategic business unit has a unique IT and implementation strategy. This will often lead to a haphazard solution with incompatible technology and isolated functionality.

On a basic level, IT strategy provides an organization with a plan on how to leverage technology to effect corporate strategy, and make the best possible choices regarding where the IT effort and resources should be applied. IT strategy also ensures that optimum advantage is obtained from the incorporation of updated technology.

Given that the constant evolution of an organization's IT environment is critical to the continued success of that business in the global marketplace, getting out of step with technology can trip up even the most established company. Remaining doggedly focused only on tactical issues, struggling to update legacy systems and architectures and generally being unable to react and adapt in "Internet-time" can spell disaster.

A clearly articulated IT strategy must set the philosophy and direction for the use of IT by an enterprise, at present and going forward. A good strategy considers the enterprise's

business environment - the changes that are imminent in its market and within the organization itself. Good IT strategy also addresses the technology that will be deployed to capture value.

After evaluating the existing enterprise environment, many variables, such as anticipated growth rates and sources, can be plugged into the IT strategy equation. Other variables include necessary performance enhancements like speed of operations, quality, improved service levels and provisions for improved use of resources and advanced technology. In some cases the innovative use of technology can be revolutionary versus reactionary, eliciting a dramatic change in the very basis of competition. A visionary strategist can examine current technology and architecture, weigh the appropriate variables, add the enhancements that are necessary to return the required business value, and from there predict the economic return, business impact, and relative risk associated with an IT initiative.

2.4 Strategizing about the role of IT

Strategizing about the role of IT in business has been a roller coaster during the past couple of decades. The ride really started in the early 1980s, when academics and consultants discovered a few managers who had—consciously or not—built their competitive strategies around key IT applications. Maybe you remember: American Airlines and United Airlines had their reservation systems. American Hospital Supply had its online ordering system. Frito-Lay had its handheld devices for the sales force. The realm of strategy as killer app lasted until 1990 when reengineering reared its head. For the next five years IT strategy would consist of redesigning business processes around the capabilities of technology. In the mid to late '90s, new strategic thrusts came quickly: ERP, knowledge management, CRM. Late in the decade, IT strategy effectively became e-commerce strategy, or e-strategy. The only thing that mattered was how the Internet affected your business.

Today we realize that, just like every previous strategic emphasis, e-commerce can't do all the heavy lifting. The most aggressive adopters of the Internet, as any burned

stockbroker will admit, haven't necessarily been successful in gaining profits or market share. Sure e-commerce is important, just like all of the other IT-enabled strategic opportunities that preceded it. Perhaps it's even the most important of them all. But by itself, it's not enough.

There is evidence of technology's potent effects, and they lie in the continuing success of the companies that use them well. Think about it. Do you know of any companies that invested long term in IT that have gone out of business? In airlines, United and American have long been the IT innovators, and they're the largest companies in their industry. In parcel delivery, FedEx has been an IT pioneer from the early days, and the resulting prosperity has been dramatic. UPS was originally quite weak in IT but then made a major strategic shift and invested heavily in technology for more than a decade. It's no coincidence that UPS has become the primary delivery channel for Internet-procured parcels. In banking, State Street has pursued a technology-intensive strategy in its global custody business since the late 1960s when Bill Edgerly came to the company from IBM; it's been more consistently profitable than any other U.S. bank. Then there's Wal-Mart. And H.E. Butt Grocery and Wegmans Food Markets in the retail grocery industry. USAA and The Progressive Corp. in the insurance industry. Dow Chemical in chemicals. BP in the oil business. All of these companies have built their IT capabilities for the long haul, and their strategies have been much the better for it. All that suggests it can take a while to build an effective IT strategy, and in fact it does. But that doesn't mean new players can't emerge. Cisco Systems is a great example. It's got a hot product in Internet telecommunications equipment. But it's also the best example of how to use both front-office Internet and back-office transaction systems in running a business. And it never stops looking for new ways to innovate with technology.

Other newcomers to the IT-enabled strategy club are General Electric and Harrah's Entertainment. At GE, technology wasn't initially high on CEO and Chairman Jack Welch's list of management tools, but he's discovered it with a vengeance. He says that "digitizing" GE's business was the most important thing the company did and has vowed to keep major investments even through an economic slowdown. At Harrah's, the senior

management team—and particularly COO Gary Loveman—has been overseeing the development of an incredibly powerful marketing machine powered by database marketing, CRM, yield management and high-powered analytics. The company is now managing to attract customers without building the mind-boggling expensive casinos you find in Las Vegas today. And its financial performance is way up during the past couple of years.

What do these companies have in common? Their approaches compose the new IT strategy.

Put your money where the money is. These successful companies make their IT investments in the core of the business, consistent with their product and service strategies. In almost every case, there's a link between the technology and something the customer can see and buy.

Not always first, but always committed. Successful IT strategists aren't necessarily the first movers on a new technology or IT-related management idea. Wal-Mart and USAA were slow out of the box with their Web capabilities, but they came on strong and will last. A hallmark of good IT strategy is long-term commitment—across generations of new technologies and managers. You can bet that Jack Welch has schooled his successor, Jeffrey Immelt, on the importance of IT to GE.

Maestros in the boardroom. These long-term, committed managers might be called maestros. The term comes from a book called *Waves of Change,* based on the early history of strategic IT, most of the research for which was done by Duncan Copeland. A maestro knows the business goals and enough technology to understand how it can advance the strategy. He also orchestrates the business and technological changes over the long term to bring about a transformed organization.

No killer app. The new IT strategy is a synthetic strategy that draws on multiple technologies and management approaches, not just one. The company that's excellent at

IT strategy today must excel at ERP in the back office, CRM and e-commerce in the front office, as well as data warehousing, mining and KM. Virtually every key process—internal and interorganizational—has to be reengineered through IT. Cisco was one of the first to successfully connect its ERP system with the Internet and has since added substantial CRM capabilities for customer service and an extensive portal for internal and customer-oriented knowledge management. Even with its lead, the company never rests: It recently went through another round of reengineering key processes to make better use of available technology.

It's the information, stupid. Smart IT executives are really smart information executives. They know that all the IT in the world is useless unless it facilitates people using information to make better decisions or take actions that are in the interests of customers. The Earthgrains Co., a company that turned itself around with the help of a new ERP system, really prospered on the basis of the philosophy of Division President Bill Opdyke: "In God we trust; all others bring data."

Of course, it's still important to come up with a great strategy. But for many of these companies, the high-level strategic intent is fairly obvious. What's important is a smooth conceptual flow among the intent, the company's business model, the information it needs to pull it off and the technologies that generate the needed information. Once the concepts are in place, the long-term work of implementing a great IT-enabled strategy can begin.

2.5 Business Drivers

One of the most significant challenges facing organizations today is the effective alignment of technology with business goals, and the need to connect its future vision with an actionable technology plan for supporting it. Increasingly, business relies on technology to deliver tangible value to every aspect of a company's operations. Cost reduction, cost avoidance and revenue increases are all reliant on technology's alignment with and support of the business vision, goals and objectives. At the same time, companies are confronted with the added pressure of the current environment. Increased

budget scrutiny, higher expectations for better security, and performance and efficiency of operations, all require the pragmatic and effective use of technology solutions across the enterprise.

These issues, as well as external market drivers, such as increased merger activity and more stringent regulatory r eporting requirements, all drive the strategic application of technology to deal with resulting impacts such as redundant data, disparate systems and the need to demonstrate tangible financial results.

All the articles being written about the importance of aligning IT strategy with business strategy probably demonstrate that something's still amiss. At the same time, current thinking on the development and alignment of strategy is changing. The days when senior management formulated the business strategy and then handed it over to IT to align with are, thankfully, starting to fade. That's a reactive approach and one that is actually the crux of many alignment problems. If a CIO is still waiting for the business plan to arrive before starting to work on developing the IT strategy, he's arguably already behind.

Increasingly, high-level strategic planning is becoming an all-inclusive process, conducted by the senior management team, including the CIO. This is the only way companies will achieve true strategic alignment, with IT at the table helping to shape enterprise goals. And perhaps alignment is no longer even an appropriate concept. In this context, congruence or co-evolution may be more appropriate.

2.6 Co-strategy development

The process of co-strategy development is the approach taken by pharmaceutical manufacturer AstraZeneca. CIO Robert Cohen, who spoke at a recent CIO Perspectives Conference in California, said, "the next stage of business and IT strategic development—co-evolution—is critical. The business strategy shapes the IT strategy and the IT strategy in turn shapes the business strategy." AstraZeneca's vice president of marketing, Richard Fante, who presented jointly with Cohen, agreed, and emphasized "that cooperative strategic development is now an integral part of the company's planning

process."

It is vital for IT to be in the loop during strategy development, to ensure that all parties know when the technologies do or don't exist to meet the organization's requirements, and to ensure that the implications of the various business units' proposals are identified and considered during the planning process. Take the case of an insurance company whose directors are planning to grow the business by 10 percent over the next year by offering Web-based services. They need to know if the infrastructure exists to support that service and, if it needs to be built, how long it will take and how much it's going to cost to implement and support. In many organizations, it's the enduring distinction between the business and IT that still seems to be at issue. IT can't be separated from the business—it's a vital, core business function in most organizations. For the collaborative strategic approach to work, much hinges on the quality of the CIO's relationships with the CEO, the executive team, and the business unit managers. To effectively contribute to the development of business strategy, the CIO must work closely with the business unit managers to understand the directions they are taking. They, in turn, need insight from the CIO about current directions in technology.

Without IT at the table during the formulation of business strategy, horror stories will continue to abound about disconnects occurring between IT and the business, and about what happens when technology decisions are made by executive management in absentia. When decisions are made without a firm grasp or appreciation of the enabling technologies, you can bet that project budgets will blow out, user expectations won't be met, and the organization will be left with half-baked solutions. Formulation of a business strategy should represent the collaborative efforts of the whole executive and management team, with the CIO adding insight about technological directions and innovative ways technology could be used to add value and provide competitive advantage. With a collaborative approach to strategy development, aligning IT strategy with business strategy isn't a separate exercise—it's already part of the plan.

2.7 Developing an IT strategy

The pressing issues in the typical day of IT staffs, such as constantly responding to and resolving critical system and network events, set up a situation where many IT staffs are forced to " live in the moment. " For some IT administrators, there simply isn't enough time in the day to think about much else except immediate problems.

While most IT staffs, at one time or another, have had to temporarily tolerate this situation out of necessity, it's a big mistake to fall into this pattern for an extended period of time. Periodically, IT management and staff must take a step back from their daily routines to survey where IT is and where it's headed. This is such a simple concept -- yet in many cases, difficult to do.

Organizations probably already have processes in place to plan for technology procurements, budgets, staffing and the like. IT staffs must carefully consider the technologies looming on the horizon and decide which of those will have a major impact on the future of their company's IT environment. Of course, this will differ depending on the direction of the company and the vertical industry in which it operates. This " forward thinking " must then be translated into plans for moving the company's IT infrastructure into that direction.

Networks can't be totally upgraded and overhauled en masse, so network and systems administrators must methodically upgrade their networks for their future needs. These plans could be as aggressive as a replacement of network switches and routers, or as simple as methodically replacing technology through planned obsolescence.

In today's market, some of the technologies looming on the horizon that may affect an IT organization's direction are wireless device management, voice over IP, streaming media, and policy-based network management. These technologies are not yet widely accepted or deployed in the real world, in spite of the hype that these technologies have been receiving in the press lately.

In order to support these technologies, there are changes that must happen in the network. For example, to support policy-based network m anagement, network devices must be

enabled with IEEE 802.1p and 802.1Q. In addition, policy-based management will be important for companies that have requirements for streaming media or voice over IP, because of the high bandwidth and variable requirements of these applications. So if a company is moving in that direction, it faces an upgrade of its existing network devices. This is something that can be done more easily in a controlled fashion, such as buying the IEEE 802.1p and 802.1Q devices for any new equipment procurements, or methodically replacing aging equipment with the newer devices.

Just waiting until the market sorts it all out before spending a dime on any of those newer technologies might in some cases be the prudent thing to do, especially if the standards have not yet been worked out. But in other situations, waiting it out may cost your company more money in the long run and may cost your company its competitive edge. If a strategy is in place, then the company can justify the costs and buy new equipment that has the desired features. If a strategy is not in place, in these times of shrinking IT budgets, the firm may decide to buy the cheapest devices rather than the devices that have the required features for the future needs of the company. Although the cheaper device might look like the right decision for the company, that device will have a much shorter useful life, causing the company to pay more than if it had purchased the proper equipment in the first place.

On the other hand, there's a need for caution. It's not in the best interest of your company to chase after every new technology, since this can cause the company to invest in technologies that will never be adopted by the industry. However, savvy administrators and managers can make sure that their company is at the leading edge, with a little foresight and planning. It's better to be a wise visionary rather than a follower.

A comprehensive IT strategy allows the organization to:

- Leverage technology to meet specific business needs and goals.
- Achieve more efficient and effective operations by gaining a clear articulation of strategic options, as well as associated cost/benefit analysis and organizational impact assessment for each.

- Reduce costs, minimize risk and better leverage available resources by considering both short- and long-term options.
- Maximize value derived from technology solutions by identifying potential new technologies that meet business needs and goals.
- Accelerate implementation of the strategy by having a clear roadmap of the recommended architectures and an implementation plan.
- Reduce redundant processes by maximizing value derived out of technology investments.

Before launching into a deeper look at IT strategy, a working definition of "strategy" must be established. According to the Gartner group, "a strategy takes a vision or objective and bounds the options for attaining it. Without a strategy, all roads lead to the future. With a strategy, a selected set of roads is designated for travel. The value of a clear strategy is that all middle and first-line management, as well as employees, can see where they are expected to go and can focus on the options that are available. Without a clear strategy, enterprises are perceived as being unfocused; employees see inconsistency in the actions taken by management; and a new plan is tried every year."

The shifting base of competitive advantage is a natural byproduct of the shift from the industrial economy, where effective deployment of capital was key to success, to the information economy, where information is the key. Yet few executives have shifted their thinking to focus directly on the information they must dominate in the 21 st century (McGee and Prusac, 1993).

The following methodologies are very useful in formulating an IS strategy:

- Competitive strategy.
- Value Chain.
- Customer resource life cycle (CRLC) &
- Future Perfect

2.7.1 Competitive Strategy

Much of the current work on the strategic use of Information systems has evolved from Michael Porter's work on competitive strategy which does not focus specifically on IS strategies but rather on general corporate strategy. However, Porter's competitive strategy framework is particularly useful as a means to determine how IS can contribute to corporate strategy. Competitive strategy identifies five major competitive forces faced by all organizations.

1. Threat of new competitors.
2. Intensity of rivalry from existing competitors.
3. Pressure from substitute products.
4. Bargaining power of buyers.
5. Bargaining power of suppliers.

IT can be used to change the balance of power among these five forces. For example, IT can raise barriers to entry by increasing economies of scale, increasing switching costs, differentiating a product or service, or limiting access to key markets or distribution channels. Porter proposes that organizations wishing to gain strategic advantage should consider building defenses against competitive forces by formulating specific courses of action that can directly influence them. Three generic approaches that an organization may use to formulate a competitive strategy are:

1. Be a low-cost supplier. Information systems technology can be very helpful by reducing clerical, scheduling, inventory costs and so forth.

2. Differentiate products or services. Information systems technology can help by adding features to product and services.

3. Focus on a specialized niche. Information systems technology can help by identifying specific customers with specific needs.

Using IS for strategic advantage is through differentiation, and to create product niches. Additionally, cost reduction can be a useful by-product of the innovative use of

technology. IT can be used in all firms to enhance operations; it is also a core differentiator and strategy enabler. There is no need for a firm to adopt leading-edge technology, but it is inexcusable not to be aware of its possibilities. Based on Porter's work, the following questions can be used to generate strategic ideas for the use of information technology.

- Can IT build barriers to entry? - A successful entry barrier offers not only a new product or service that appeals to customers but also features that keep the customers "hooked." The harder the service is to emulate, the higher the barrier to entry. When firms continue to innovate, enhancing the original product and adding value to the services, competitors not only have to catch up, but also have to catch a moving target.

- Can IT build in switching costs? – Are there ways to encourage reliance on IT-enabled products and services? Can industry participants be encouraged to embed these products and services into their operations in such a manner that the notion of switching to a competitor is extremely unattractive? Ideally, an IT system should be simple for the customer to adopt at the outset, but then, through a series of increasingly complex - yet very valuable - enhancements, the IT system becomes tightly intertwined with the customer's daily routine.

- Can IT change the basis of competition? – This occurs when a firm uses IT to radically change either its cost structure (cost advantage) or its product/service offerings (differentiation advantage). Dramatic cost reduction can significantly alter the old ground rules of competition, enabling companies to find strategic opportunity in the new cost-competitive environment.

- Can I T change the balance of power in supplier relationships? – I ncreasingly, companies are using IT to link suppliers and manufacturers; by improving information flow, they are able to decrease uncertainty, and, in the process, reduce inventory, cut the number of warehouses, and decrease headcount while also

streamlining the production process. In some cases, they have been able to pass inventory responsibility and its associated responsibilities from one player in an industry value chain to another.

- Can IT generate new products? – IT can lead to products with a higher quality, faster delivery, or less cost. Similarly, at little expense, existing products can be tailored to meet a customer's special needs. Electronic support services can also increase the value of the total package in the consumer's eyes.

2.7.2 Value Chain

An effective way to search for potential IT opportunities is through a systematic analysis of a company's value chain – the series of interdependent activities that bring a product or service to the customer. Information system technologies can introduce significant efficiencies in a firm's primary activities i.e. inbound logistics, operations, outbound logistics, marketing & sales and after sales service. IT can also dramatically enhance co-ordination and transform support activities i.e. Infrastructure, Human resources, Technology development and procurement.

2.7.3 Customer Resource Life Cycle

The customer resource life cycle (CRLC) is an innovative framework (Ives & Learmonth, 1984) that focuses directly on the relationship with the customer. The idea behind CRLC is that an organization differentiates itself from its competition in the eyes of the customer. Therefore, concentrating on the relationship to the customer is the key to achieving a strategic advantage. CRLC postulates that the customer goes through 13 fundamental stages in its relationship with a supplier and that each stage should be examined to determine if information systems can be used to achieve a strategic advantage.

2.7.4 Future Perfect

Future perfect, (Davis, 1987), is a simple yet powerful concept. The basic tenet of future-perfect vision is that technology is getting better and better, which means that business

processes can get better and better. Taken to its logical conclusion, technology will get perfect. Companies should therefore develop a business vision of perfection. What does "perfection" look like? Customers get what they want anytime, anyplace, and anyway they want it.

Combining the concept of "perfect" with the customer resource life cycle yields an additional framework based on the matrix shown in table 2.1 below.

	ANY TIME	ANY PLACE	ANY WAY
1. Establish customer requirements.			
2. Specify customer requirements.			
3. Select a source.			
4. Place an order.			
5. Authorize and pay for goods and services.			
6. Acquire goods and services.			
7. Test and accept goods and services.			
8. Integrate into and manage Inventory.			
9. Monitor use and behavior.			
10. Upgrade if needed.			
11. Maintain.			
12. Transfer or dispose			
13. Account for purchases.			

Table 2.1 – Framework formed by the customer resource life cycle & future perfect

The matrix offers a way to pinpoint areas where technology can be applied for competitive advantage. Different areas are addressed at different times on an ongoing basis, thereby forming a continuous improvement process. Using the matrix, an organization can define specific areas of competitive advantage in each cell of the matrix and assess the organization's performance in each of them. Each cell can be proportionally shaded in, according to its status. The objective over time is to have every cell completely shaded in.

The best approach to using methodologies such as competitive strategy, customer resource life cycle, and future perfect is to have an annual planning retreat where senior executives and customers brainstorm to arrive at new directions in the application of technology.

2.8 The Gartner Strategy Model

What do models have to do with making decisions? Models are approximations of reality. They are used to quantify potential results to help make educated decisions.
With so few usable enterprise strategies, what is the IS organization to do? To start, one must look at what the IS group delivers and recognize that it engages in two distinct activities that, although linked, have very different objectives. Gartner has created a model for constructing an IT strategy, which contains the following six building blocks:

- Business strategy
- Applications
- Operations
- Architecture
- Financial tools
- People

A business strategy must be the starting point for developing an IT strategy, regardless of whether one already exists or must be created. The IS group is involved in two

"businesses" — applications (delivering and maintaining) and operations. That is what the business sees, but all too often the picture is blurred. By creating a distinct strategy for each component of the IS group, the business can clearly discern each component's value propositions.

Two support tools are key for developing a strategy — architectural and financial. Architecture sets the boundaries for IT decision-making options, while financial tools are used to choose the appropriate option — that is, how to go about planning and executing the strategy. Both tools are exposed to the business and form an essential part of the language for discourse.

The last component of the strategy model is people. The people component — which is internal to the IS group — is concerned with delivering sufficient resources to perform the work.

A key aspect of this IT strategy model by Gartner is that it frames the discussion of IT with the business in strictly business terms, making it clear how the business side's decisions can affect its own operations and underlying costs. Once the business understands the value proposition and how it can control it, its support of IS strategies will become more solid.

A discussion follows of the six building blocks that comprise the IT strategy model.

2.8.1 Business Strategy

Gartner examines business strategy by asking two questions:

- What are the essential components of all IT strategies?
- Where should one look in real or derived business strategies for specific answers to how to structure these strategic components for your enterprise?

The five necessary elements for all IT strategies are:

- IT infrastructure: This represents all of the IT components (hardware, software operating system/components and networks) necessary to deliver an operating environment for all enterprise processes.
- Service: This is how the IS group delivers on the operating environment, what the business units (BUs) are buying on a daily operational basis. The most common definition for delivery is a service-level agreement.
- Application portfolio change: This element concerns how legacy applications will change.
- Business process integration: With the emergence of virtual business models and the use of external sourcing, the need to tie together a diverse set of applications has become more important.
- Sourcing: This element addresses securing the resources necessary to handle strategy execution and management.

To determine the nature of how business strategy or operation affects the IT strategy, seven business strategy factors must be examined:

- Geographic: What is the enterprise saying about how it will be physically structured? This will affect how the infrastructure will be deployed and how it will best provide service. Application change and integration take on different levels of complexity as the geographic parameters expand.
- Governance: This is at the core of defining the enterprise culture. How decisions are made will affect how all five IT components are implemented.
- Future: How clear is senior management in talking about the future? A longer-term vision makes it easier to evolve a set of options.
- Existing IT: What is the business saying about its core business processes, and how much change is being contemplated? A balance must be struck between breaking new ground and sustaining legacy applications.

- Virtual: It's clear that business models will become more "virtual" in the long term. Yet, there will be problems along the way. The extent to which the business model becomes virtualized will determine how IT architecture evolves and which applications remain internal and which are outsourced.
- Customer: This is about the customer interface and how integrated the applications will become with the customer. Just saying "we will pay attention to our customers" is not sufficient.
- Funding: This is where the enterprise truly shows its commitment to change.

2.8.2 The Two IT Strategies: Application Change and Operations

The elements for creating the two IT strategies will be determined by an analysis of the intersections of the five IT components and the seven business strategy sources. The IT components of infrastructure, service and sourcing serve the operations strategy. Applications, integration and sourcing serve the application-change strategy.

The application-change strategy focuses on how the enterprise sees itself in the future. If the enterprise has developed a picture of how it wants to evolve, building an IT strategy to match that vision is rather straightforward, and the value of that strategy will match what the business sees as IT's value proposition. With little or no IT strategy, the resulting portfolio of application changes will still satisfy the business's needs, but will be very inefficient from an IT perspective. The BUs will be paying a premium IT expense compared to competitors that have developed sound IT strategies. The dialogue is to make sure the BU sees the cost of that inefficiency as a byproduct of its decision making.

Gartner recommends that an operations strategy be based on a service model. At the heart of an operational-level service model is the simple premise that approximately six core service processes define everything that the operations group does. The BU manager sees those services and understands their necessity to his or her own operation. The dialogue between the IS organization and the BU is all about the services that the BU needs — that are priced at service levels that they can afford. The operational-level service model opens up competition with outside organizations that also provide such services.

2.8.3 IT Architecture

Architecture is too technical for many business executives to understand. Most executives equate the level of IT needed to operate a complex enterprise with the ease of PC use. Such misunderstanding historically has resulted in dysfunction for many enterprises. Discussing architecture with senior management can be enhanced by using two readily understood concepts: complexity and cost.

Complexity gains added relevance through the concept of reliability. To determine the reliability of IT infrastructure, one must calculate a final probability by measuring and multiplying a ll t he unde rlying p robabilities t hat go int o e nsuring s mooth IT de livery. With so many variables, obtaining a probability of more than 99 percent becomes very costly.

The cost to operate an infrastructure is directly proportional to the level and complexity of architectural decisions being made. To determine the cost for your IS organization, you can develop several scenarios that posit an environment, which then is simply "costed o ut." An alternative e xample w as de veloped us ing t he G artner T otal C ost o f Ownership Manager for Distributed Computing tool. Using the tool, one can define alternative operating environments and derive the costs for each. The cost differentials for a sample midsize and large enterprise conservatively amounted to 20 percent and 12 percent, respectively. Gartner budget surveys place operating expenses at 60 percent to 70 percent of IT annual budgets — that is a material amount that is bound to get a CFO's attention.

2.8.4 Financial Tools

Creating and managing a strategy requires a consistent methodology and a set of tools. Those tools range from simple, decision-making tools like payback period to advanced ones like real option valuation. There is no single best tool; each one serves a subset of problems. It is essential to make sure that the tool matches the decision or uncertainty needing resolution.

2.8.5 People

No strategy discussion is complete without a consideration of the people involved. Successful organizations inevitably have the right people in the right jobs at the right time. For the IS group, this historically has meant managing a skills inventory. Although skills are usually employed to define what it takes to execute tasks, an additional dimension is necessary — talent. That concept is spelled out by Marcus Buckingham and Curt Coffman in their book, "First, Break All the Rules." According to Buckingham and Coffman, each person has basic abilities, or talents, that drive how one instinctively acts or reacts, and these c annot be changed. Reaching the highest capacity l evels requires more than skills, it requires these natural, unlearned capabilities to act instinctively and see things that are not obvious to others.

2.8.6 Using the Building Blocks to Create Strategies

The following is a brief introduction to nine steps for creating your strategies:

- Understand the business strategy: Understand where the business wants to go.
- Establish a governance process and financial toolset: Establish how decisions will be made.
- Define what enterprise architecture must look like: Develop a picture of the IT infrastructure's future.
- Understand the boundaries that the current infrastructure architecture applies: Establish a base for starting and its meaning.
- Define the application change strategy: Apply what was learned in previous steps.
- Define the IT operations strategy: Gartner recommends the internal service company (ISCo) model.
- Define the people strategy: This involves all who execute the strategy — internal and external.
- Develop an IT strategy document: This captures the strategy and gives a platform for formal discussion.

- Create a management framework to keep your strategies alive: two strategies of operations and change are developed using the tools and concepts discussed previously.

A management tool such as a balanced scorecard ensures that the strategy continues to be effective. The budget reduces the planning horizon to 12 months, using the financial tools to make the appropriate decisions. The services established for both of the IT strategies form the basis for operation. The charge-back that is incurred during operations feeds the budget and the process management too, such as the balanced scorecard. The impact of these on managing a strategy is then used to make the appropriate adjustments in strategy, before the cycle starts all over again.

2.8.7 Bottom Line

- Most enterprises claim to have an effective business strategy in place, but many don't really possess one.
- That is probably the single biggest problem facing IS organizations in their quest to manage enterprise IT expectations.
- Nevertheless, regardless of whether an effective business strategy exists — one that states a clear vision and objectives, and bounds the options for attaining them — the IS organization must identify one to guide its application change and operational support efforts.
- By following the model provided Gartner, IS organizations can develop an IT strategy that serves their enterprises' actual or implied business strategies — that simultaneously provides effective, efficient IT operations, while developing new applications to power the business processes needed to ensure enterprise competitiveness and growth.
- Strategies provide everyone in the enterprise with a road map for future direction and the boundaries for creating options.

An organized model for developing an IT strategy serves the dual purpose of focusing the business and IS organizations on what is appropriate for the enterprise and providing a common language to discuss what must be done.

2.9 The Sustainable Strategy Model

Without a sustainable strategy model, technology investments and management will inevitably suffer from a lack of contextual intelligence, seriously impacting their strategic value to the business.

2.9.1 The Nature of IT Strategy

How good are you at managing IT strategy? If you are not sure, here's a very simple test. Get a jigsaw puzzle and empty the pieces onto your desk, face down. Now, throw away the puzzle box, ask three friendly colleagues to remove an unspecified number of pieces each, at random, and to put the chosen pieces into their pockets, without showing them to you. Your next task is to construct the jigsaw, quickly and accurately, without turning over any of the pieces. If this scenario doesn't daunt you sufficiently, ask one of your colleagues to blind-fold you...

That straightforward exercise is the easiest way to simulate the challenge facing most IT strategists today. We are continually faced with trying to create a cohesive and cost-effective outcome; given resources that we don't completely understand, not all of which are under our direct influence, or control, and that may, or may not, eventually fit together into a recognizable pattern. This is definitely the aspect of computing that owes least claim to the realm of science.

Strategy management is, without doubt, an art, an abstract art because, most Information Technology strategy documents never manage to develop beyond the initial stages of abstract thinking. Too often declared stratagems are little more than high-level ambitions, or mission statements, painted with an extremely broad brush in many cases (Beveridge, 2002).

If you ask most IT Directors to describe their strategy, you are likely to get a very clear-cut answer such as 'Open Systems' or 'Unix in the Data Centre and Windows on the desktop.' For sure, these bald statements may well have some supporting documentation, probably in the form of a glitzy PowerPoint presentation, or a hackneyed preamble to the annual IT budget bid but they are unlikely to be underpinned by a tangible management model (Beveridge, 2002).

As long as strategy remains at an abstract, superficial level, we will always struggle to manage it effectively. We won't be able to communicate the strategy properly to our staff, or to our business partners, because our abstract definition doesn't necessarily correlate directly with their particular context. In other words they won't be able to relate to it properly. Consequently, they cannot share the vision, or subscribe to its success because they don't recognize the strategy in real, practical terms. We need to remember that most people have a battle to understand abstract concepts in the first place, let alone abstract concepts that are understated and poorly defined.

There aren't many organizations out there with an effective, well-defined IT strategy that actually contributes to the successful management of the business. Most of us have only paid lip-service to our strategic planning obligations and just got on with the day-to-day drudgery of operational management.

Perhaps this is the real reason why today so many of our IT departments appear to be striving desperately for that seemingly elusive grail, the alignment of the IT strategy with the business strategy.

And yet our in-trays positively groan under the cumulative strain of a daily flood of strategy magazines, articles, case studies and reports. Given this wealth of information, we should be the best-informed and strategically savvy managers in the world but we are not, sadly. Probably because we can't see the wood for the trees when it comes to strategic planning. So we can too easily fall into the trap of reacting in a piecemeal fashion to a haphazardly presented series of apparently unrelated technology concepts.

This leads us towards a cafeteria approach to strategy, picking up bits and pieces here and there from a diverse menu of ideas, in the hope that they will somehow miraculously combine into our own desired outcome.

And, of course, as every technology manager knows the technology is the easy bit. The harder parts are always the people issues and the unknown external factors. Hence the opening analogy of trying to solve an incomplete, face-down jigsaw puzzle, without being able to see the intended picture, while others are withholding key parts.

2.9.2 Managing IT Strategy

So much for the problem, how can we tackle it? The best way is to build a sustainable strategy model - a tangible definition of the intricate framework of the various factors that influence strategic management. A 'tangible definition,' refers to something that can be physically manifested and manipulated, either in the form of a printed report, or as an interactive computer model on a workstation.

We need to move on, from the snappy 'one-liner' strategy definitions currently found, towards industrial strength business tools that will genuinely help us to manage our technology, and our business undertakings, more effectively and give us more hope of achieving the returns on investment that are expected.

A sustainable strategy model starts as a blue-print, a diagrammatic representation of the inter-relationships between the influential sub-strategies, such as:

- Service Delivery.
- Security.
- Business Development.
- Investment.
- Technology.
- Sourcing.
- Procurement.
- Risk.
- Compliance.

- Agility.

This list is not exhaustive and not in any particular order; but simply an early indication that an effective IT strategy is a complex entity, that needs to be properly modelled and understood.

Without a sustainable strategy model, technology investments and management will inevitably suffer from a lack of contextual intelligence, seriously impacting their strategic value to the business.

With a sustainable strategy model, you will have not only a better understanding of the nuances of your current and future operations but also a practical framework for effective dialogue with everybody who is expected to contribute to, or influence, successful strategy delivery.

One way to illustrate the multi-faceted, multi-tiered nature of a complex IT strategy is to use the good old Rubik's Cube™ (Beveridge, 2002).

The Rubik's Cube™ was the 'must have' toy of 1980 ingeniously constructed to shatter the confidence of even the most patient and diligent of its fans. When purchased, it appears to be a simple cube, with each of the six faces bearing a different colour.

However, each face actually consists of nine separate 'boxes,' cleverly inter-connected so that they can be manipulated individually of their neighbours, through a number of vertical and horizontal 'planes.'

Just a couple of deft twists of the wrist and the neat, colour coded, sides swiftly disappear into a jumble of mixed colour panels, perhaps forever! Having jumbled the cube, the trick is then to restore the original, well-ordered colour scheme.

Some people have the knack and quickly solve the puzzle, while some obviously don't understand the relationships between the component parts and can spend many hours, days or even weeks frantically shuffling the pieces trying to make some sense of it all.
Which is why the Rubik's Cube™ is such a super metaphor for explaining how to build a sustainable strategy model.

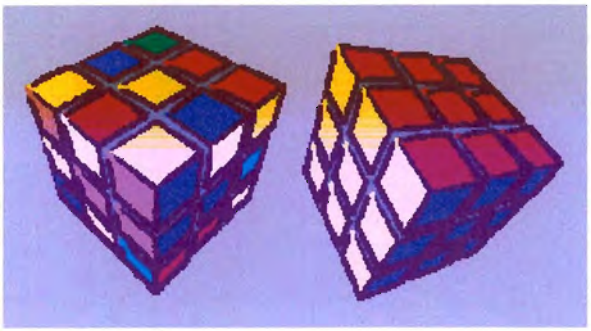


Figure 2.3 The Rubik's Cube™
Source – http://www.ncc/myitadvisor/archive/issue19

Now, if we think of each of these sub-strategies as being a separate layer in a multi-tier construction like the Rubik's Cube™ you can start to see how the whole model can be built using a top-down approach.

Then again, like the cube, the strategy model very quickly becomes complicated because each layer is not completely discrete, it has components and links not only within itself but also with its immediate neighbours and the other layers, sometimes through 'invisible' connections.

2.9.3 Keystones of a sustainable strategy model

To sort out the jumbled elements and invisible connections we need some key information.
In the Rubik's Cube™ this is provided simply enough with each face having its own colour. However, within our strategy model, the keys are not quite so immediately apparent. They are there, though, if you know where to look.

The keys, or 'sides' if you prefer, to our strategy model are those elements that transcend the various sub-strategies and create a cohesive model.

For simplicity, these are:

- Assets.
- Value Chains.
- Cost Models.
- Risk Profiles.
- Metrics.
- Change Agenda.

All of these strategic elements cross the boundaries between sub-strategies and they represent the true building blocks of our sustainable strategy model.

If we manage to get these foundation stones laid properly, the rest of the model will always follow in due course regardless of the finer nuances of your particular business or undertaking. Looking briefly at these fundamental principles and seeing how they fit into the broader picture...

2.9.3.1 Assets

An accurate corporate asset register is the number one priority for establishing any sort of strategy model.

We all have a mix of physical and logical technology assets, which we manage on behalf of our organizations. We need to understand and account for these valuable assets and make sure that we husband our resources, to achieve the best possible value from our investments.

You may have heard the old cliché 'our people are our greatest asset' but if this is truly the case, why do so few of our IT asset registers include details of staff and their skills?

2.9.3.2 Value Chains

In its simplest form, every business consists of many value chains: in each chain we start with one or more inputs, add value and pass the 'product' on to the next stage; through various iterations until our 'product' reaches its final destination, which might be another value chain.

Recognising and understanding the value chains are strategy fundamentals because they allow us to learn exactly how our business model works in absolute detail.

Value chain analysis builds on the information in our asset register, to show us how we deploy our assets to best effect, and is relevant to every organisation, regardless of sector or line of business.

2.9.3.3 Cost Models

Strategic planning will never be effective unless it is underpinned with a mature and comprehensive cost model.

Use of an accounting technique such as Activity Based Costing (ABC) can lead to the most powerful management options. With a mature ABC cost model, it is possible to really understand what's driving your business, especially the scaling factors that will allow you to manage change properly. To create an ABC cost model, you will need reliable asset and value chain data.

2.9.3.4 Risk Profiles

Once we have mapped out our assets, value chains and cost models, we can start to assess the business risks associated with each element and prepare plans to mitigate our exposure.

Some of these risks will be financial, others will be less tangible but nevertheless extremely important. The vital task, from a strategic perspective, is to identify, log and manage the risks at an appropriate level.

2.9.3.5 Metrics

We need to measure progress and performance regularly so we can determine if our strategy is successful.

Depending on the nature and complexity of your business, you may require a number of tools or methods to do this properly. So-called Balanced Score Cards and Key Performance Indicators (KPI) are useful but only if they are based on substantive information, rather than opinion.

You should test the value of every 'metric' by making sure that it is a natural by-product of your operation. Discard, or alter, any metric that is based purely on subjective opinion, or interpretation.

2.9.3.6 Change Agenda

Last but by no means least, the final keystone of our sustainable strategy model is the change agenda, or rather agendas.

Some people refer to the corporate change agenda, i.e. in the singular, but the real change agenda is multi-tiered and multi-faceted, every item in the mix has its own change agenda, as does every business unit, or department.

There is a very strong argument to be made for the change agenda being the most important aspect of strategic management; indeed it is the very manifestation of our strategy, through the implementation of change. However, effective change management is critically dependent on the other strategy keystones, to the extent that they should all be regarded as being of mutual importance to each other.

2.9.4 Mapping out the sustainable strategy model

Ever since mankind first translated knowledge and information to physical media for communication, the art of map-making has been a highly prized skill.
The ability to transmit essential information from person to person, and from generation to generation, by means of an easily understood diagram should never be undervalued, or overlooked.

A good map describes not only the broad aspects of the subject environment but also sets out extremely useful journey information for prospective travellers.

Without maps, human development would never have advanced quite so far, or quite so quickly. Indeed, there is strong evidence to show that the 'quantum leaps' in our geographic expansion have all been dependent on the availability of reliable maps even if the data used to improve the quality of the maps themselves was sometimes gathered from fortuitous, unplanned discovery, rather than through diligent, scientific process.

Of course, when the first mapmakers were plying their trade, most people believed that the world was simply a flat surface and they had no comprehension of the global (sic) nature of our planet. But this ignorance didn't stop them making their maps even if they didn't know 'what they didn't know,' they simply dealt with the known and got on with the job, refining their maps as their knowledge advanced and expanded.

Which is exactly how we should approach the task of building a sustainable IT strategy model from the top-down, systematically building upon our accumulated knowledge as we proceed.

We have touched upon the multi-faceted, multi-tiered nature of IT strategy, used the metaphor of the Rubik's Cube™ to illustrate the existence of complex inter-dependencies between the sub-strategies held together by invisible links and propounded that a sustainable strategy model can be built on a foundation of half a dozen keystones:

- Assets
- Value Chains
- Cost Models
- Risk Profiles
- Metrics
- Change Agenda.

The question now is how we can translate these topics into an easy-to-understand map that will help us during our journey towards a better understanding of strategy definition/ management and our goal of a sustainable strategy model.

From our previous discussion, we already recognize that the IT strategy model is best considered as a three-dimensional structure. But three-dimensional maps are hard to represent easily within a two-dimensional format such as this paper. So we have to logically dismantle the strategy cube to make it easier to understand. Let's start by taking our six strategic 'keystones' and setting them out as a simple, two-dimensional, foundation layer.

Figure 2.4 The Foundation Layer

Source – http://www.ncc/myitadvisor/archive/issue21

Obviously, each of these foundation elements is simply a high-level expression of complex entities, each of which must be individually crafted to represent the substance of your business. At this stage, though, we are not yet quite ready to delve into the detail

within each keystone area; we need to stay a little while longer at the top-level vantage point.

In mapmaking terms, we must map out the major features of the landscape before we start to consider the minutiae of the topographical contours. The next stratum in our map is the management layer.

Figure 2.5 The Management Layer

Source – http://www.ncc/myitadvisor/archive/issue21

In Figure 2.5 (the management layer) the routine management aspects of the IT function have been grouped and these represent the fundamental operational responsibilities of every IT organization, regardless of sector, or line of business.

For ease of understanding, the management layer sits above the foundation layer in our three dimensional map, with a complex web of interconnectivity between the two layers and their elements.

Despite the complexity, however, the relationships are not so intricate that they are beyond mapping it simply needs the will to undertake the task and the skill to draw the maps.

Nevertheless a good set of accurate maps is invaluable to every successful strategic undertaking and well worth the effort of development.

Thus far then, we have mapped out two layers:

- The foundation layer.
- The management layer.

These first two layers are largely IT-centric and deal predominantly with features of the IT landscape features that are specifically within our management remit.

We now have to broaden our horizons to consider those factors which are beyond our direct control but still exert compelling, if not overwhelming, influences on our journey.

These influential factors are derived from a number of sources, both internal and external to our own organisation. They can be grouped into broad categories within a strategic influences layer for our map.

Figure 2.6 The Strategic Influences Layer

Source – http://www.ncc/myitadvisor/archive/issue21

As can be seen in Figure 2.6, a number of significant influences have been identified, all of which affect every IT department, regardless of sector or line of business.

From a management perspective, the strategic influences layer sits above the other two layers of our map. Again the inter-layer and inter-element connectivity may be complex but not beyond the scope of mapping.

By now, one can start to appreciate the value of mapping out the complexities of the sustainable strategy model using two dimensional mapping techniques to document different cross-sections of the three-dimensional model.

The fourth-dimension to our model is the element of time. The application of time-scale to a map is the way in which we translate a path into a journey and how we create another essential element of strategy management: the roadmap, as shown in Figure 2.7.

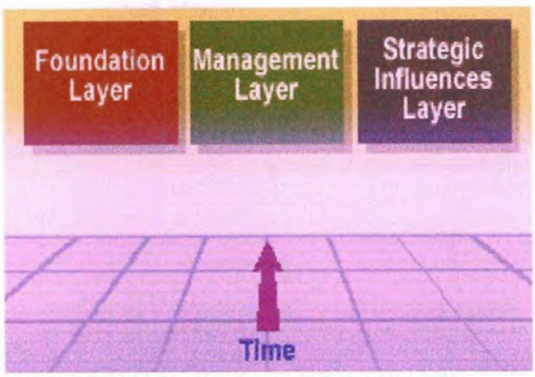


Figure 2.7 The Roadmap

Source – http://www.ncc/myitadvisor/archive/issue21

In strategy planning and management, we use roadmaps to plan and track the various strategy elements, establishing relationships between key factors such as: what, where, who, how and when.

The degree of granularity for the roadmap will depend on the appropriate planning horizon prevailing in your organisation. Some firms endeavour to maintain a five-year plan, across the board, while other bodies have slightly less ambitious time-scales and operate with a two or three year planning cycle, hoping to gain agility through shorter-term analysis.

Whatever the time-scale, the principle remains the same: always use a good map to plan your journey, don't just set off in hope. A map will not only help you along the way, it will tell you when you have arrived.

2.9.5 Shipshape and Bristol fashion

"As IT managers, our quest is clearly defined: to facilitate an agile, successful business through the effective application of technology. Our journey begins with a declared vision of the future and ends with the fulfilment of successful business change" (Beveridge, 2002).

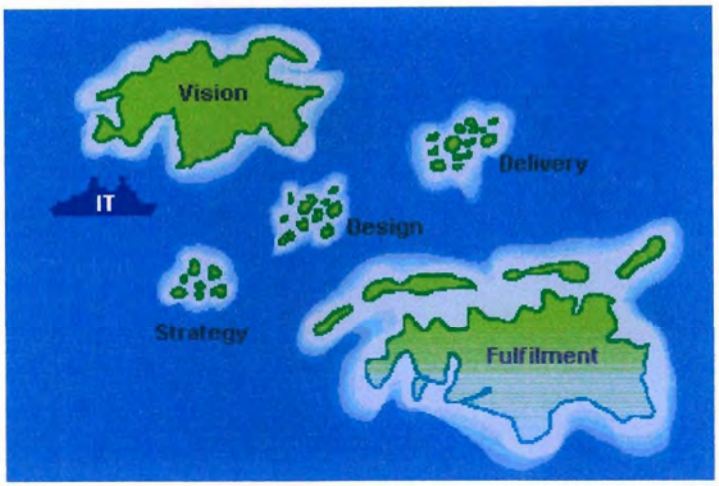


Figure 2.8 The IT Journey

Source – http://www.ncc/myitadvisor/archive/issue22

The unsung heroes of IT management are those who successfully navigate the stormy seas of strategy, design and delivery, which lie between the shores of vision and fulfilment. Many attempt this epic journey but few actually complete it satisfactorily. Most either drown quietly in the endeavour, or become permanently becalmed in the doldrums of impending failure sometimes tantalisingly close to their objective.

Of course, if a voyage is straightforward then there is little honour in its completion so every epic journey needs a few key elements to imbue itself with the genuine attributes of

heroism. Usually, these epic elements take the form of a series of almost overwhelming difficulties along the way that threaten the traveller with danger at every turn.

There are myriad challenges of managing information technology strategy and we often seem t o s ail b lithely int o unc harted w aters, w hile e xposed t o t he r igours o f a ho stile climate and wilfully unpredictable tides.

And not all of us are expert sailors for every budding Captain Cook in our ranks, we probably have more than our fair share of Captain Pugwash clones. Too often we seem to regard IT strategy management as another brand new voyage of discovery into the unknown, hoping that our technical skills will eventually see us through the problems. Notwithstanding the obvious reality that getting the ship safely from port to port takes more than a little navigational skill.

Which is where our sustainable strategy model should help us: with such a sturdy vessel at our disposal, instead of drifting aimlessly on the tide driven this way and that by the whimsical forces of nature, we can plot a proper course and steer confidently towards our destination. But even with a sea-worthy vessel and a very clear idea of where to go, a good skipper doesn't just set sail, without first making sure that the ship is properly provisioned and crewed.

The same principles apply to IT strategy management; this isn't a single-handed yacht race. It's a team effort.

We will need a good team to build and manage our sustainable strategy model and our team will need to draw upon the best possible materials and information available to the organisation.

Concentrating on the foundation layer we look at how it can help us to prepare for our voyage towards our goal of business fulfilment.

We have established that the principal components of the foundation layer are:

- Assets
- Value Chains
- Cost Models
- Risk Profiles
- Metrics
- Change Agenda.

Mapping out these components is only the first stage. We now have to translate them into real world actions and responsibilities because they won't appear miraculously out of thin air. We will have to put some real effort into creating and maintaining the components and then lash them all together into a cohesive model.

Our first real challenge is that many of these components either do not exist in most typical IT departments, or they are seriously incomplete. The next obstacle is that almost all of the foundation layer components are not recognized as mainline IT activities so the management accountability is fragmented or fuzzy, to the point of invisibility.

This is a guaranteed recipe for failure; any function that is without a clearly identified owner will always be performed poorly, if at all. And yet the foundation layer components are inherently essential to our strategy management model; without the foundation layer, the rest of the model is fatally compromised and unachievable. Obviously we must therefore address, at the outset, the fundamental questions of ownership and responsibility for the foundation layer components.

Most of these are generally categorised as boring 'administrative' functions, which don't sit comfortably within our traditional IT management boundaries. Indeed, most of the talents required for the foundation layer are basic business skills, rather than particular IT expertise. To remedy this, we return to our nautical analogy and allocate responsibilities to some key crew members.

The first person we need is a Quartermaster, who will look after our Assets so that we know exactly what resources we have at our disposal.

The Quartermaster's responsibility goes well beyond the run-of-the-mill body count of pcs, laptops, printers and software licences. There are a whole host of other assets that often fall between the grids of the corporate asset register. Items such as:

- Inventory
- Consumables
- Resources
- Insurance policies and warranties
- Disaster recovery plans
- Intellectual property
- Internet domain names and registrations
- Support contracts

Next we need a good Executive Officer who understands how our business really works, including the IT functions.

The Executive Officer will look after the Value Chains and the Change Agenda. The person in this role has the primary responsibility for the smooth running of the ship, on a day to day basis, including the smooth delivery of change.

The Executive Officer m ust ensure the continuous integrity of the business processes through the efficient co-ordination of activities and resources, orchestrating change for the best outcome. To do this, the organisation will need clearly defined Value chains that show exactly how resources are accumulated into services and products for delivery to customers, either internally or externally.

The basic building block of a Value Chain is a component, generally a combination of materials and labour, brought together to create additional value. For example, if we take a laptop computer and install software, we have created a value chain component by

adding the value of our labour and the software to the laptop. This newly created value chain component may be an end product, or simply an intermediary stage/material for further value chain processes.

The knowledge of your Value Chains is a critical dependency for a sustainable strategy model and a critical success factor for any business. The Value Chains also help to determine the boundaries for Change Agenda activities. That's why the ownership of the Value Chains and the Change Agenda are best vested in a common management function.

All of this costs money, which is why we need a Purser to look after the accounts and our budgets. If you haven't already got a good management accountant in your IT management team, get one as soon as possible. Used properly they are worth their weight in gold.

The Cost Models and the Risk Profiles are the responsibility of the Purser, who will constantly monitor our financial performance and help us to plan any remedial action, changes of direction or speed, necessary to complete our voyage within budget.

The final element of the strategy model foundation layer is the management of our Metrics, the means by which we measure our performance and success. We will entrust this responsibility to the Communications Officer, who will report our progress and act as our information conduit to our customers and suppliers.

So now we have not only identified the elements of the foundation layer but also allocated management responsibilities for the various components. The next steps are for our 'officers' to develop their areas and to get everything shipshape and Bristol fashion.

Computer departments were traditionally divided neatly into two functional areas: programming and operations.

Since then, in the past twenty odd years, our departments have become far more complicated and diverse, as we have gleefully embraced a succession of wholesale re-organisations and re-branding exercises.

Along the way, almost seamlessly, we have changed our fundamental business identity from the simplicity of 'computing' in the white heat technology 1960s, through the wilderness years of mundane 'data processing' in the 1970s and 1980s, until sometime in the early 1990s we finally reached the dizzy heights of 'information technology,' cosily abbreviated to IT.

It seems sad but true that we have never been sufficiently confident about our roles in life to settle on a long-term naming strategy for ourselves. This is in stark contrast to other professional groups, such as the well-established categorisations within the broader disciplines of Accountancy, Medicine and the Law. So, while most lay people can easily recognise the difference between a Surgeon and a General Practitioner, or the distinction between Barristers and Solicitors, it is almost impossible for anybody, even those of us within the industry, to penetrate the billowing miasma of IT job titles.

Confusion has reigned supreme, ever since we foolishly abandoned our broadly consensual denominations of Operators, Programmers and Systems Analysts.

Confusion arising from the dozens, if not hundreds, of different job titles now circulating within the IT sector and compounded by the apparent inability of any two IT departments to share a common set.

Small wonder then that we so often struggle when it comes to managing IT strategy. We just can't see the wood for the trees, especially when the trees keep changing their shape every 18 months!

The fundamental principles of strategy management however truly transcend the constant changes in job title engineering.

The top-down, back-to-basics approach of the sustainable strategy model deals with those basic management principles that have always been with us, regardless of the titles on our doors, desks or business cards.

2.9.6 The Management Layer

In the previous section, we looked at the components in the Foundation Layer of the sustainable strategy model.

The components of the Foundation Layer represent the absolutely basic information requirements for our model, the strength of which depends entirely on the quality of its foundations. Just like any physical structure.

Now that we have laid down those firm foundations, we are ready to move up to the next element of our sustainable strategy model, the Management Layer:

The principal components of the Management Layer are:

- Security
- Delivery
- Capacity Planning and Resourcing
- Procurement
- Risk/Change Management
- Compliance

As can be seen, once again, there are six major components. These represent primary areas of technology management responsibility that have been around since the very earliest days of business computing.

They will always be required too, regardless of how many iterations of change are subsequently imposed on our profession, or individual organisations.

We can prove this by looking briefly at each of the Management Layer elements.

2.9.6.1 Security

This has always been important, even when our systems were safely ensconced behind the closed doors of the data centre and only the privileged few could gain access. However, with the advent of the massively distributed computing model that is the internet, security has become paramount and quite rightly so. There have been many examples where companies have not stepped up to their security obligations and they have been exceedingly embarrassed by the immediacy and the extent of their publicly exposed shortcomings.

2.9.6.2 Delivery

There is no point in having any technology at all if it doesn't actually do anything for you, or if you don't use it to produce something of value. That may sound rather facile but your IT cannot deliver value to your business when a system is not available, or performs poorly. As computing becomes increasingly pervasive, more and more businesses are waking up to the fact that if their systems fail, their businesses grind to a halt very quickly in most cases. Twenty years ago, it may have been practical to invoke manual fall-back procedures during a system failure. But not any more, continuity of service is absolutely essential and delivery is a critical success factor for every IT department.

2.9.6.3 Capacity Planning and Resourcing

The whole gamut of Information Technology is predicated upon the consumption of capacity and resources, be they human resources, machine capacity, network bandwidth or data storage. By nature, some capacity is naturally exhausted by consumption and requires conscious effort to obtain a regular infusion of new supplies; whereas other resources, such as processor/memory utilisation are automatically refreshed without intervention. Whatever the situation might be for a particular element, all IT resources must be subject to formal capacity planning and resourcing. Any weakness in this area will inevitably damage our ability to deliver.

2.9.6.4 Procurement

This is generally one of the poor relations of IT strategy planning and rarely receives the appropriate depth, or quality of attention that it deserves. A strategic approach to procurement is vital for technology cost containment and reduction. Most of us need to put some serious effort into developing our procurement skills and improving our market awareness. Buying inappropriate technology and paying too much for appropriate technology are two of the most widespread procurement problems encountered.

2.9.6.5 Risk and Change Management

These two management functions have been deliberately bundled together, because they are two sides of the same coin. Risk and change management must be as closely aligned as possible the change manager must be fully aware of the risks associated with change and the risk manager must understand the full impact of risk management decisions on the change agenda.

Risk Management – IT Strategy requires the ongoing identification and management of program risk, including the oversight of contingency plans and risk mitigation strategies.

2.9.6.6 Compliance

Every technology department, regardless of the nature of its business, has a compliance management liability. Twenty years ago we probably only had to keep tabs on software and hardware licences. Now, there are so many legal and regulatory requirements governing data processing that the compliance function needs to be recognised at the highest level within our technology management team. After all, in most cases, the penalty of non-compliance falls squarely on the Directors so it is only fair that they take an active interest in seeing that their Compliance liabilities are properly managed and discharged.

So much then for the Management Layer components: perhaps it's time we looked at how these components connect to the Foundation Layer. The following diagram is a high-level representation of the principal connections between the two layers.

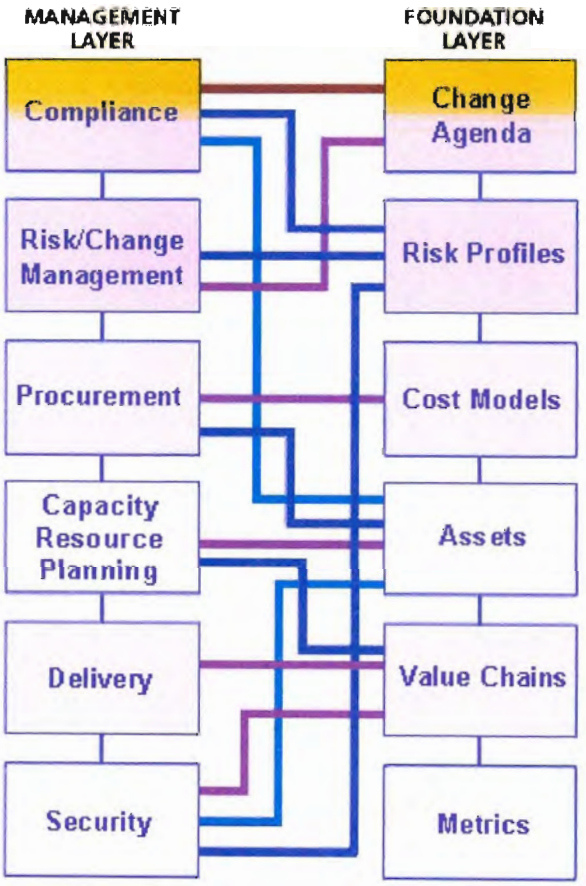


Figure 2.9: Connections between Management and Foundation Layers.

Source – http://www.ncc/myitadvisor/archive/issue23

2.9.7 The strategic influences layer

Fortune Tellers offer attractive proposition to the passing crowd to have their fortune told. And, as individuals, each of us measures the value of their plaintive offer, according to our own particular degree of belief, or scepticism, in their mystic art.

For sure, very many passers-by do regard the whole exercise as simply a bit of fairground fun and some enter the booth purely for the entertainment value. But there will always be some people who genuinely put faith in the seer's ability to foretell the future and willingly pay the fee requested and take their prognostications seriously.

Which is very good news for most IT strategists because, if the truth is known, their own forecasting skills have little more substance than the crystal ball gazing necromancers of the pleasure beach.

Some IT functions don't even have the luxury of a crystal ball to try and guess their future.

As a result many departments are still flying blind through the extremely hostile airspace of technology investment.

They don't have instruments to guide them, or any sort of business 'radar' to warn them of the conditions ahead so they simply hope for the best and get on with the difficult challenge of delivering value from technology investment.

Occasionally, just like some of the fortune teller's predictions, the IT strategy gets lucky and pans out. But such consequences generally owe much more to fortune than to good management. Nevertheless, the customer always pays and pays handsomely too in the relentless pursuit of business benefit from IT.

We are now into the sixth decade of business computing and you would think that by now we should all have a fairly good idea of how to apply technology effectively, wouldn't you?

Sadly, it seems that we have made little real progress, especially in the realms of easy to use management tools and instrumentation to help us. Where we do have such tools available, they tend to be designed to deal with the current and historical status of our IT - which is fine, if we merely want a record of our flight path and expenses.

But what about our future plans? Where is the radar screen that will give us timely warning of the obstacles in our way and the activity of other parties within our horizons? Clearly, this is where the upper level of our Sustainable Strategy Model comes in - the Strategic Influences Layer.

The components in this layer represent a variety of both internal and external influences, i.e. factors within and beyond our business boundaries that shape our strategic decisions. These are the items that we need to track on our business radar and to monitor constantly, if we wish to avoid unpleasant surprises that seriously impact our IT strategy.

Following is a brief discussion on each of these components and their importance.

2.9.7.1 Business strategy

Well, we all know what our business strategy is, don't we? Even if we can't quite put it down on paper straight away.

The truth is that most business strategy is still not formally expressed in clearly defined terms. Initially, we may have to work with only sketchy details that are little more than loose expressions of vision, ambition and imagination.

We need to build on these strategy hints and work them up into a tangible skeleton for further refinement and development.

2.9.7.2 Customer strategy

This component is not simply about our own strategy for attracting and retaining customers, it also encompasses the strategy of our customers, i.e. how we expect them to behave in the future.

From an entirely selfish perspective, we need to understand not only how we will continue to win and sustain our market share but also our customers' operational context and their perception of us as worthy business partners.

2.9.7.3 Technology

This is another strategic influence that is bi-directional in other words, while we may deliberately pursue a strategy focused on specific technology components, we must also continue to monitor other technology developments, in a much broader sense, beyond our chosen product set; just in case our preferred technology strategy becomes compromised, or enhanced, by events beyond our control.

2.9.7.4 Vendor strategy

Our vendor strategy is most likely to be shaped by our technology strategy, at least in the first instance. However, there will also be strong commercial influences at play that will help us to determine our vendor strategy.

Strong technology is not sufficient in itself to drive our final choices; we must always consider the aspects of risk and confidence/credibility when choosing vendors.

We must also recognise that in an increasingly outsourced world, we may well find that some of our vendor choices may be compromised by other third-party relationships, as well as by the strategic directions and choices of the vendor community itself.

2.9.7.5 Regulation

For many years, one of the strongest drivers affecting IT strategy has been the growing influence of regulation, i.e. the business-specific rules that govern our operations.
Very few, if any, organisations are beyond the ambit of at least one regulatory body, and compliance with such regulation is not a matter of management discretion; it is an obligation that cannot be deferred, or avoided.

The effects of regulatory change can be far-reaching and impact our operations significantly, possibly at fairly short notice so our Sustainable Strategy Model needs to track and trace our regulatory obligations both for time and impact.

2.9.7.6 Legislation

The final component of the Strategic Influences Layer is legislation, which like its partner in virtue (regulation) is not an optional extra; we all have to comply with the law of the land, or face the consequences. The complication, of course, is that for any business of substance, the legislation obligation is not determined purely by a single national legislature; nowadays we also have a multiplicity of regional and supra-national bodies to consider.

And the cherry on the icing is the huge uncertainty surrounding the application of legislation to the Internet, whereby e-commerce and publishing via the world-wide-web potentially extend our legal radar far beyond our local horizon to a truly global perspective.

So much then for the nature of the Strategic Influences Layer components; perhaps it's time we looked at how these components connect to the Management Layer components of our Sustainable Strategy Model.

The following diagram is a high-level representation of the principal connections between the three layers:

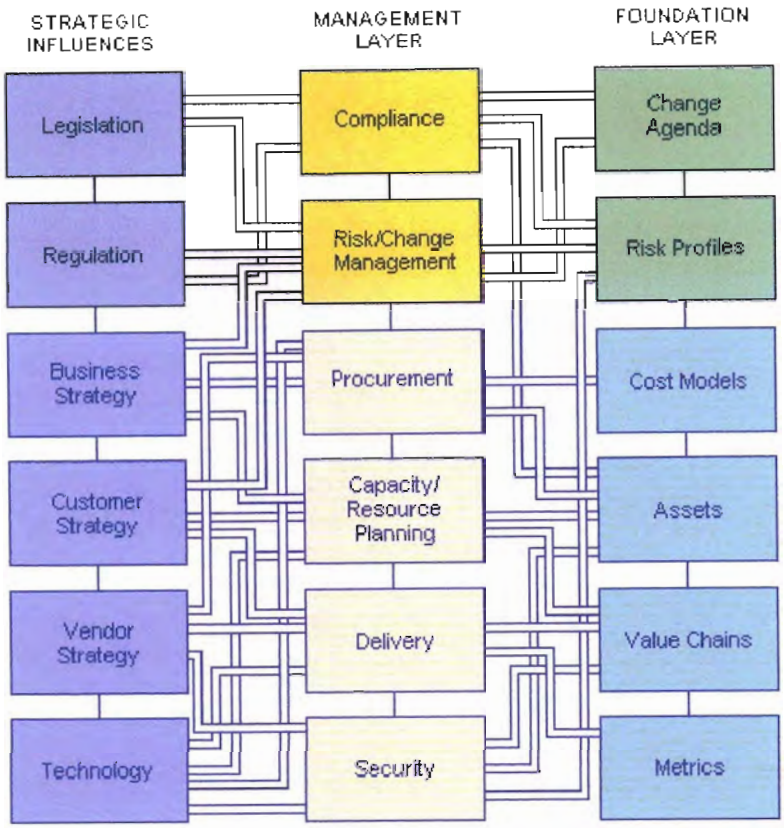


Figure 2.10: Connections between the 3 layers of the Sustainable Strategy Model

Source – http://www.ncc/myitadvisor/archive/issue23

2.9.8 The Power of connectivity

This section is all about the principle of complete connectivity and the way in which every single component of a business is connected in some way to every other component - even if the connections are not always directly made, or immediately apparent.

Understanding the principle that *everything is connected to everything else* is absolutely essential to effective strategy management and we ignore this simple rule at our peril. However, in very many organisations, high-level 'strategic' decisions still appear to be made regularly without due regard to the likely impact of change and the effects that this might inadvertently generate.

Just think for a moment - how often have you seen serious business problems arise, either as a result of action undertaken in isolation from the full particulars of a situation, or from decisions made, perhaps unilaterally, without the benefit of a rigorous risk assessment? Sadly, all too frequently, because there isn't too much evidence of businesses that really understand the full implications of their decision-making process, especially when it comes to strategic planning and management.

2.9.9 Law of Unexpected Consequences

The fundamental problem is that it can be extremely difficult to recognise the symptoms and repercussions of poorly planned strategy, as the consequences may be delayed, for many months, or even years, before they manifest themselves, possibly in a remote part of the business that seems unconnected to the original change. Some people term this behaviour the *Law of Unexpected Consequences*.

We must, therefore, always safeguard against any contradictory action, taken in the belief that circumstances, or good fortune, will somehow protect us from the dangers of unexpected consequences and ignorance of complete connectivity.

As with so many aspects of life, prevention is always far better than a cure - and generally a lot cheaper too.

So when it comes to mitigating expensive business risks, we are well advised to adopt a formal and structured approach to strategic planning and modelling.

The discipline and benefits of creating a good understanding of our business for a well-developed strategy model will undoubtedly stand us in good stead to improve the quality of our decision-making.

Some brief examples that illustrate the theory of complete connectivity, show us how to develop our understanding of business interactivity and help us to avoid exposing ourselves to the *Law of Unexpected Consequences*.

The exercise will also give us a good insight into the effects and implications of complete connectivity operating within our organisation. We will work through a couple of very simple case studies for components of the Strategic Influences Layer, to see some of the consequences that can arise from events.

Please note that the following examples are hypothetical situations, for the purposes of illustration only, and do not represent real circumstances...

Legislation

Scenario: *following recent concerns about the misuse of the Internet to leak sensitive security information, the Home Secretary has just announced new legislation, requiring all businesses to retain all internal and external e-mail messages, together with associated network management logs, for a period of seven years. This new legislation will be enacted immediately and organisations have six months to make appropriate provision for implementation.*

A quick look at our Sustainable Strategy Model reveals a linkage between Legislation and Compliance so we need to record the terms of the new legislation in our Compliance register and assess the impact of compliance on our business. We can do this by following the links from the Compliance component of the Management Layer to the Foundation Layer- in this case, the links are to the Change Agenda, the Risk Profiles and the Asset Register. The impact of the new legislation must be assessed for each of these elements and detailed plans established for the next six months.

It looks like we have very quickly traced the paths we must follow from the Home Secretary's announcement of the new legislation - but so far we have only dealt with the primary linkages from the Strategic Influences Layer, through the Management Layer to

the Foundation Layer. Looking closely at our model, it can be seen that each of the three layers has a 'backbone' connecting the components within that layer.

All of these connections are equally important and must be carefully considered, if we are to avoid the effects of unexpected consequences.

For example, if we simply restricted our assessment of the new legislation impact by only looking at the primary linkages from Legislation, through Compliance and Risk/ Change Management through to the Change Agenda, Risk Profiles and Assets, then we would be in great danger of overlooking some of the most important consequences of the exercise - items such as procurement, capacity planning and security.

The backbone connectors of the Sustainable Strategy Model help us to recognise the inter-dependency and connectivity between components. They also demonstrate the theory of complete connectivity because by using backbone connectivity it is possible to connect any two components of the Sustainable Strategy Model - even where no primary linkage appears to exist.

Another brief example follows to reinforce this principle.

Technology

Scenario: *we have just been informed that the manufacturer has declared a 'sunset date' for one of our core business application suites. We must upgrade to the latest version by next year, or lose our support service from the manufacturers...*

In this case, our Sustainable Strategy Model shows primary linkages from the Technology component in the Strategic Influences Layer to the Procurement, Capacity/ Resource Planning, Delivery and Security components of the Management Layer.
These in turn provide primary linkages to all of the components of the Foundation Layer, except one: the Change Agenda.

We cannot envisage any situation where an upgrade to a core business application wouldn't feature on the Change Agenda - so why is there no primary linkage available from the Technology Influence component?

Is this a weakness in our Sustainable Strategy Model?

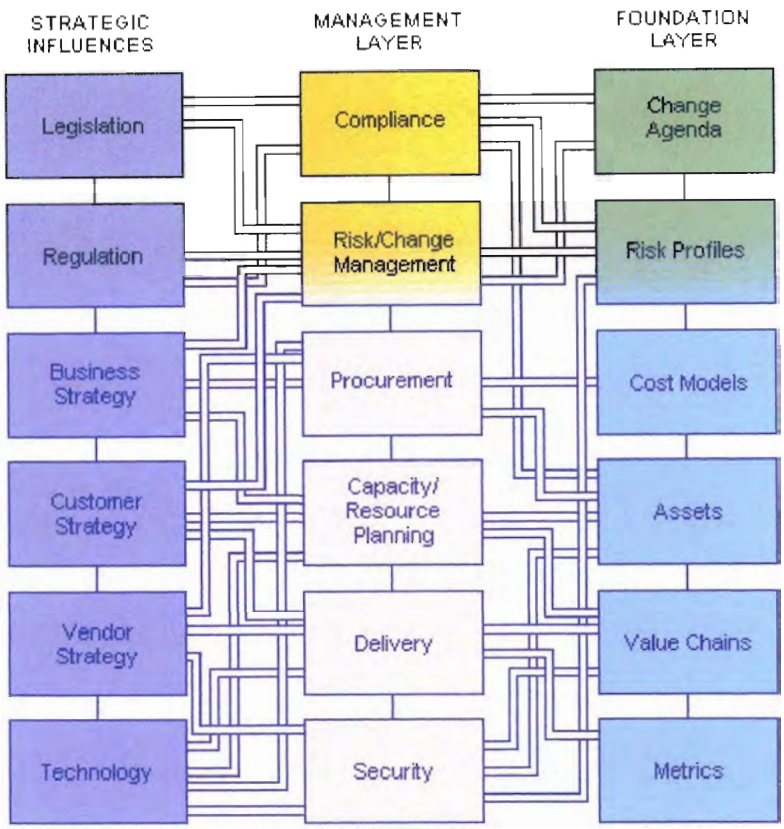


Figure 2.10: Connections between the 3 layers of the Sustainable Strategy Model

No, is the short answer. The Change Agenda is connected to the Foundation Layer backbone, which means that it is explicitly linked to any component impact elsewhere on that strategy model layer.

Likewise, the Management Layer has backbone connectivity so our application suite upgrade has a pathway to the Change Agenda, either via the Foundation backbone, or via the Management backbone.

The principle of complete connectivity is fundamental to the Sustainable Strategy Model and the simple device of using primary linkages between layers, supplemented with backbone connectivity within each layer, allows us to create a completely connected model, without becoming totally overwhelmed by showing every possible point-to-point connection.

The three layers (Strategic Influences, Management and Foundation) of strategy components are linked together, thus forming a framework of interconnected relationships - within the model everything is connected to everything else, even if not directly.

2.10 Implementing Strategy

While many erroneously believe that the key to competitive advantage lies in defining a blockbuster strategy, the most successful managers recognise that the ability to flawlessly execute strategy day after day and year after year is the real key to success.

Whereas crafting strategy is largely a market-driven activity, implementing strategy is primarily an operations-driven activity revolving around the management of people and business processes. Successful strategy implementation depends on doing a good job of leading, working with and through others, allocating resources, building and strengthening competitive capabilities, installing strategy-supportive policies, and shaping how the organization performs its core business activities. Executing strategy is an action-oriented, make-things-happen task that tests a manager's ability to direct organizational change, motivate people, develop core competencies, build valuable organizational capabilities, achieve continuous improvement in business processes, create a strategy-supportive corporate culture, and meet or beat performance targets.

In deciding how to implement a new or revised strategy, managers have to determine what internal conditions are needed to execute the strategic plan successfully. Then they must create these conditions as rapidly as practical. The process of implementing and executing strategy is depicted in Figure 2.4 below.

Figure 2.4 The Eight Big Managerial Components of Implementing Strategy

Source: Adapted from: Strategic Management, Thompson & Strickland, p358

2.10.1 Best Practice

This section draws from the findings of a benchmarking study: Aligning Information Technology With Corporate Strategy, conducted by the APQC in 1999. The study focused on how leading organisations approach information technology (IT) as a strategic investment and how they ensure that IT projects and functions meet the needs of the business, remain up to date, and are held accountable. It examined how a thoughtful IT approach can enable organisations to get a leg up on their competitors. The report presents 11 findings related to aligning IT with the planning process, guiding IT projects to success, and measuring IT costs and promoting change.

Summary of the findings:

- ✓ Best-practice IT functions have created shared services models that have proved critical in reducing costs. Allied Signal has consolidated HR, IT, and finance into one organisation known as Allied Signal Business Services.
- ✓ Best-practice organisations treat their IT functions as businesses, not as black holes of uncontrollable costs. Dow Chemical relies heavily on service-level agreements it negotiates with each of its businesses.
- ✓ Best-practice IT functions continually benchmark their performance to determine whether IT capabilities should be maintained in house or outsourced. At Johnson & Johnson, the help desk and the local area network administration functions are outsourced.
- ✓ Best-practice IT functions use designated IT points of contact within the business units who concentrate on adding value to the organisation. At Dow, an information technology consulting organisation assists 48 businesses with about one consultant per business.
- ✓ Best-practice IT functions become key players in corporate strategy discussions by developing and executing an IT vision. The Chief Information Officer (CIO) at Allied Signal created a three-year strategic plan that is updated annually. This allowed IT to get high-level buy-in.

- ✓ Best-practice IT functions use a combination of top-down and bottom-up processes to determine IT funding.
- ✓ Best-practice companies rely on a specific set of metrics to determine which IT projects are of the highest priority. Allied Signal relies on return on investment numbers to determine which projects receive funding.
- ✓ Best-practice companies recognize that there is no such thing as an IT project that can be completed by just IT people. Dow has a "partner" project manager from the business and a technical project manager from IT.
- ✓ Best-practice IT functions measure customer satisfaction to adjust service levels and improve performance. At Dow, project surveys are filled out after each effort. The questionnaire includes 12 questions related to the resolution of issues on the project, service levels, response time, and how the project matched customer expectations.
- ✓ Best-practice IT functions emphasize strategic communications and face-to-face interaction between IT and business personnel to promote alignment. The IT directors at Johnson & Johnson meet with the CIO every two weeks to ensure that all projects are integrated and are fulfilling customer needs.
- ✓ Best-practice organisations use performance management and reward systems to help IT personnel improve business and technical skills. Allied Signal's performance management process creates a development plan for each employee but also helps point the company in the right direction by determining the competencies the company will need for future success.

Source: APQC – American Productivity and Quality Centre

2.10.2 Leadership

Increasingly, business leaders are demanding that IT play the role of a business partner and a strategic enabler. In such an environment, IT human capital has assumed considerable significance. Insightful IT leaders recognize that the greatest impediments to success are often related to people rather than to information, technology, and systems.

What is not quite clear to IT leaders, however, is exactly how to develop and leverage this human capital in support of business needs. The transformation of IT from a back-office support role to a strategic business partner requires new roles and competencies for IT leaders and professionals. Key challenges for IT leaders are to envision these roles and competencies and to develop and implement programs to translate this vision to reality.

It has been suggested that in the face of an increasingly turbulent business and technology environment, the keys to success for the 21st century information technology organization might well lie in its ability to be adaptive, responsive, and aligned to the business needs (Ross et al, 1996). Accelerating pressures to assume the role of a partner, or perhaps even a leader, in driving business strategy is forcing chief information officers to reconsider the role and responsibilities of their information technology (IT) organizations. In today's global and digital economy (Tapscott, 1996), business leaders often look toward IT to suggest new and innovative ways in which internal and external processes might be improved. Indeed, a common view is that IT can serve as a key source of competitive advantage (Ross et al, 1996). As Information technology organizations reposition themselves to become strategic business partners, it is evident that they require a new set of capabilities that will enable and facilitate such a transition (Clark et al, 1997).

Although prior work provides alternate conceptualizations of what these capabilities might be, there is some agreement that a firm's IT human capital constitutes a critical capability that needs to be appropriately managed and nurtured for successful business partnerships (Mata et al, 1995: Ross et al, 1996). Indeed there is broad recognition in the research literature that in the new knowledge economy, the human capital of a firm, i.e., its workforce, may well represent its most important strategic asset and capability (Stalwart, 1997). Not only is this capital an enabler of organizational change, it is also the mechanism through which greater organizational effectiveness can be achieved.

A transformation of the IT organization so that it is more closely aligned with the business and can serve strategic ends has wide-ranging implications for the skills, behaviors, and orientations of IT staff. IT professionals are now increasingly asked to

assume entrepreneurial roles and to seed the process of IT innovation. A broad-based expectation is that rather than wait for the business to provide requirements, IT professionals will proactively seek to create opportunities for the deployment of information technology to serve business needs. Moreover, with the increasing incidence of outsourcing in IT work, IT professionals are now key players in the complex activity of managing a host of relationships with external vendors and consultants in addition to managing internal relationships with business partners. These new responsibilities demand an IT workforce that possesses strong partnering skills, is motivated, willing to change, and empowered to act without overt, persistent guidance.

The leadership imperative requires managers to alter their leadership behaviors from a command and control approach toward one characterized by collaboration and participation. The movement from command-and-control to collaboration is consistent with many writings that focus on empowering those at the lowest hierarchical levels to be involved in critical decisions. For example, (Seng, 1997), notes that top-down directives do not foster genuine commitment that harnesses the courage, imagination, patience, intelligence, and spirit of the people at all levels of an organization.

CHAPTER 3 The Case Study

3.1 The Strategic Nature of SA Ports

Our port systems represent a critical component in our endeavor to enhance our industrial competitiveness. Historically, our wharfage charges and general port inefficiencies have resulted in a reduced traffic of freight through our ports, thereby inhibiting the developement of back-of-port manufacturing sectors and logistics entities.

Commercial ports play a crucial role in South Africa's transport system and its economic development, and are therefore treated as strategic entities. Combined with the strategic geographical position of South Africa's coastline, the port system can have a multiplier role on the economy of the country and the Southern African Development Community (SADC) region. From a strategic perspective, the pursuit of government's national port policy is to ensure an internationally competitive port system. Efficient ports are known to be catalysts for increased trade, and thus provide a comparative advantage for international trade.

The White Paper on National Transport policy mainly deals with commercial ports from a transport perspective. The impact of ports extends far beyond their contribution to transport costs. The strategic goals of the national policy on ports, reflects not only the transport perspective, but also the industrial (trade and manufacturing) and the market (consumers and suppliers) and the national political system. The purpose of this policy is to ensure affordable, internationally competitive, efficient and safe port services based on the application of commercial rules in a transparent and competitive environment applied consistently across the transport system.

There should be an increase in infrastructure investment and service delivery level where appropriate, based on user needs. The government's commitment to safe transportation should express the need for a clean environment and service designated areas. The government must maintain its commitment towards meeting all constitutional obligations

as well as facilitating the expansion of international trade, tourism in general and export activity in particular.

Today, globalisation pressures make it essential that nations integrate their transport systems into the global logistics network. Ports are naturally being incorporated into this changing system and have to adjust to the new challenges and environment. Government recognizes the strategic value of the commercial ports system in South Africa, in the context of international trade initiatives and the changing global transport environment. It was for this reason that it devised the recent national policy on ports in support of the efforts to improve the functioning of commercial ports.

In his opening address to Parliament recently, the President committed to improving national competitiveness through liberalising the transport sector with the objective of lowering costs and enabling technological advances and innovation throughout industry. This highlights the transport sector as a key contributor to South Africa's competitiveness on the g lobal markets. I nfrastructure development, which clearly includes seaports, is also considered as an essential component of the Integrated Framework approved by Cabinet. Clearly, therefore, the White Paper on National Commercial Ports Policy supports this commitment in laying out a broad but decisive policy for the future governance of commercial ports in South Africa.

The South African government is committed to building the economy. The basis for pursuing a national commercial ports policy is the recognition that trade, distribution, transport and logistics are among the most vital facets of the South African economy and should play a crucial role in the realization of sustainable economic development, both as a link in the value chain of businesses and because of their own economic significance.

Ports are integrated and crucial nodal points in a transport system, and play a strategic role in the country's economic growth and social development. By virtue of being part of the transport network, port activity facilitates the meeting of the demand of the international market with means of production available in the country. In other words,

the ports system, by virtue of being nodal points in the transport system, facilitates trade, which in turn fosters greater national economic activity. To maximize the benefits alluded to above, the aspects of efficiency and effective management have to be introduced to the transport system.

In terms of the Constitution of the Republic of South Africa, commercial ports fall within the exclusive competence of National Government and its structures. Commercial ports also do not fall under the concurrent national and provincial legislative competence. The power to control commercial ports is excluded from the jurisdiction or powers of local authorities.

In support of the RDP, the GEAR strategy seeks to place the South African economy onto a higher growth path that will ensure a competitive and fast growing economy that promotes exports and investment. GEAR also intends to promote redistribution by creating employment opportunities and reallocating resources through the budget.

This ports policy seeks to contribute to the attainment of the objectives of both the RDP and GEAR, particularly those that relate to building the economy, promoting exports and investments and developing human resources.

The vision for the South African transport system in the White Paper on National Transport Policy is that of a system which will:

"Provide safe, reliable, effective, efficient, and fully integrated transport operations and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and cost in a fashion which supports government strategies for economic and social development whilst being environmentally and economically sustainable."

3.2 Restructuring of state owned enterprises

The Policy Framework for an Accelerated Agenda for the Restructuring of State-Owned Enterprises reflects Government's vision and objectives in the restructuring of state-owned enterprises. It outlines the importance of the developmental role of the state and the need to create sustainable economic and social development. At the level of the industry, restructuring aims at enhancing the efficiency and effectiveness of state-owned enterprises. The promotion of competition in the economy is strongly supported. Restructuring also supports Government's broader economic objectives like reducing the state debt and attracting foreign direct investment. Government also aims to promote wider ownership and participation in the economy, improving service delivery and human resource development.

South Africa's commercial ports system should be globally competitive, safe and secure, operating at internationally accepted levels of operational efficiency, in a manner that supports the goals and objectives of the RDP and GEAR. Additionally, it should serve the economy and meet the needs of port users in a manner that is economically and environmentally sustainable.

A National Commercial Ports System has been identified that will be financially self-sufficient ports vital to domestic, regional and international trade. All the existing commercial ports, i.e. Richards Bay, Durban, East London, Ngqura, Port Elizabeth, Mossel Bay, Cape Town, Saldanha Bay, Port Nolloth, and offshore cargo handling facilities as well as all future ports and offshore cargo handling facilities to be constructed, will be managed and administered by the National Ports Authority (NPA) and it will instill commercial discipline in South African major ports and pave the way for efficiency gains necessary for ports and users to become competitive in the global economy

The principal operational and administrative functions of a port are:

Services provided to vessels and cargo:

Provision and maintenance of basic port infrastructure, i.e. breakwaters, channels, turning basins, quay walls;
Provision and maintenance of lights, buoys and other navigational aids;
Pilotage;
Towing, i.e. tug services;
Berthing services, i.e. mooring/unmooring;
Opening/closing of vessel holds (Stevedoring);
Stowing/ unstowing of cargo on board a vessel (Stevedoring);
Handling of cargo ashore;
Transport to and from storage/to and from the quayside;
Provision and maintenance of superstructures, i.e. sheds, warehouses, workshops, offices, etc.;
Provision and maintenance of equipment;
Fixed equipment (ship-to-shore cranes, conveyor belts etc.);
Mobile equipment (straddle carriers, forklifts etc.); and
Delivery/reception of cargo to/from the storage area.

Other services provided to vessels are:
Radio, radar, fire-fighting, security, medical services, supplies (water, telephone, bunkering, stores), waste disposal, repairs (dry docks, syncrolifts), equipment hire, port policing, administrative and commercial documentation.

Other services provided for cargo are:
Transhipment, temporary storage, security, tallying, insurance, customs clearance, processing, storage and distribution, administrative and commercial documentation.

The term "port", as used in the policy, is defined as "interfaces between the various transport modes and are typically combined transport centers. In addition, they are part of multifunctional trade and industrial areas where goods are not only in transit, but also handled, manufactured and distributed. In fact, ports are multidimensional systems which, to function adequately, must be integrated into global logistic chains".

An efficient port requires not only adequate infrastructure, superstructure and equipment, but also good communications and Information Technology (IT) systems, and especially a dedicated and skilled management team with a motivated and trained work force.

Transnet Limited currently owns the real estate of South African ports. The port authority function is delegated to the National Ports Authority, a division, of Transnet. Services within the ports are provided by either the National Ports Authority, the Port Operations, another division of Transnet Limited or private enterprise. Having a national ports authority function as part of a transport company has resulted historically in the formation of several undesirable conditions that have detracted from the primary purpose of ports, skewing prices, misallocating port revenues and creating suspicion in the maritime and transport industries about the impartiality of the port entity within a transport company.

There exists a legacy of fragmented private sector involvement in ports relating to land allocation and leasing terms. Several private terminal operators carry out commercial activities related to cargo traffic management and handling. Certain port users are captive in several monopolistic private sector terminals.

At this stage the Port Operations Division of Transnet Limited is the major terminal operator, handling nearly 100% of containerized, 80% of break-bulk and 30% of the bulk cargoes in the South African ports.

The White Paper on National Transport Policy has defined the policy in addressing these challenges. Four fundamental port policy guidelines were recommended. These are briefly:

Establishment of the National Ports Authority;
Establishment of the Independent Port Regulator;
Separation of the port authority and port operations functions; and

Promoting low cost, high level of service, and shipper choice in the port operations by creating a competitive environment in the commercial ports system.

The key guiding principles underlying the new port dispensation are, for example:

The current National Ports Authority within Transnet will be positioned outside Transnet in accordance with the restructuring programme of Transnet, as approved by the Minister of Public Enterprises;

The National Ports Authority post Transnet end-state will then be established as a new State-Owned corporate entity;

The 'National Ports Authority' will be the landlord of the South African ports and will own all the land and the port infrastructures within the port estates;

Greater private sector involvement in operations will be sought through leases and concessions;

The allocation of leases or concessions will be open to competitive bidding; and

The bidding process will be transparent and based on a set of clearly stated objectives/ targets, criteria and measurable deliverables.

3.3 The National Ports Authority of South Africa (NPA)

The National Ports Authority will be responsible for the management of the national commercial port system.

In order to become a landlord type of port authority, the National Ports Authority will not be engaged in port operations (e.g. stevedoring and terminal operations). The National Ports Authority will own the land. However, the terminal infrastructure such as terminal buildings, workshops, substations, surfacing, rail sidings and terminal services and utilities (e.g. water, lights, power, sewerage and telecommunication) and cargo handling equipment required such as cranes could be purchased and/or constructed, operated and/or maintained by the terminal operators in terms of a concession or leasehold

contract with the National Ports Authority. This also implies that the National Ports Authority will not employ the cargo handling labour.

The general corporate characteristics of the envisaged National Ports Authority shall be:

A State-Owned corporate entity, created in terms of an envisaged Ports Act. As a State-Owned enterprise, the National PortsAut hority shall be firmly managed in terms of the Public Finance Management Act, 1999;
The National Ports Authority shall also operate as a company in terms of the Companies Act, with the state being the only shareholder;
The current National Ports Authority within Transnet will be positioned outside Transnet in accordance with the restructuring programme of Transnet, as approved by the Minister of Public Enterprises; and
The National Ports Authority will apply the principle of subsidiarity and thus will delegate substantial power for day-to-day management and decision making to the individual port branches.

The National Ports Authority shall be responsible for the landowner, control and other functions detailed below.

3.3.1 Landowner Functions

The *landowner functions* entail:

Owning, developing and managing the port property portfolio;
Advising on, and implementing national port policies and development strategies;
Providing and maintaining port infrastructure (e.g. breakwaters, seawalls, channels, basins, quaywalls and jetties.);
Providing or arranging road and rail access to port facilities;
Providing or arranging services and utilities (water, lights, power, sewerage and telecommunications); to be accessible to terminal operators;
Co-ordinating port marketing and promotional activities; and

Maintaining the sustainability of the ports and their environs.

3.3.2 Control Functions

The *control functions* entail:

Providing vessel traffic control and navigational aids;
Licensing/concessioning of terminal operations and/or related services;
Safeguarding port user's interest against port operation and/or service monopolies;
Monitor and ensure compliance with applicable laws and regulations;
Ensuring that the orderly, efficient and reliable transfer of cargo and passengers between sea and land is provided by operators (stevedoring, and terminal operations);
Ensuring that safe, adequate and secure warehousing and storage is provided by operators within the ports on a commercial basis;
Review, organise/restructure current and future land and port facility usage with the view to the creation of a level competitive and efficient playing field between terminal operators and related services; and
Monitor the performance of terminal operators.

The implementation of a concession/lease agreement imposes on the part of the National Ports Authority a requirement to review the current and future land and port facility usage and an agreed level of supervision of the operational activity and operational results of the contract's execution. The aims of such supervision are:

To ensure that the operator uses the potential of the facilities to their fullest capacity in the most efficient manner. To ensure that the National Ports Authority generates market related returns on its land and assets; and
To obtain confirmation that the port users will receive services which offer a degree of quality and effectiveness that are commensurate with the demands of international trade.
In essence, the above control functions of the National Ports Authority include the licensing and concessioning of operational activities within the port confines.

These control functions will involve substantial powers given by the State to the National Ports Authority, the majority of which will be by appropriate port legislation.

3.3.3 Other functions

The National Ports Authority will also be entitled to prescribe the limits within which and the levels to which dredging may be carried out.

Off-shore cargo handling facilities impact on and form part of a country's role of assisting foreign trade through the ports. For all practical purposes a future off-shore cargo handling facility can be used for the transfer of bulk liquids or any other cargo to or from the land/to or from the vessel. Therefore, from a landlord type of port authority's perspective, the planning, provision and control of an off-shore cargo handling facility, alongside the coastline of South Africa, is part of the National Ports Authority functions, whilst the operations of these facilities can be performed by commercial operators.

Off-shore cargo handling facilities mean any off-shore facility situated within the internal or territorial waters, including a single buoy mooring and a pipeline, which is used or intended to be used for the transfer of any cargo to and from a vessel.

The National Ports Authority will plan, provide and control all off-shore cargo handling facilities, alongside the coastline of South Africa.

The National Ports Authority will not be engaged in the port operations (e.g. stevedoring and terminal operations). As owner of the land, the National Ports Authority shall ensure that the licensees (including the Port Operation Division) and concessionaires provide adequate, efficient and affordable terminal operations and port services to all port users.

This also implies in a later phase that marine services such as tug services and berthing services provided by the National Ports Authority could also be licensed out.

3.4 NPA Corporate Perspective

The Corporate Office is made up of six functional portfolios. However, there are two revenue generating businesses which are represented by the Maritime and Landlord Services which operate through the ports as service delivery platforms. There are three core support portfolios namely Trade and Logistics, Corporate Services and Ports and Corporate Affairs. In addition, NPA has established PORTCON as a revenue generating business and it acts as NPA's international arm which prospects for port business including port operations and advisory services outside South African borders.

The business direction for 2003/04 will be discussed for each of the portfolios in turn.

PORTFOLIO PRODUCT OFFERING

3.4.1 Maritime Services

Maritime Services is the only business portfolio within the National Ports Authority of South Africa (NPA) that provides operational services. It consists of four business units, namely:

- **Marine Services**, which encapsulates the marine operations (i. e. pilotage, tugs, berthing and other miscellaneous services) and harbour master functions (i.e. Port Control, Vessel Traffic Services (VTS), Conservancy, the Licensing, Authority, Marine safety and Dangerous Goods Management);

- **Shiprepair Facility Services**, which focus on the provision of repair facilities to vessels;

- **Lighthouse Services**, which owns, provides, maintains and operates 45 lighthouses and 2 minor lights along the coast of South Africa in terms of providing a safety service and aids to navigation for sailing vessels; and

- **Dredging Services**, which provides maintenance dredging within ports within set parameters as well as hydrographic surveys.

Maritime Services are facing a major challenge of a regulatory and commercial nature. The Ports Bill will introduce a new regulatory and legislative framework which will place certain obligations on Maritime Services. The focus of the regulatory demands will be on safety, whereas there is a demand for the business units to become profitable and sustainable. The balance of these two factors (safety and efficiency) constitute a critical challenge to the business units into the future.

There are still under-recovery within the business units of Maritime Services. The process of addressing this has commenced with the implementation of tariff reform, but were still constrained by the historical high wharfage costing. With the change from wharfage to unit cargo dues, it is Maritime Services' intention to incrementally adjust tariffs to achieve adequate profit levels whilst addressing costing through implementation of ABC systems.

The revenue base will therefore increase as a result of above average tariff adjustments and the implementation of tariff reform for Marine Services and Shiprepair Facility Services. In the short term the net profitability of Maritime Services will improve with increases in tariffs and reduction in operating costs. In the long term Maritime Services will be run as a commercial business driven by the profitability and sustainability imperatives.

The need for integrated systems to support maritime services remain, the biggest shortcomings in the areas of financial management, computerised maintenance systems as well as human resources. It is anticipated that the implementation of SAP will improve this situation and deliver the required systems focus. It is believed that SAP will also address the shortcomings of the procurement systems of the past.

The focus during 2003/04, for the four Maritime business units will be as follows:

Marine Services

Marine Services are still under-recovering as a business. The process of addressing this has commenced with the implementation of tariff reform, but was still constrained by the historical high wharfage costing. With the change from wharfage to unit cargo dues, it is Marine Services' intention to incrementally adjust tariffs to achieve adequate profit levels. The tariff adjustment for 2003/04 for Marine Services will still be above average at 11%, but, with the exception of Saldanha Bay's marine charges, it is foreseen that this will be the last significant intervention. With effect from 1 April 2004, annual adjustments should be in line with inflationary trends. Saldanha Bay however requires significant intervention to address cost coverage and the provision of Marine Services on a 24-hour basis at the port. Further structural changes will also be accommodated with effect from 1 April 2002, insofar as the charge for Vessel Traffic Services (VTS) is concerned.

The revenue base will increase as a result of these tariff adjustments and the implementation of marine tariff reform. This will bring short-term profitability to Marine Services, but at the same time a reduction in operating costs will be pursued. This will adjust the Marine Services focus to be that of a viable commercial business, driven by the cost-coverage and sustainability.

Shiprepair Facility Services

Shiprepair Facility Services are performing below potential and this is largely due to high labour costs, low effective utilisation of resources and high maintenance costs, compounded by additional property leases and finance charges that have been allocated to this business unit.

Operating Dry-docks, Slipways and Ship Repair workshops are not considered part of the NPA's core business, South Africa in fact is unique as the NPA owns and

operates these facilities, whilst the ship repair activities are carried out by private entities who generate the major revenue in the shiprepair business.

Revenue should improve as a result of a 20% increase in tariffs, as well as the implementation of phase two of the tariff reform process, which will see Dock Dues no longer being determined by the gross tonnage in cubic metres, but based on the length of the vessel plus any additional floor space occupied inside the repair facility. Crane charges will also be charged separately.

The intent during 2003/04 will therefore be to maintain focus with the current facilities that fall under the control of NPA and to:

- address inefficiencies (resource utilization),
- manage and reduce costs,
- review capital requirements,
- develop a strategy to achieve cost recovery and makes provision for capital investment,
- pursue alternatives to increase revenue, and
- to establish a national shiprepair business unit, which will allow this business to become fully autonomous.

This business remains essential to the Shipping Industry.

Lighthouse Services (LHS)

LHS has been operating as a separate business unit within NPA since 1 April 1990. Since that date LHS has been ring-fenced and operates on an independent financial system with all assets identified and accounted for. The core functions of LHS remain to provide an aids to navigation service to all vessels sailing along the South African coastline.

The challenges for LHS during 2003/04 are:

- To meet the wide range of customers' diverse and sometimes conflicting needs simultaneously and to positively influence customer profitability,
- To maintain and improve profitability whilst at the same time maintaining the required Service Levels,
- Optimum usage of resources,
- Compliance to relevant Human Resources legislation whilst maintaining the required Service Levels, and
- To further develop LHS future positioning strategy through the SALATO venture and to develop an "Into Africa" strategy in conjunction with PORTCON.

Dredging Services

Dredging Services has operated as a separate business unit since 1988, and has been "ring fenced" since 1 April 1990. Dredging Services was established to reduce he cost of maintenance dredging to the ports, but this business unit was required to function on a breakeven principle.

Dredging Services therefore focused on being a service centre, rather than being a profit centre – the impact of this has been that the assets are not optimally utilised and profitability below expectations. The profit margins were subsequently amended to be equal to the depreciation of the existing dredgers, but revenue will need to be improved through new revenue opportunities during 2003/04. These opportunities may include external markets to NPA or even external to South Africa.

The focus for 2003/04 will take Dredging Services from being purely a maintenance dredging provider to a commercial entity with the objective of increasing market share through additional business development and the marketing of capacity that becomes available as a result of improved operations management.

3.4.2 Landlord Services

Landlord Services consists of five divisions, Property Management, Planning and Development, Safety, Health and Environment (SHE), Engineering and Security Management.

3.4.3 Trade & Logistics

The Trade & Logistics portfolio represents the strategy and future positioning arm of the NPA and is made up of Marketing, Business Strategy, Business Development and Policy units.

The Marketing unit comprises a national marketing team that develops and implements the NPA marketing strategy and plan through a comprehensive customer relationship program, which strives to enhance customer satisfaction with NPA as service deliverer and facilitates trade, within the ambit of the ports policy through business development and new business initiatives. The importance of this function is fundamental to supporting Maritime and Landlord portfolios in interacting with their key clients.

The Business Strategy unit is responsible for national development and implementation of NPA and Corporate portfolio strategic and business plans. The unit also provides performance management through the Balance Scorecard (BSC) and project management support through the Group Project Support Office (GPSO) and Port Project Support Offices (PPSO). Business Development and Policy facilitation and research are also incorporated in this division.

The key focus of Trade and Logistics therefore lies within the implementation of the NPA business and marketing plans, driving business development and new business initiatives and ensuring that business strategy is being implemented within NPA through use of the BSC and Compass GPSO. This portfolio also provides strong support in the Ports Bill and port concessioning process. Fundamentally, it also helps the CEO to plan and translate the future corporate direction of the NPA to ensure viability and

profitability in the long term through appropriate positioning strategies and scenario formulation and monitoring.

3.4.4 Corporate Services

The Corporate Services portfolio is the key internal service delivery platform of NPA consisting of the following units :

Office of the Chief Information Officer seeks "to deliver to the NPA the integration of disparate IT systems and "islands of business information" and to build a single information view of NPA for our user communities; to improve IT service delivery by implementing a new service focused structure and putting in place new best practice policies; procedures and standards that will drive all SLA's with clients and suppliers."

Finance : "Provides NPA business units with sustainable value-adding financial services proactively, that will allow them to realize their business objectives."

Legal : "Offers competitive and comprehensive legal guidance to the NPA business by ensuring legislative and regulatory compliance, while mitigating risk in the interests of executing best practice."

Procurement : Ensures "Support of NPA business units in the procurement of goods and services in a cost effective and efficient way in accordance with best commercial practices, and pursuing supplier development in support of the Company's BEE objectives";

Human Resources : "is a strategic business partner through HR architecture (systems; processes; structure and products) in order to maximize company profitability and shareholder value."

The above-mentioned units function as an integral unit in terms of developing policy and procedures for sound corporate governance and then ensuring compliance with the latter.

The core responsibility of the Corporate services portfolio is to focus on supporting the main businesses as is and ensure appropriate policy compliance, internal control measures and maximisation of assets utilisation as well as driving down the cost of doing business.

3.4.5 Ports & Corporate Affairs

Ports and Corporate Affairs is a business unit within the office of the CEO which represents the following two units :

Port Management, which represents the line management structure through which decentralised port business units are managed. Ports are key delivery platforms for NPA's operational strategies. This division strives for standardised strategic plan implementation and operational compliance across functional portfolios at port level, and represents the key service delivery interface with customers, as well as the revenue platform for the NPA;

Corporate Affairs is responsible for corporate positioning through a comprehensive promotional, publicity and trade industrial advertising plan, combined with synergised networking amongst key stakeholder groups. This unit focuses on communication, corporate image building and brand management, stakeholder management and corporate social investment.

3.4.6 PORTCON

PORTCON is the international management services and consultancy arm of the NPA, which comprises of a team that advises, consults and manages by contract on specific projects for the rest of Africa, international maritime trade role-players and port authorities with a specific focus on Africa in terms of the NEPAD initiative. As a consultancy, it provides business solutions and project management in the fields of port operations and port management whilst from a business expansion perspective, aims to participate in p ort a nd p ort r elated do wnstream v alue a dding o pportunities, m anaging ports/terminals, brokers the supply of port and non-port equipment and infrastructure and

forming alliances with local, black economic empowerment and/or foreign business entities for participation in projects.

3.5 VISION, MISSION AND CORE VALUES

The National Ports Authority, as a sub-division of Transnet, follows and embodies the Corporate Transnet Vision:

AFRICA's undisputed world champion in Transport and Logistics Solutions

THE STRATEGIC INTENT OF THE NPA is:

To be a transformed, self-sufficient Port Authority that facilitates and enables competitiveness in a world-class port system

THE MISSION STATEMENT OF THE NPA is:

To facilitate economic growth for South Africa, by providing and sustaining port systems that are amongst the best in the world

NPA subscribes to the following set of 11 corporate values:

Open and honest communication;
Service excellence;
Employee development;
Safe and secure environment;
Human dignity and respect;
Legislative and regulatory compliance;
The well- being of communities in which the NPA operate;
Integrity in business conduct;
Employee participation and empowerment;
Cultural diversity and inclusiveness; and
The recognition of good performance and behaviour.

3.6 Strategic NPA Objectives

3.6.1 Ensuring sustainable value creation and profitability within NPA.

3.6.2 Creating an enabling business environment to enhance trade.

3.6.3 Entrenching a performance-centred culture to ensure efficiency, effectiveness and continuous improvement.

3.6.4 Growing and developing NPA staff in line with equity and gender objectives.

3.6.5 Continuously conduct research and competitive intelligence analysis aimed at enhancing business growth, innovation and creativity.

3.7 The challenges facing NPA:

Internal

- Robust risk management approach;
- Implement zero-based safety-related incident policy;
- Compliant insurance costs;
- Business re-engineering of internal business processes and systems;
- Robust capex provision and sound funding arrangements;
- Capacity provision to meet market demand;
- Management of allocated Transnet debt;
- Independent and self-sufficient NPA;
- Ensure a relevant skill resource mix and base aligned with EE targets;
- Manage high cost base with strategic reduction plan and revised income mix;
- Implement a robust lifestyle management program that will also address HIV/ AIDS;
- Complete commercialization of leases;
- Complete tariff reform;
- Entrench NPA corporate and marketing positioning;
- Strengthen corporate market awareness and top leadership visibility;
- Aggressive new business development;
- Lowering port system costs and facilitate the improvement of operational efficiency within the port community through Port Community System (PCS) implementation and SLA management framework;
- Strengthen logistics management ability and focus within NPA

External

- Pro-active input and planning for international regulatory environment – safety, security, environmental - and within SA, e.g. public finance management act, information, port reform, ports bill;

- Strengthen stakeholder relationship management;
- Strengthen customer relationships and built partnerships;
- Ensure NEPAD alignment and Africa collaboration program;
- Pro-active participation and planning in port restructuring process;
- Ensure strategic competitive positioning of SA port system – e.g. futures research, benchmarking and best operating practice implementation; and
- Ensure robust market intelligent base and responsiveness to competitive intelligence.

3.8 CRITICAL SUCCESS FACTORS, RISKS AND ENABLERS

Critical Success Factors

- NPA strategy will act as framework for portfolio planning, management and alignment and will at all times function as a single team/unit which will be collectively responsible, yet individually accountable;
- Aligned with best practices and international benchmarks in terms of service offering and pricing policy;
- NPA independence from port users;
- Clear and defined powers of regulation;
- Port information systems integration and data integrity with accessible management information;
- Robust port development plans;
- Clear strategic direction communicated to all – customers, suppliers and staff;
- An entrenched performance management system that is IT&S enabled;
- An entrenched project management culture and skills base;
- Skilled and appropriate human resource support functioning in a matrix structure;
- Efficient internal business process support with continuous business re-engineering;

- An in-depth understanding of the South African economy and the role that NPA needs to play to enhance its competitiveness;
- Alignment between National Ports Authority's strategic plan with Transnet's strategic path, Government's National Economic Policy and Industrial Strategy;
- Adequate access to and presence in African and international markets with NEPAD alignment;
- Readiness and availability of finance for equity in JV's and other projects;
- Public Finance Management Act compliance;
- Aggressive new business development and trade facilitation within existing markets to ensure sustainable revenue growth.

Critical Risks

- Misalignment between Government's economic and industrial strategy on the one side, and NPA's business strategy on the other side;
- Diminishing skills and competency base;
- Incorrect business and financial assumptions and planning;
- Availability of finances in Africa to pursue business opportunities;
- South African operational ports performance;
- Volatile political, social and economic situation in developing countries;
- Resource succession; and the
- Personal health, safety and security situation in African countries.

Enablers

- Clear, unambiguous and agreed port policy bill and South African port system strategy;
- Stable and growing South African economy;
- Port community support and partnership relationship approach;

- Commitment and resoluteness of NPA staff in terms of strategy implementation;
- Clear reporting structure and economic role of National Ports Authority;
- Financial enablement by Transnet of National Ports Authority in order to realise port policy functionality;
- Customer satisfaction (quality of completed projects and acceptance thereof);
- Growing and diverse NPA market base;
- NEPAD alignment;
- Market intelligence base;
- Stakeholder collaboration;
- Smooth port restructuring;

3.9 Port Regulatory Framework

The National Ports Authority have the responsibility of regulating the sector on a day-to-day basis on sector-specific issues, whilst the Competition Authority/Commission has powers to oversight on questions of anti-trust issues.

A National Commercial Ports System has been identified that will be financially self-sufficient ports vital to domestic, regional and international trade. All the existing commercial ports, i.e. Richards Bay, Durban, East London, Ngqura, Port Elizabeth, Mossel Bay, Cape Town, Saldanha Bay, Port Nolloth, and offshore cargo handling facilities as well as all future ports and offshore cargo handling facilities to be constructed, will be managed and administered by the National Ports Authority (NPA) and it will instill commercial discipline in South African major ports and pave the way for efficiency gains necessary for ports and users to become competitive in the global economy

The present trends in the world of ports is a growth in the number and size of ports, globalisation of trade, focus on total transport logistics, diversity of available sea routes

and diversity of forms in which commodities are shipped. The developments in transport technology and effects of economies of scale have led to main ports and feeder ports.

The different forms of competition possible are as follows:

Competition between whole ranges of ports or coastlines. There is a diversity of main routes for vessels on a global scale, for example, for container trade the main arterial route between the East, Europe and the east coast of the Americas through the Suez canal or the African range of ports (such as Dakar, Accra, Walvis Bay, Cape Town, Port Elizabeth, Durban, Maputo, Beira, Dar-es-Salaam, Mombasa) in between;

Competition between ports in different countries for example, between South African ports and Maputo and Walvis Bay;

Competition between individual ports in the same country; and

Competition between the operators of facilities or providers of services within the same port. (Two areas – services and pricing).

Restructuring of the world economy has redefined the strategic location of ports on a global scale. Through globalisation the strengthening of the entire logistics and industrial network of ports, connections and corridors is of importance. There is a diversity of available main routes for vessels on a global scale. A port has a more competitive advantage when strategically located on the main maritime routes on a global scale.
The National Port Authority should give more prominence to the need for much greater client orientation and better logistics support through proper organizational arrangements for strategic management, strategic planning and strategic pricing.

The National Ports Authority will provide sufficient and appropriate port infrastructure to ensure that the ports adequately respond to the market or to changes in the market. The

National Ports Authority will avoid the unnecessary and unjustified duplication of port infrastructure that would amount to wasteful usage of scarce resources.

The South African port system will remain financially autonomous and Government funding will not be available for the National Ports Authority, except in the following cases:

Where Government need to address social needs on infrastructure and services;
Or where the National Ports Authority on request of the Government must perform activities; and
Or cease to perform activities in circumstances where the National Ports Authority considers that it is not in its commercial interests.

Port development cannot be considered in isolation, but should be integrated into any national, provincial and local economic and spatial development initiatives, and also support the RDP. There should be synergy among port development, and national and provincial economic and development strategies. Long-term location planning for ports should run parallel to provincial and regional economic development plans.

The development of commercial ports must be integrated in nature, with port facilities being planned together with other elements of the transport system. The planning and integration of port facilities into the broader transport network should be co-ordinate at the appropriate sphere of government.

The port's national development framework plans should inform and be included in a provincial transport plan which, in turn, should form part of an economic development plan for the province. Naturally, they should also conform to any national spatial, economic and other initiatives. Proper integrated planning must be done to ensure greater efficiencies are delivered by the transport system.

The ports policy advocates port and city co-operation through planning structures that will be facilitative and enabling of that particular intent. This shall be achieved by:

Having the national port authority established as a planning and development co-ordinating body; and

Ensuring that the planning of each port is localised as much as possible to allow for flexibility and rapid response to changing market conditions and customer demands within the context of the national commercial port development framework and stakeholder consultation through the local port consultative committee.

As landowner, the ownership of the port infrastructure will vest in the National Ports Authority. The operating rights of existing terminals, as well as the development and operating rights of new terminals will be transferred to the private sector, where feasible. The National Ports Authority will have the powers to transfer and award the operating and development rights to the private sector, in a transparent and equitable manner in terms of licenses and concessions for the construction, management and operation of port terminals and services.

Due to the strategic importance of the commercial ports to the entire economy of the country, no person, other than the National Ports Authority, shall build, own or exploit any commercial port infrastructure including future offshore cargo handling facilities to be used or intended to be used by sea-going vessels, for loading or off-loading of trade cargo or passengers.
In the event that any port becomes non-viable, the National Ports Authority might close that port only after the Cabinet has issued such a directive based on the finding of an independent inquiry pertaining to the reason for such a closure.

3.10 Improving the Competitive Position of South Africa's Ports

Competitiveness is defined as ensuring that the port and transportation system can meet the requirements of its users. Competitiveness is a key aspect that influence South Africa's place in global markets. To compete successfully for business in domestic and international markets, ports and other transport operators must have the ability to move people and cargo efficiently, reliably, and at a reasonable cost, without infrastructure impediments or congestion delays.

For exporters and importers, competitiveness translate into a demand for intermodal services that provide speedy movement through ports and terminal transfer facilities to landside transportation. It also translate into a demand for ready access to the transportation information that is needed by all parties to the various transactions involved in trade. There is a sense of urgency among some port stakeholders who maintain that there is not enough spending on construction, operations and maintenance for ports.

The future competitiveness of the port system and infrastructure will be influenced by the following capacity issues:
Land use in and around the ports;
Demand and constraints on intermodal connections;
Advances in information technologies and navigational systems;
Increasing dredging requirements; and
Environmental constraints.

Thus, there is a need to improve the productivity, throughput capacity and accessibility to meet the expected growth in international trade.

The primary function of the port system will be, as gateways to the world, to operate with modern infrastructure provided by dependable funding sources, using optimal technology. In terms of capacity, efficiency, safety and security and environmental

enhancement, the ports will be world class. The inland transportation capacity will match the ports throughput.

In order for our ports to truly become globally competitive, and thereby enhance the competitiveness of South African enterprises, the economy and the region, the port system must be encouraged to develop and progress to the status of the most modern ports internationally, within a reasonable period of time. The National Ports Authority of South Africa will pursue this agenda with vigour and Government will do all it can to support the National Ports Authority in its endeavours, particularly with regard to creating a unified port community, integrating the port with trade and logistics chains in the transport network and the development of world class technologies.

This implies that ports:

Are no longer passive points of interface between sea and land transport;
Play an active role in the world transport system and promote the port concerned;
Play an active role in stimulating trade;
Will become dynamic nodes in complex international production / distribution network; and
Will become integrated transport centers and logistics platforms for international trade.

The National Ports Authority will facilitate trade throughout the commercial port system and administration of trade information by introducing an electronic commerce portal system for all port users. This will be based on the principles of data integrity, confidentiality, accessibility and availability as well as auditability.

Government's industrial strategy seeks to harness regional complementarities with the aim of promoting economies of scale and developing an integrated regional production system. This strategy depends on the ability to leverage knowledge and technology to integrate backward and forward linkages with production processes. Although this strategy is relevant to all manufacturing, government has identified certain priority

sectors for implementation. Integrated logistics, as a key component of the supply chain process, will play a critical role in the success of this approach.

The National Ports Authority and terminal operators will ensure, prioritise and be responsive to the infrastructure that is required to support the integrated industrial strategy

Environmental sustainability emphasises the interdependence of social and economic development and environmental protection. It is an accepted norm that all transport infrastructure development investment decisions consider the environmental implications early on during the decision-making process and not only once the project is fully planned.

The National Environment Management Act (Act No. 107 of 1998) stipulates a range of Integrated Environmental Management (IEM) tools. These tools include Strategic Environmental Assessment (SEA) used for the p roactive integration of e nvironmental issues at the policy and planning level, Environmental Impact assessment (EIA) used for the assessment of project specific developments and Environmental Management Systems (EMS) used for the day-to-day management of the port operations.

Social and biophysical environmental aspects should be integrated into the port planning process from an early stage through the process of Strategic Environmental Assessment (SEA). Project specific development should undergo an Environmental Impact Assessment (EIA), which should assess the impacts of the design, construction and operation of the facilities at an early stage. Ongoing environmental management for all existing port facilities should be founded on internationally recognized management systems to ensure a coordinated and systematic approach to the long-term environmental management of the port facilities. The environmental management system (EMS) should include coordinated environmental monitoring of appropriate indicators that can be used to track the level/trends of sustainable port development and used as input data for strategic port planning processes.

3.11 Port Security

The State, through its securities, has the overall responsibility for ensuring port security. The National Ports Authority shall develop policies and deploy resources in the existing and future commercial ports to enhance port security. The terminal operators are responsible for their own security within the terminal boundaries, subject to the rules and policies determined by the National Ports Authority.

A new maritime security code – the International Ship and Port Facility Security (ISPS) code – is due to be globally implemented shortly. It was passed in July last year as an amendment to the International Maritime Organisation (IMO) Solas code.

ISPS requires all ports around the world to assess their own, individual security requirements, and to institute security plans on three separate levels - for where possible terrorist action is assessed as normal, heightened or exceptional. The shipping industry as a whole is required to ensure that these security plans are in place.

South Africa and the US have entered into an agreement which will see representatives from the two countries stationed at each other's ports.
It's an initiative by SA Revenue Services (SARS) and the US Bureau of Customs and Border Protection to boost security measures at the ports to ensure the safety of exports from South Africa.

Despite the large-scale security concerns, the IS department is not involved in any security related projects and furthermore a recent audit report has highlighted a serious lack of security measures in so far as the IT systems are concerned.

3.12 Port inefficiencies chronic for now

Despite seeming commitment from government, South African Port Operations (Sapo), as well as the National Ports Authority, inefficiencies experienced across South African ports are not expected to be rectified soon.

Limited capacity, a lack of competitiveness and ageing infrastructure are cited as some of the r easons f or t he s pate o f de lays a nd ine fficiencies t hat ha ve o vershadowed o ne o f South Africa's booming industries in recent years.

The encouraging growth in shipping and freight traffic to sub-Saharan Africa has again emphasised the need to speed up the upgrading of the country's overburdened ports.
One such initiative is under way at South Africa's largest port, Durban, which handles about 65% of the country's container traffic.

The first phase of the R1,3-billion Port of Durban Development 2005 upgrade involves the procurement of some 60 straddle carriers, at a cost of R260-million, from Europe's Kalmar, to replace the old fleet. The first five carriers were delivered in December last year and all 60 will be in operation by December this year. In addition, Sapo will also be refurbishing 12 other straddle carriers, which will bring the terminal's compliment up to 72, with further plans to acquire an additional 37 in the next financial year.

Phase two, which is still in specification stage, involves the procurement of an additional seven quay-side cranes, which will bring the number at the container terminal up to 20.
Three of these will be deployed at pier-two, and the other four will operate from what is to be the new pier-one, currently a multipurpose terminal.

Plans are under way to convert the port's general-cargo combi terminal at pier-one into a container terminal, to increase container-handling capacity from the current 1,3-million 20-foot equivalent units (TEUs) to 1,6-million TEUs.

However, this conversion is only expected to be complete by some time in 2006.
The westward dredging of the container terminal to add an additional two berths, known as 206 and 207, will also begin in 2005 and is expected to be completed in 2008.

This will bring the terminal's number of berths up to a total of 13 in that year.

The ports general cargo area will also be moved to the city terminal, to enable piers one and two to focus solely on container handling.

The rationale for the Durban container terminal upgrade is to support continued growth in container traffic at the port, which currently operates at 95% of its full capacity.
Year-on-year growth in container volumes since 1994 averaged some 8%, with an 18% increase recorded in 2000.

A 4,5% increase in container volumes is expected in the next ten to twenty years.
The port of Durban is negotiating with shipping lines to coordinate shipping arrival patterns through the berthing slot system to prevent long delays due to the limited number of berths.

Cargo content is also to be prioritised to prevent large revenue losses due to delays.
The port of Durban reported a measurable loss of some R39-million between June and October last year due to lost opportunities caused by delays emanating from industrial-relations problems at the port.

Ships were diverted to the port in Port Elizabeth and the cargo railed up to Durban, using equalised rail rates between Spoornet and Sapo, at no additional cost to the customer.

Another new initiative by Sapo which is expected to increase efficiency in port invoicing systems involves the implementation of the Corebis billing system at the various ports.

The integrated invoicing system will transform the organisation's billing systems from paper to electronic-based systems.
It allows each shipping line to receive one invoice for all containers handled at container terminals for each ship within one or two working days of the ship having completed or sailed.

On landing, the operational computer system automatically updates the invoicing module and immediately prepares a proposed invoice for each shipping line controlling containers on board.

Once the invoice is checked for accuracy, either a paper invoice can be printed and delivered to the individual shipping lines or the invoice can be transmitted electronically to the shipping line computer system from the terminal computer system. The system is said to complement the Cosmos computer system which was installed two years ago to re-engineer the port's operational processes to meet international standards.

3.13 The IT function at NPA

The effective functioning of the Port Authority is critically dependent on management information that is updated and guaranteed of its integrity.

In recent developments during the investigations conducted by Port Authority into the potential reduction of wharfage charges, it once again became clear how critical updated and credible management information is to the business. Continued financial modeling around tariff restructuring will not only focus on cargo volumes and consumer price indices, but also have to take into account management information on capital expenditure, operating costs and productivity ratios. Sound and integrated management information systems will make this process much easier to conclude and to replicate whenever necessary.

In addition to the above, Transnet – holding company of Port Authority – has embarked on a large-scale e-procurement roll-out into all its divisions/"subsidiaries". The success of this e-procurement initiative relies not only on aspects such as supplier enablement and process efficiency, but also quite significantly on the empowerment of e-procurement solutions through integration with superior back office Enterprise Resource Planning systems (ERP).

During Port Authority strategic planning sessions in the last quarter of 2000, the criticality of Enterprise Resource Planning (ERP) became quite evident. With Port Authority poised to tackle the challenge of reduced wharfage whilst being a leader in superior infrastructure development and provision, it is essential that it s management information needs must be met to the highest standard. The theorem of "you can only manage what you can measure" holds true to the vision of Port Authority to become a superior business in the South African economy.

The factors mentioned above may have all played a role in NPA recognising the need to strategically re-evaluate their systems environment in order to:

- ✓ Replace the existing MIS application with the most suitable solution for the needs of NPA now and into the future.
- ✓ Develop a solid framework for current and future Information Technology decisions.
- ✓ Ensure that all IT initiatives are based on a sound business case and are driven by the business community.
- ✓ Plan the envisaged implementations carefully around the requirements of the business, costs, benefits, resource requirements and potential risks.
- ✓ Enable NPA to adopt some of the relevant best business and technology practices, and exploit their Information Systems investments in order to gain business benefits and competitive advantage.

To address these issues, Deloitte Consulting and Khulisa Management and Engineering, were appointed to undertake a two-week exercise to reconfirm the SAP system as the Enterprise Resource Planning (ERP) solution of choice. This entailed a high level study of the current NPA business processes covering the four main threads of an IT implementation, namely:

- ✓ Review of the current NPA IT strategy

- ✓ Development of Business Requirements and Systems Selection
- ✓ Development of a High level cost assessment
- ✓ Development of an Implementation Approach

3.13.1 Business Case Summary

The business case was performed at a high level to achieve the following objectives:

- ✓ Evaluate the current NPA business requirements
- ✓ Evaluate the need to develop a robust framework for current and future IT decisions for NPA
- ✓ Discuss the preferred implementation approach for the preferred ERP system
- ✓ Investigation of the current business processes and detail the expected improvements from the SAP system

Key findings reflected the following:

- ✓ There is a definite need for an ERP system to integrate the various business processes at NPA
- ✓ The IT strategy needs to be aligned with business strategy to form a holistic NPA strategy
- ✓ The Port Authority preferred system, SAP, is highly compatible with the business requirements
- ✓ An implementation of the SAP system will reduce the number of current systems employed by NPA from 11 to 6
- ✓ We have established that there will be benefits to NPA that can be attained through the implementation of the SAP system. These benefits include both quantitative and qualitative returns to NPA

Summary of Quantitative Benefits

The following quantitative benefits have been recognised as potential cost saving realised over a period of 3 years following a successful SAP implementation. The three-year period has been based on the assumption that the organisation would have matured according to the SAP system usage learning curve.

A potential Procurement cost saving of R 10.3 million due to:

- ✓ Stock level reduction.
- ✓ Consignment purchasing.
- ✓ Reducing obsolescence.

A potential Maintenance cost saving of R 25.2 million due to:

- ✓ Conducting more preventative maintenance work.
- ✓ Better resource (labour, material and special equipment) planning.
- ✓ Reducing the number of breakdowns.

A potential project services cost saving of R 18.3 million due to:

- ✓ Reducing administration costs around the approval process of projects.
- ✓ Saving net finance costs by executing planned projects on time.

Summary of Qualitative Benefits

- ✓ Standardisation of Business Processes
- ✓ Integration of systems and business processes
- ✓ Improved reporting and readily available information

- ✓ Improved data quality and integrity

3.13.2 IT & S Strategic Plan

The mission, vision and strategic objectives of the IT & S strategic plan are as follows:

Mission:

To timeously deliver high quality, cost effective IT business solutions and services to the port industry

Vision:

To be a proactive preferred quality solution provider enabling business growth and a competitive edge by staying abreast of technology and developing people into a highly skilled, self motivated and dynamic team.

The IT & S Vision and Mission statements were adopted with participation of all staff members in October 1997. Some changes were made by IT Management to adapt the statements to accommodate a divisionalised Portnet. The IT & S Strategic Plan and Business Plan reviewed, dated for the period 2001/02, does not appear to align completely with the NPA Strategic Plan for 2001/02. This plan was however developed at the same time as the NPA Strategic Plan 2001/02. Certain IT & S initiatives appear to be partially aligned with NPA initiatives. The strategic objectives and initiatives are business focused but not developed in line with NPA strategy.

Strategic Objectives:

Improve service delivery
Improve earnings potential
Expand client base

There are a number of factors that are critical to the success of the Port Authority attaining its vision:

- ✓ Operational (Port) alignment to the corporate and IT & S strategy
- ✓ Clarity and communication regarding systems development and implementation
- ✓ Clarity and communication regarding Port Authority's organisational structure and migration plan
- ✓ Appropriate IT governance
- ✓ Training of users in the application of systems
- ✓ Entrenched system policies / standards and user discipline in the application of systems
- ✓ Executive / Leadership alignment
- ✓ Understand, and keep abreast of market forces driving Port Authority business – technological advances, customer requirements (e.g. network speed and quality, web-enabled transacting)

3.13.3 Vision for the "Information Age"

Information will enable NPA to be a world class Port Authority by:

- ✓ Using information to measure performance and stimulate continuous improvement
- ✓ Being a knowledge sharing organisation that is seamless to its customers and employees
- ✓ Using information to reduce ship turnaround time and improve transshipment efficiencies
- ✓ Better asset utilization

To realize this vision, the following cultural and mindset changes need to be communicated and accepted:

- ✓ The value of the organisation being a seamless, matrix is counter-cultural and needs to be reinforced and reflected in local decision-making at all levels
- ✓ The importance of standard policies and guidelines regarding user discipline and competency / training.
- ✓ The integrated nature and compatibility of systems

How information will help?

Information can assist Port Authority to enable the Corporate Vision and Strategy along two dimensions:

Helping the organisation to be greater than the sum of its "ports":

- ✓ Enabling optimisation of operations between and within Ports and business units by:
  - ❑ Sharing information between ports to improve planning of operations
  - ❑ Utilising information to plan better and in so doing reduce the holding of spares and ultimately decrease inventory levels
  - ❑ Collaborating to bring about volume purchases
  - ❑ Establishing supplier agreements resulting in improved service levels
- ✓ Enabling the enterprise to become a learning organisation through experience sharing
- ✓ Capturing knowledge about customer needs so that, whenever pertinent, it flows through to the other ports and corporate value chain
- ✓ Enabling people to be more a part of the enterprise as well as their local groups; people will then act in the common interest of the entire company rather than only in the interest of their own group at the expense of the others
- ✓ Decreasing complexity thereby decreasing costs and improving customer service

- ✓ Increasing decision-making and implementation speed

Helping corporate parts be greater:

- ✓ Enabling optimisation of operations within each business unit through:
  - Increased reporting ability
  - Improved billing accuracy and speed
- ✓ Capturing and exploiting innovative ideas and opportunities more quickly, more easily
- ✓ Providing operational stability, consistency and reliability with an integrated system
- ✓ Enabling production capacity optimization
- ✓ Increasing decision-making and implementation speed

3.13.4 Technological Diversity

The autonomous organisation structure and silo-type management framework resulted in a number of ring-fenced systems at the various ports. This resulted in duplication of data capturing and reporting. The ring fencing of technology in the ports results in potentially higher corporate costs for system management and maintenance. These problems are expected to be resolved with the introduction of the SAP ERP system.

3.13.5 IT Investments

There is no formal process for prioritizing IT initiatives at the departmental level in line with: strategy, business criticality (importance), value-creation, resource availability and amount of change involved. Although costing models such as, activity based costing, is being used in the business, they seem to be excluded in the IT department.

3.13.6 Knowledge Management & Sharing

Projects have been conducted independent of one another and there is no formal means of capturing and sharing "lessons learned".

3.13.7 SAP ERP Implementation

As part of the IT strategy, the SAP ERP has now been implemented. However, management claims not to have realized the benefits that were promised. Business processes have not improved but rather gone worse in many instances. There are integration problems between the various modules resulting in many manual interfaces. Legacy systems processes seem to have been implemented with minimal process improvements and it is a nightmare for the NPA to determine that all revenue due by clients has been received, due to inefficient system processes and system integration problems.

The IT department is undergoing a restructuring phase whilst most IT personnel are sitting around without any work. It was initially thought that with the ERP implementation a considerable scale-down of the IT workforce would be realized. However, this has proved contrary to the initial thinking and new structures are in the process of being created.

A CIO has been appointed, and where previously the IT executive was not involved in the business strategy, the CIO now is. A business process improvement and knowledge management structure has been created in addition to an IT structure under the office of the CIO.

Communication is a major problem between management and the IT staff, being reduced to virtually nothing, causing motivation levels and staff morale to be at an all time low.
IT Staff are also not equipped to support NPA's strategic direction in terms of Information systems and technology and the issue of outsourcing the IT function seems to be coming up time and again with no finality or answers to this important issue.

Senior management have currently embarked on a project of high priority, termed SAP business case realisation to try and resolve all of the issues surrounding the SAP implementation. The NPA is also aware that it has other high profile IT projects that are urgently required such as security, port community and CRM, that it has had difficulty for a considerable period of time to get off the ground; some even as much as 5 years now.

CHAPTER 4 The Interview Findings

4.1 Introduction

With NPA having implemented the first phase of the SAP ERP, an exercise is currently underway to map out the "AS-IS" and "TO-BE" situations. The gap analysis to be conducted from this exercise is meant to form part of an implementation program that is being termed business case realization at the NPA. NPA's approach to the realization of the benefits of implementing SAP are firstly to stabilize the new system and thereafter to conduct a business process improvement exercise.

There have been many positives to implementing SAP ERP at the National Ports Authority of South Africa. However, there has also be many negatives to the implementation as well.

4.2 The positives of implementing the SAP ERP at NPA are:

- Centralised Database
- Stock management control
- Organisational availability of information
- Financial enquiry now available
- Better working tool for employees
- Better audit trail
- Access to financial information has improved (budgets/expenses)
- Standardisation of reports, policies and processes
- Improved system efficiency
- Improved maintenance processes – scheduling and maintenance
- Good process integration within Financial Accounting (FI)
- System on-line availability has improved
- Elimination of old standalone systems
- The project approach allowed for re-engineering of activities and therefore the break down of turf territory in the property department at the different ports

■Improved month end closure of financial results

■Time saving as a result of integrated business processes

■Improved turnaround time of reporting and investigating

■Quicker tracking of source audit trail

■Reduced licensing costs

■HR Cost saving – elimination of 3rd parties and payslips cost reduction

■Material and maintenance cost reduced

■Cost reduction e.g. stationery

■Some users have embraced the system and subsequently become proficient in its use

■A certain number of users have further explored more system activities and are more creative

■Users adhere to procedure standardisation

■Rapid knowledge growth among some users

■System integrates the business processes seamlessly

■Increased understanding of business processes

■Business processes are more transparent

■Fewer integration problems

■Requisitions released timeously

■Standardisation of processes at Port level is now possible

■Asset capitalisation tracking streamlined

4.3 The negatives of implementing the SAP ERP at NPA are:

■Reporting not user friendly

■Vendor classification not provided

■Inbound Logistics not user friendly and in some cases non existent

■Spend by other Transnet business units not clearly reflected on the system

■Process integration and gaps

■No HR absenteeism reports

■System integration with other systems is limited due to stability levels

■Cost reporting not improved

■Fragmented support structure

■BEE reports not defined on the system

■Not all key users have system access

■BEE spend not reflected whether it is Opex or Capex

■Integration from management view not incorporated

■Re-engineering awareness of all processes limited in NPA

■Some reports still generated on Excel

■CO module requires more development support

■Insufficient skills transfer – additional costs for technical changes

■System configuration not adapted to NPA's needs

■The system can be easily hacked

■Cash flow not improved

■Intention of paperless environment is apparent, but lots of paper processing still being done because of duplication of effort

■System response gradually slowing down

■Reduced costs not yet realised

■No quantifiable benefits to date

■Anticipated license cost escalations

■No quantitative model to analyse benefits developed

■Cross functional knowledge/exposure is limited

■Training focused on functional areas and does not address integration adequately

■Users have limited knowledge (only the module relevant to their roles)

■Some managers have no understanding of the system

■Report writing is weak, therefore further training is required

■Managers (Authorisers) need further training

■Refresher training required for users

■Users unable to trace Releases that do not appear in their in-boxes

■Not all people involved in process flows appreciate that their non-commitment affect process efficiency

■Controls are in place but not followed

■Lack of understanding of the integrated nature of the system

■Users still clinging to old processes and way of doing things

■Lack of appreciation and understanding of new business processes

■Payment approval process too long.

■Lack o f unde rstanding o n t he dif ference b etween s ystem p rocesses a nd no n s ystem processes

■Emergency (bottleneck) payments frustrate suppliers whenever they cannot be executed

■System unable to flag values that are getting exhausted (can only be observed when invoices are submitted for payments)

■Delegated authorisation powers do not match the release strategy

■Overall release strategy needs to be revised

■Foreign currency payment process is slow

■Capex orders still bottleneck for release

■Need for document and confidence checks

■Goods receipting – manual process duplicated

■No visible evidence of process improvement

4.4 Interview Findings

The findings of Interviews conducted with key users at Head Office(Johannesburg) and the Port of Durban regarding the ERP implementation were:

POSITIVES

■Reasonable happiness with the information on the database

■Very positive impact

■Faster system

■One procurement division

NEGATIVES

■The process has been painful and frustrating, as there are no long term solutions for issues that arise

■Issue resolution is left to the last minute

■Focus is on quick-fix solutions instead of long term maintenance

■Certain issues were parked prior to Go Live, e.g. asset revaluation, and have not been revisited

■The users are not clear on the structure of the support process

■The training did not show the integration points between processes

■Certain processes are currently being done outside the system

■Have issues around manual payments and EFT

■The turn around time from the support team is very long, this might be a result of their skill levels

■Certain functions are not being used (Multi Currency)

■Paper work has increased

■Certain required reports have not been configured in the system

–Reports that will show whether the NPA assets are performing or not

■Cost benefit (in terms of licenses compared to benefits)

■Not all the required information has been captured into the system

■Need something more than an invoicing system and currently SAP is just an invoicing system

■Tracking of items

■No automatic reminder for items that have not been authorised

■Deletion of purchase requisitions

■Discipline around releasing of payments

■Internal control processes can be seen as a hindrance

■Database has no search function per supplier type

■Users still revert to the Microsoft office packages for areas where they feel that there are gaps

■Support is not efficient

■Some profiles are not properly configured

■There has been minimal communication post roll out

■Training was not adequate

■The process of delegation of authority is not clearly understood

■GPSO and PS not integrated – duplication of capturing with the dashboard

■Current KPA's don't cater for SAP

■Have not generated reform statistics

■No revenue statistics

■The system has increased the work load, but job evaluations have not been done post SAP implementation

■Insufficient reports

–Works order

–Income Statements

–Outturn reports

–BEE reports with the following search functions

•Woman owned,

•Physically challenged

•SMMEs

•List with percentage ownership

•Cost centre

■Not user friendly

■Integration points are not understood

■Has brought more work – capturing of data

■In Accounts Payable – cheque numbers are not linked to the bank reconciliation

■Senior management do not talk about issues.

Interviews conducted with the IT staff and the Business Process improvement team (BPI) at Durban revealed that:

■A SAP relisation project is underway to resolve problems related to the SAP implementation.

■A large percentage of the SAP problems are related to training and people issues. A lot of reports/information is on SAP that many users are unaware of or do not know how to access this information.

■SAP implementation timelines were not compromised at the expense of some of the business requirements not being configured into the system.

■The majority of IT staff were not involved in the SAP project and have currently been redeployed into various areas in a new structure under the CIO.

■The BPI team is now working closely with key users and IT to improve business processes and to stabilise the SAP ERP.

■The Activity based Costing process is done on a quarterly basis because it is complicated and not real time. However SAP activity based costing is integrated to the other entities and its management oriented approach, makes it possible to plan the organisation on an integrated basis, to show the actual cost and revenues and to isolate variances for management attention.

■SAP Maintenance Master Data records and maintenance plans have not been created for all assets and infrastructure that requires maintenance.

This was confirmed at the following Business Units:

Port Engineer

Dockyard

Marine

This is due to a lack of capacity. Maintenance Planners have not been appointed to manage the planning and scheduling of maintenance.

Lack of planned (preventative and predictive) maintenance leads to higher maintenance costs and downtime due to system breakdowns, equipment failure and degradation of infrastructure.

■The following audit concerns were observed with regard to the SAP Maintenance system:

- Users have access to other Business Units maintenance master data files and they are able to effect unauthorised changes to transactions.

- Maintenance Managers and SAP (PM) users have expressed the need for refresher SAP training to assist them in the discharge of their duties.

- Maintenance Managers do not have access to the SAP (FI) module to monitor maintenance and material costs recorded against their profit centre.

■There is a lack of co-ordinated forums to address SAP related problems users are experiencing. This may result in SAP systems problems not being addressed throughout all the NPA Business Units.

■IT strategic planning, ne eds considerable attention within NPA, and the I T strategy needs to be aligned with the business strategy.

■The majority of IT staff are de-motivated and believe the leadership is command driven.

■A large percentage of IT and BPI staff believe that there is no future of upward mobility due to the equity plan that is being enforced.

What the interviewees would like to see:

■Need a focus team that will assess the issues and action them. This focus team should be driven by the business. Creation of a centre of excellence

■Retraining of the support team

■Revisiting of the process documentation

■Run workshops per department, the objective of the workshop is to identify issue areas

■Retraining of the users, focusing on:

–Areas of integration

–Issues

–Responsibility and response time

–Business process training

■Education of the leadership team

■Including SAP impact on the company policies

■Develop a strategy to retain the SAP skills

■Ensuring that the project is business owned and **NOT** IT owned

■Ensure that all the required data is available on the system

■Development and widespread communication of NPA IT strategy

- Communication of the implementation plan
- Integration of SAP into KPA's
- Explore other system offerings
- Communication on the relationship between GPSO and the PS module of SAP
- Communication to clients
- Contract management through SAP
- Move away from the culture of hierarchies
- All key people to be on RAS (remote access)
- Change in mindset
- Map timelines for the project to realise the benefits
- Training of local IT to support SAP
- Tracking of business benefits should be done from one point
- Application management

4.5 NPA Strategy

NPA's strategic approaches to preparing for future market conditions can best be depicted as reactive/follower with gradual evolutionary change. This entails revising strategy (hopefully in time) to catch the waves. NPA however is working toward aggressively altering strategy to make waves and drive change by being proactive/leader with rapid revolutionary change. NPA is correctly focusing on the world markets when formulating t heir s trategy however in t erms o f a gility and t he s ustainable c apacity t o change they are struggling.

4.6 IT Strategy

The IT strategy at NPA has thus far not been a basis for enabling radical changes to the business strategy. There is no clear methodology for formulating an IT strategy within the NPA. This is however set to change with the employment of a CIO being introduced at a very senior level into the organization. The building blocks are being put in place for the NPA to derive, articulate and document a meaningful IT strategy. Where previously the IT plan and the business plan have been misaligned, NPA is currently placing greater emphasis on this alignment as evidenced by the employment of a CIO and the creation of relevant structures for co-strategy development. The NPA is now more than ever committed to business and technological changes over the long term to bring about a transformed organization.

Governance coupled with the architectural and financial tools, which sets the boundaries for IT decision-making, are loosely and inappropriately applied within NPA. From a people perspective, the organization is struggling to place the right people in the right jobs at the right time. Much of this can be attributed to NPA being forced to comply with the equity plan. IT strategy is currently done in a haphazard fashion with no model employed as a basis from which to embark on the critical IT journey.

The IT department at NPA does have a corporate asset register, which is fragmented and scattered across the country. There is however an asset purification exercise currently underway so has to have a more accurate corporate asset register in future. No value chain analysis is done by the IT department and no cost models are used. From a risk perspective, there are plans in place to mitigate risks from an operational perspective and change management within the department is very ineffective.

Security of IT systems continues to be a major concern, which the IT department has handled in a reactive mode thus far. The perception that has been created about the IT department is that it is very poor on delivery to the business with some of the problems stemming from capacity planning, procurement, risk & change management and compliance. Influences of the business strategy, customer strategy, technology, vendor

strategy, regulation and legislation is considered to an extent but has room for much improvement in so far as future IT strategies for NPA is concerned.

4.7 Implementation of Strategy at NPA

The ability to execute strategy flawlessly or to some reasonable measure has been a huge problem for the IT department and to NPA in general. NPA has been plagued by numerous implementation failures in the past and have struggled to attract and retain the right caliber of IT skills. The leadership style of the IT management continues to be characterized by a command-and-control mentality.

CHAPTER 5 Recommendations and Conclusion

5.1 The SAP ERP Implementation

With regards the SAP implementation, companies often report a temporary decline from baseline performance before attaining increasingly higher levels of results.

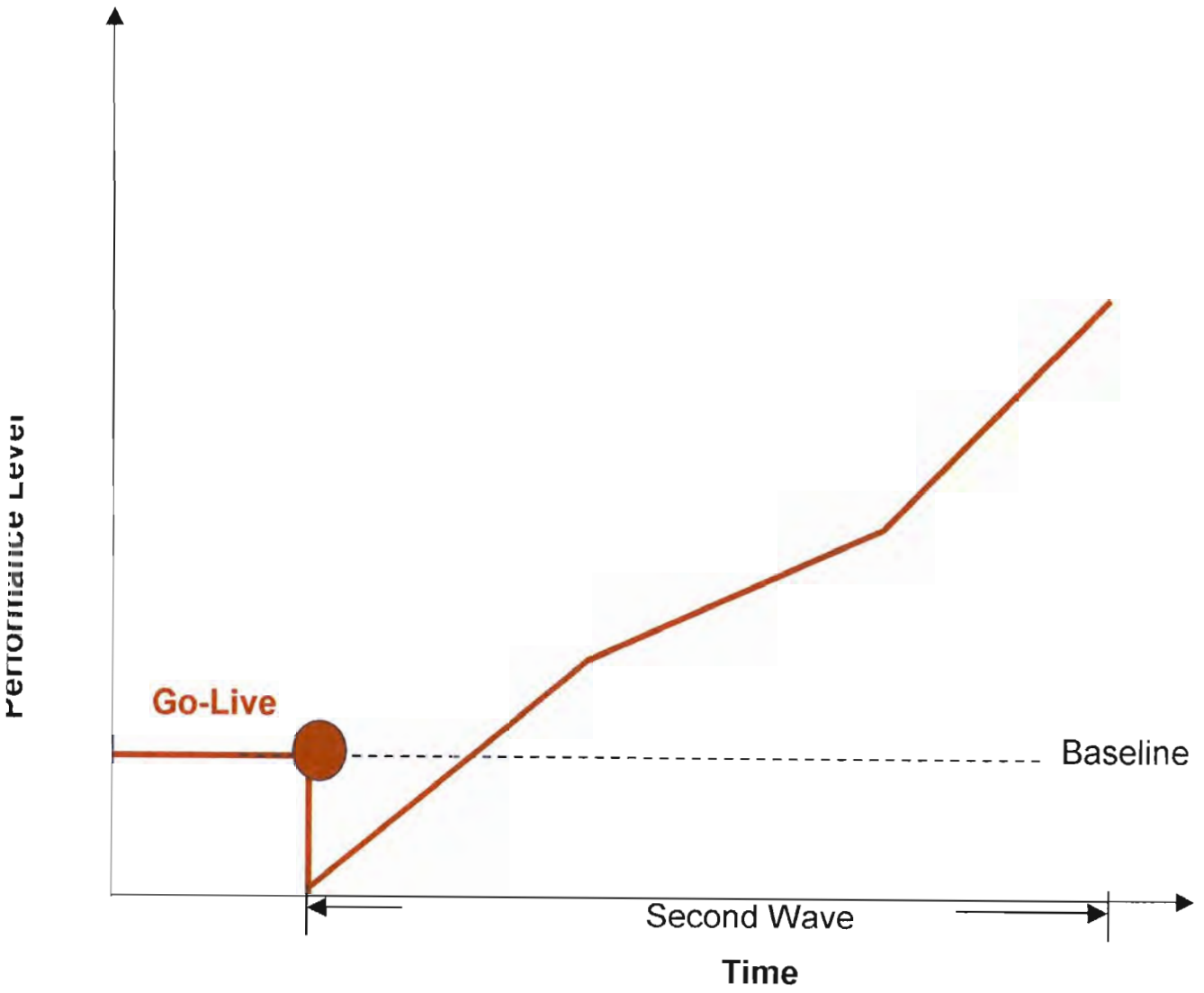


FIGURE 5.1 Temporary decline from baseline performance

In Stage I, companies "secure the base" by stabilizing the performance of new processes, roles and supporting technologies.

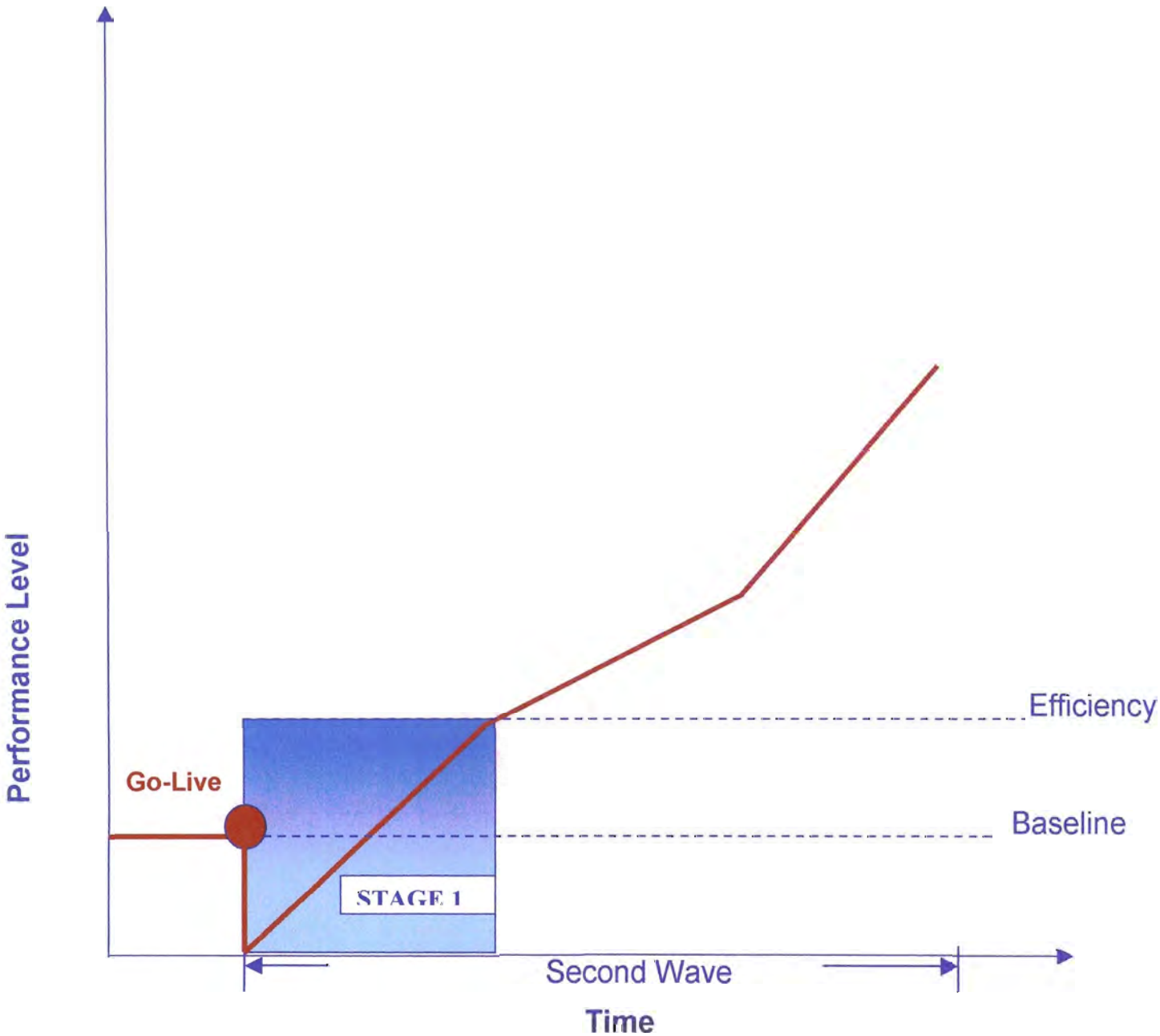


Figure 5.2 Stage 1 - Securing the base

In Stage II, companies "build for the future" by adding new capabilities and teaching the organisation to use them.

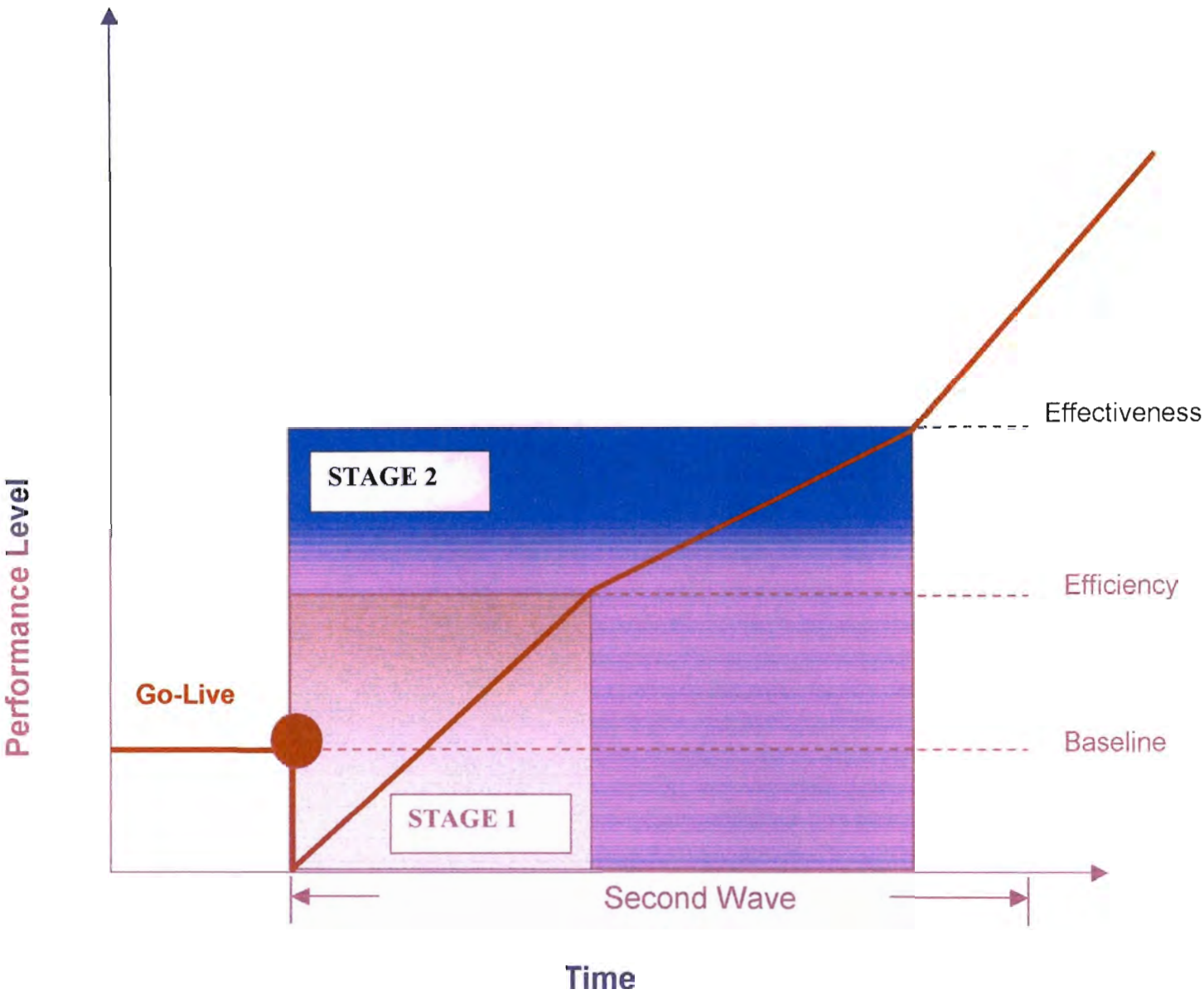


Figure 5.3 Stage 2 - Building for the Future

In Stage III, companies obtain "value in use" by leveraging ERP to reshape strategies and transform the organization.

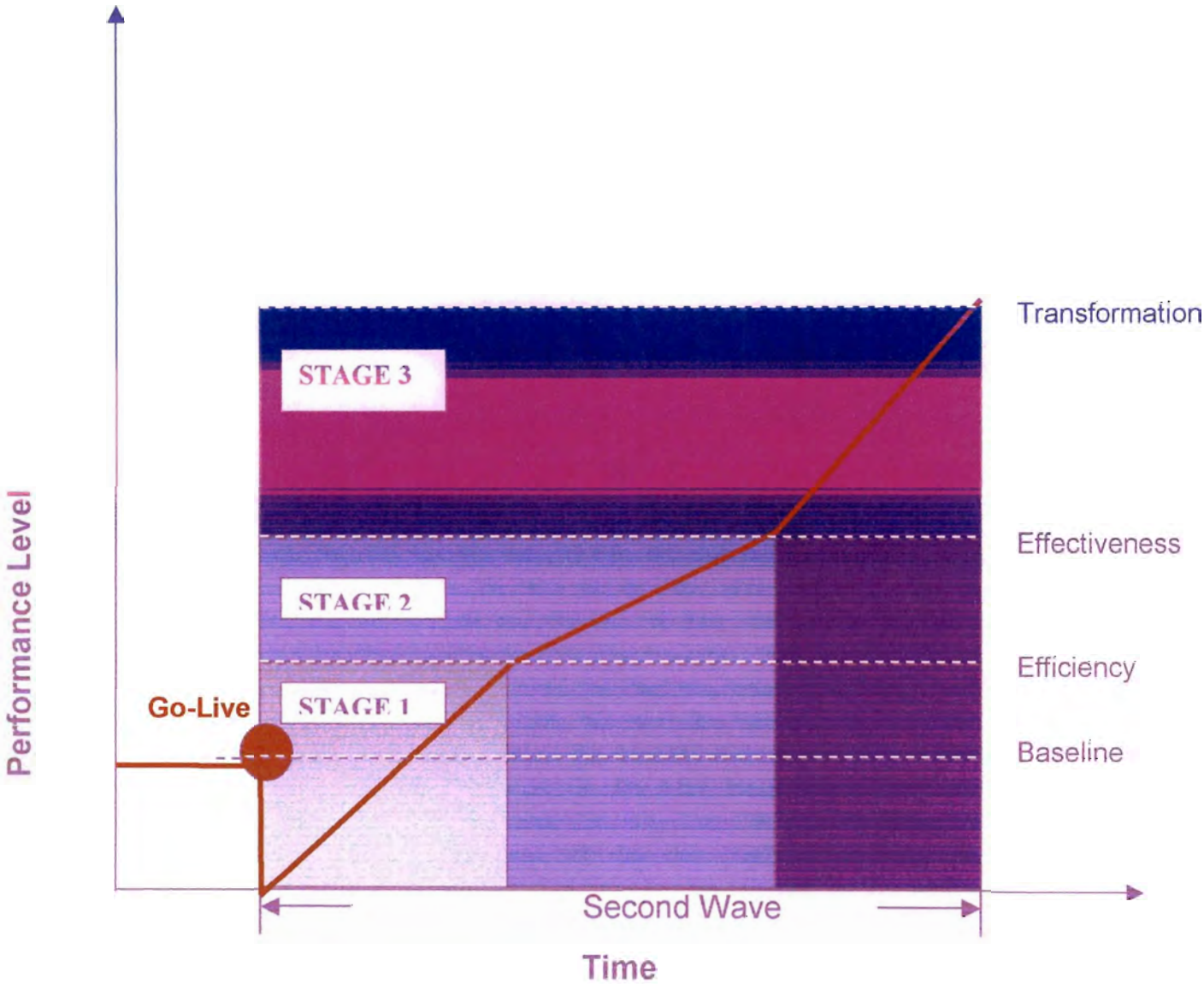


Figure 5.4 Stage 3 - Obtaining value in use

Comparing NPA to the discussion above, it is clear that NPA has only just set sail and can be placed in stage one as depicted below. It is expected that business processes will need to be stabilized and improved at this stage and that the implementation of the strategy to stage 3 and beyond will have NPA reap the rewards of implementing an ERP that will give it the much needed integrative systems capability for the future.

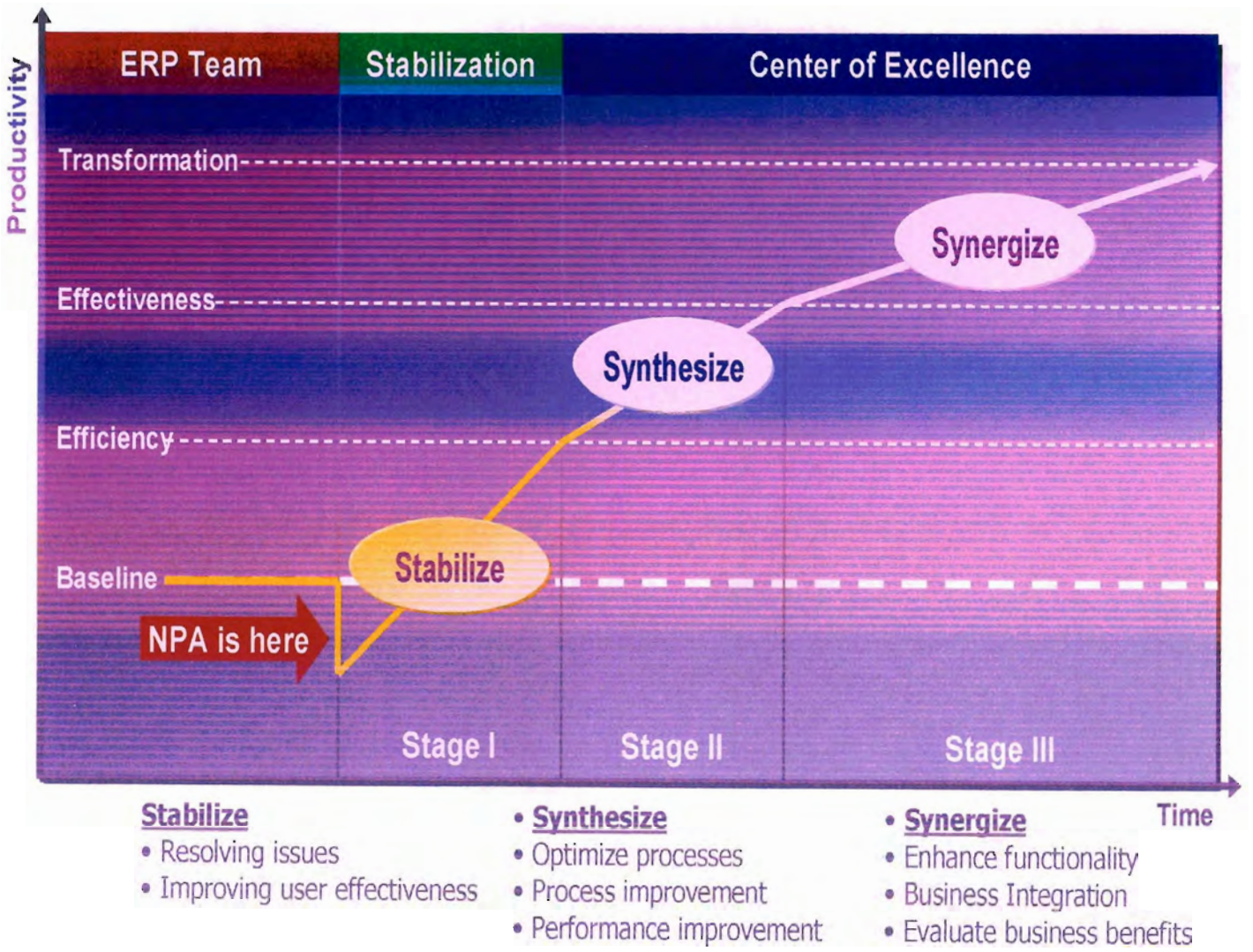


Figure 5.5 NPA Comparability

5.2 Formulation and Implementation of Strategy

There is nothing wrong with NPA's strategy to implement SAP. However, the process by which their strategy is formulated and implemented has room for much concern and improvement. NPA has recognized this and has subsequently put into place a new organizational structure under the auspices of the CIO.

In terms of formulation of their IT strategy, the NPA should be informed by the use of a model, eg. the sustainable strategy model outlined in chapter 2. This would ensure that the various influential factors are considered prior to the formulation of their IT strategy.

Matching structure to strategy centers around making strategy-critical activities the main organizational building blocks, finding effective ways to bridge organizational lines of authority and coordinate the related efforts of separate internal units and individuals, and effectively networking the efforts of internal units and external collaborative partners. Other big considerations include what decisions to centralize and what decisions to decentralize (Thompson & Strickland, 2002).

All organization structures have strategic advantages and disadvantages; there is no one best way to organize. Functionally specialized organization structures have traditionally been the most popular way to organize single business companies where strategy critical activities closely match discipline-specific activities with minimal interdepartmental cooperation. But this has significant drawbacks; functional myopia, empire building, interdepartmental rivalries, excessive process fragmentation, and vertically layered management hierarchies. In recent years, business process reengineering has been used to circumvent many of the disadvantages of functional organization (Thompson & Strickland, 2002).

Whatever basic structure NPA wishes to chose, it usually will have to be supplemented with interdisciplinary task forces, incentive compensation schemes tied to measures of joint performance, empowerment of cross-functional and/or self-directed work teams to perform and unify fragmented processes and strategy critical activities, special project

teams, relationship managers, and special top management efforts to knit the work of different individuals and groups into valuable competitive capabilities. Building core competencies and competitive capabilities emerges from establishing and nurturing collaborative working relationships between individuals and groups in different departments and between a company and its external allies, not from how the boxes are arranged on an organizational chart.

The NPA must strive to build a strategy-supportive corporate culture, which is important to successful strategy execution because it produces a work climate and organizational esprit de corps that thrive on meeting performance targets and being part of a winning effort. It is also recommended that the NPA re-look at the leadership styles of its various senior managers in order to achieve best fit for the task at hand.

5.3 Roadmap for Continuous Improvement

NPA should first conduct and conclude the post implementation analysis of SAP. This should entail an As is analysis, addressing the internal audit report findings and performing urgent corrections and enhancements to the system.

Second, NPA should conduct the following immediate term post implementation activities.

- Business Process Audit
- Process and efficiency improvements
- Stabilisation of application management and support
- Conduct business process training for end users.

Finally NPA should embark on the following long-term continuous improvement activities:

- Full enterprise architecture strategy and implementation
- New dimension products strategy and implementation
- Establish independent IT to provide application outsourcing services to the wider NPA and external markets. The IT department should be repositioned as a service

offering department to support the overall business strategy as a service provider. The IT department should be established as a profitable entity with billable services.

The way forward for NPA should be one of decisive and committed action.

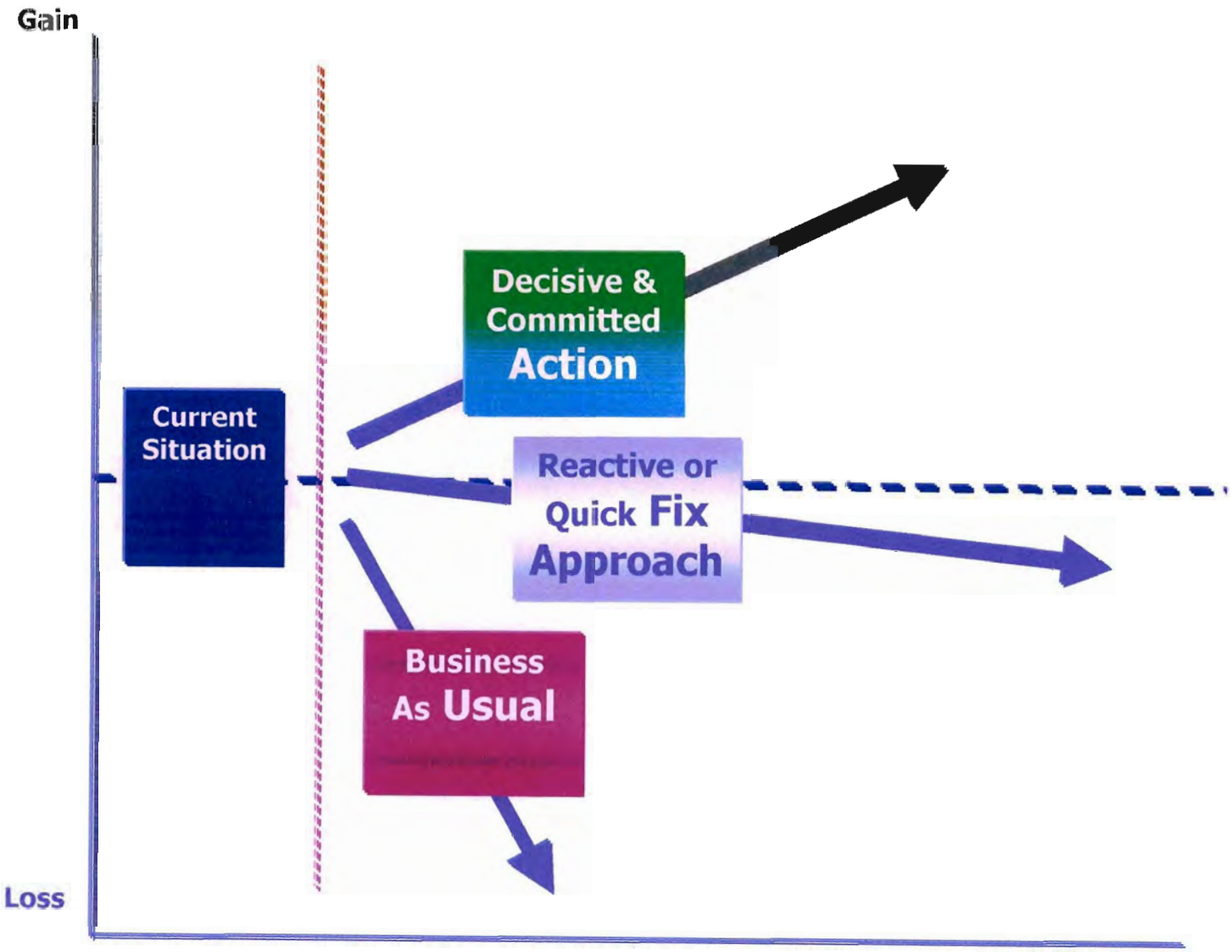


Figure 5.6 NPA Way Forward

5.4 Recommendations

The following recommendations should also be considered by the NPA:

- Re-establish project governance to direct project continuity after go-live.
- Establish Application Maintenance support to continue hand-holding function to end users.
- Establish a Center of Excellence to maintain the project identity and to create a central project governance structure.
- Establish Change Management procedures to handle continuous project communication.
- Establish Change Control Procedures to trace and track system changes and to maintain proper change control documentation.
- Establish Succession Planning Procedures to create sustainable capacity and on going system operationality.
- Review Role to Profile Mapping and allocate access rights accordingly to give the right access to the right profile.
- Establish continued user training programme to sustain knowledge creation and training of new incumbents.
- Value Proposition and Business Vision must be communicated to and understood by all.
- SAP Business Case targets to be transported into individual KPAs throughout organisation via the Business and Strategic plans.
- Any process changes or reengineering will be driven by a coherent Business Reengineering Strategy and Plan, that has Business Process Integration as core.
- National Ports Authority (NPA) must strive toward being a boundaryless organisation underpinned by boundaryless management behaviour.
- Maximum integration of all existing systems
- NPA must have a fully competent SAP support organisation with full authority to correct system deficiencies or eliminate non-compliance.

- Standard reports will apply throughout NPA and any customised reports will be minimised – bar that data extracted by the user for specific purposes.
- No new business role or authorisation will be activated without proper focused training and the alignment of the individual performance framework.
- All SAP or Business Process training to be ratified by formal competency assessment procedures.
- Process changes must only be approved by the Process Sponsor – who will be informed by the Business Process Improvement team
- Process requirements must inform system design, with recognition that SAP is based on general best practice.
- Non-compliance with working, signed-off Business Processes must be disciplined in a punitive manner

5.5 Conclusion

It would appear that the NPA is on the right track toward achieving its objectives provided that some fine-tuning is done here and there. It is paramount that the NPA continue its journey into developing the competencies required of a world class organization.

Developing new competencies for a new world will not be easy, nor will it be enough. Because the world is changing so fast and so many of the changes are likely to be unforeseen, the relative importance of these competencies will ebb and flow and we can be sure that others will surface. Perhaps an organizations greatest challenge and the one by which its top executives can truly measure success, will be its ability to continually recognize and develop the as-yet-unidentified competencies that our ever-changing world will demand.

In the words of the great poet, T.S. Elliot:

"We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And to know the place for the first time"

EXPLANATIONS OF TERMINOLOGY

BASIN – A partially enclosed or sheltered area where vessels may be moored or docked

BERTHING SERVICES – To moor a vessel alongside a quay

BREAKWATERS – Wall built out into the sea to break the force of the waves and so protect a port from the effects of bad weather

BUOY – Small floating body, anchored to the sea bed, which marks a channel or alerts shipping to dangers, wrecks or other obstructions

CAPEX – Capital Expenditure

CHANNEL – A navigable course through a body of water

CIO – Chief Information Officer

CONCESSION – A type of concession is the Build-Operate-Transfer (BOT) contract by which the grantor (National Ports Authority) grants the grantee (Terminal Operator) the right to finance, build and operate a facility or an installation, for public use, for a limited period of time, after which the facility or the installation will be transferred to the grantor (National Ports Authority). The broad features of a concession agreement are that the grantee has overall responsibility for the service i.e. operation, maintenance, management as well as capital investments.

DREDGING – To remove sand from the seabed to increase the depth of water or to restore it to its former depth.

DRY DOCK – Enclosed basin from which all the water is pumped to enable vessels to be surveyed and repaired while out of the water

JETTY- Structure, often of masonry, projecting out to sea, designed to protect a port from the force of the waves but also used to berth vessels

ERP – Enterprise Resource Planning

LEASE – A contract by which the right of use of an asset/property is conveyed to a person for a specified period, in return for rental.

LICENCE – To grant permission to provide a service

PILOTAGE – The act, carried out by a qualified person known as a pilot, of assisting the master of a vessel in navigation when entering or leaving a port or in confined waters

PORT INFRASTRUCTURE – The basic structure of a commercial port, including breakwaters, seawalls, channels, basins, quay walls, jetties, road, rail, services and utilities (e.g water, lights, power, sewerage and telecommunications)

QUAY – A solid structure alongside a navigable waterway to which vessels are moored for loading and discharging

SAP – Software Applications and Products

SEAWALL – A strong wall near the shore built to protect the adjacent land from the sea
STEVEDORING – To load, stow and unload cargo on board a vessel

TERMINAL INFRASTRUCTURE - Terminal buildings, workshops, substations, surfacing, rail sidings and terminal services and utilities (e.g water, lights, power, sewerage and telecommunication) within terminal boundaries

TERMINAL OPERATIONS – Handling cargo at the terminal, storing it and delivering it to the vessel at the load port or receiving it from the vessel at the discharge port, storing it and delivering it to the consignee

TUG SERVICES – Services performed by small, powerful vessels used for towing or pushing vessels in a port

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