Editorial policy
The aim of the *Southern African Business Review* is to serve as a vehicle for the publication and dissemination of research in the field of business leadership, management and administration, with a special focus on Southern African business issues and concerns.

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Note from the Editor

Regular readers of this journal will have noticed some important changes in this issue. Firstly, and most obviously, the name has changed from the *SBL Research Review* to the *Southern African Business Review*. The reasons for this change are more than just cosmetic. The new name reflects a seminal change in editorial policy. Whereas the *SBL Research Review*, at its inception, was conceived as a publishing vehicle primarily catering for faculty members and postgraduate students of the Unisa Graduate School of Business Leadership, it has been decided to broaden the scope and ambit of the *Southern African Business Review* to serve the sub-continent and to actively solicit contributions from the business community as well as other academic institutions. For example, in this issue, an article by Professor Dan Remenyi, visiting professor at the Chalmers University of Technology in Sweden, appears on pp. 1–10.

Secondly, application has been made to obtain accreditation for the *Southern African Business Review*, with the intention of developing the journal into a fully-fledged subscription-based and self-funded journal. An electronic version of the journal will also be made available to subscribers in the near future.

Thirdly, with the objective of keeping our readers informed on business research, a new section dealing with the research outputs of academics and postgraduate students has been included. Tertiary institutions, such as business schools, produce a vast amount of research each year. Unfortunately, this research is generally not communicated to the wider community of academics or business people and other stakeholders outside the institutions of higher learning. Contributions to this section, called the SBL Centre for Applied Research, will include a selection of research generated by doctoral and other postgraduate students. In some cases, the full text will be provided (for example, a working paper authored by a postgraduate student); in other cases, only an abstract of the research will appear. In such cases, the full text electronic version of the research (for example, in the case of working papers) may be made available, and in other cases, such as doctoral dissertations and MBL/MBA research reports, interested readers may contact the institution concerned to gain access to the full text (for example, copies of doctoral dissertations in university libraries). Readers who have access to similar sources of research output are invited to submit these to the editor for publication. The aim is to disseminate information about business research more effectively among stakeholder groups. Under this section, a working paper on 'Sexual harassment' by Ms R. van der Westhuizen has been included in this edition, as well as abstracts of the theses of three doctoral graduates, Professor M.A. Ferreira and Drs H.C. Ngambi and C.M. Stephanou.

Fourthly, as a service to our readers, notification of forthcoming events and reports of events that have taken place in the recent past are included for the first time. These announcements are to be found in the last section of the journal. In this edition, we report on an important initiative for our continent, namely the founding of the Business Ethics Network of Africa (BEN-Africa). For further information on the formation of the South African Chapter of BEN-Africa, contact Belinda Barkhuysen at benafrica@hotmail.com. An abridged report by Professors J.C. Lambrecht and G.J. Rossouw on the conference at which BEN-Africa was founded is also included in this section. Once again, our readers are invited to bring to our attention events, past and future, for possible inclusion in this section of the journal.

Lastly, this edition includes a case study by Professor M.A. Ferreira (pp.43–54). We hope that the inclusion of case studies will be of great value to our readers, whether academics or business practitioners. There is a great dearth of home-grown case studies, and it should be of concern to many that we typically rely on case studies based on either the European or North American experience. Africa has its own challenges and opportunities, and the editorial panel has therefore decided to include local case studies in an effort to contribute to our knowledge based on the experience of companies and organisations that are African rather than foreign. If an event or process occurred in your organisation that may promote a greater understanding of the challenges and opportunities faced by African institutions, we wish to encourage our readers to write up such case studies for publication in the journal.

Moving from the new to the more familiar format of the journal, this edition includes the following articles: Dan Remenyi discusses three different levels of modelling for assessing the effectiveness of investment in information technology (pp. 1–10). The contribution of Harold Campbell and René Pellissier deals with the use of asynchronous Groupware to facilitate business process effectiveness and efficiency (pp. 11–20). Continuing with the theme of the effective use and impact of rapid advances in information technology, René Pellissier argues in her contribution (pp. 21–30) that reengineering the organisation is not quite up to the task and that deengineering, following from principles associated with chaos theory, would be a more effective way for organisations to improve their ways of doing business. Shifting the focus somewhat, Lance Gardner and Anton Ferreira provide an overview of growth through strategic alliances in a changing world (pp. 31–42), with specific reference to the chemical industry in South Africa.

This is the last edition of the journal to be published under my editorship, and I wish to thank all those who contributed to the growing success of the journal during my term as editor. The next number of the journal for this year will be published under the editorship of David Beaty, who takes over from me. I wish him every success in this demanding but greatly rewarding endeavour.

Marius van Wyk

Midrand
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Contents

The *Southern African Business Review* is a publication of the Unisa Graduate School of Business Leadership.

Outcome modelling for information technology (IT) investment effectiveness

Dan Remenyi*

This paper discusses the importance of modelling in the planning and management of an information system. The paper specifically addresses three different levels of modelling, which are referred to as macro, meso and micro models, and discusses some of the issues involved in quantifying the variables for the micro model.

The paper focuses on these different types of business model and indicates how they may be used in the information technology (IT) environment.

> We are merely reminding ourselves that human decision affecting the future, whether personal or political or economic, cannot depend on strict mathematical expectations, since the basis for making such calculations does not exist; and that it is our innate urge to activity which makes the wheels go round, our rational selves choosing between the alternatives as best we are able, calculating where we can, but often falling back for our motive or whim or sentiment or chance ...
>
> Our knowledge of the factors which will govern the yield of an investment some years hence is usually very slight and often negligible. If we speak frankly, we have to admit that our basis of knowledge for estimating the yield ten years hence of a railway, a copper mine, a textile factory, the goodwill of a patent medicine, an Atlantic liner, a building in the City of London amounts to little and sometimes to nothing; or even five years hence. *John Maynard Keynes.*

Introduction

This is a theoretical or speculative paper that discusses the importance of business modelling in the planning and management of information technology (IT) investment. The paper argues that business modelling is an essential part of the understanding of an IT investment and is required if the investment is to succeed. The paper specifically addresses three different levels of modelling, which are referred to as macro, meso[1] and micro models. It then discusses some of the issues involved in quantifying the variables described in the macro and meso models in order for them to be used effectively in the micro model.

The understanding of the outcome of an information system and the benefits[2] associated therewith is an essential element in the successful planning and management of any information system implementation (Remenyi & Sherwood-Smith 1996; Remenyi, Sherwood-Smith & White 1997). In this context, the term 'outcome' refers to the new circumstances created by the IT investment after it has been successfully commissioned and implemented. It is the outcome of the system when used appropriately by the business that generates the benefit stream. Thus, the IT investment itself does not produce business benefits, but rather facilitates business processes and practices, which in turn improve the efficiency and effectiveness of the organisation, resulting in benefits. These benefits lead to improved profit and return on investment (ROI), as shown in Figure 1.

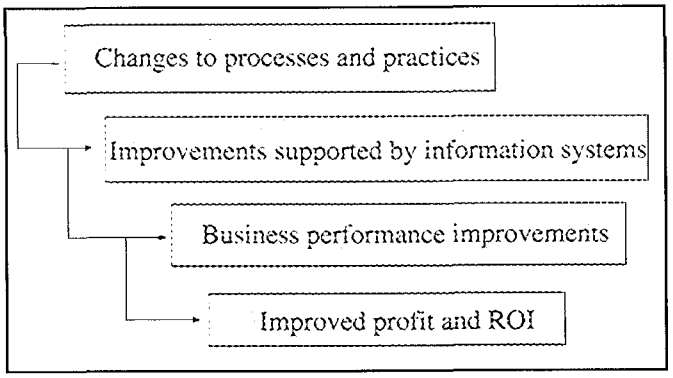

Figure 1. How profit and ROI are improved by IT

When used correctly, a benefit model delivers a rich picture of the benefit potential and the cost implications of a proposed information system. In addition, by changing the assumptions used in developing the model, the IT planner or sponsor may obtain greater insight into the issues that are most critical to the success of the implementation. Models are primarily used

1 The word 'meso' has been borrowed from the Greek word *meso* meaning 'middle' or 'in between'; the meso model is in between the macro high-level model and the micro low-level, or detailed, model.
2 An IT benefit is an improvement in performance that may be measured in some way by the organisation. The benefits derived from an information system do not, *per se*, have a direct, financially measurable implication for the organisation, but might rather be an improvement in quality of customer service, for example.

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for their explanatory power and to help understand the impact of changes in the assumptions that underpin the suggested project.

In most organisations, the information system sponsor requires a detailed understanding of how the outcome may be achieved and the benefit stream produced as a result of an investment. It is also necessary to appreciate the costs of implementing the system. One of the most effective tools available to assist with this is business or financial modelling. Furthermore, the sponsor of an IT project should be in a position to present the purpose of the project, and the benefits that will accrue to the organisation as a result of the investment, to the investment authorising group[3] in a convincing way. To achieve this, it is helpful to produce a business model of the benefits so that they are clearly understood by all the stakeholders.

This paper focuses on different types of business model and indicates how they may be used in the IT environment.

Background

There is a long tradition in business that capital expenditure needs to be formally justified in terms of the benefits that it will help accrue to the organisation. When a new machine is to be acquired, a fleet of vehicles is to be purchased or a new factory is to be built, a capital investment appraisal is thus often undertaken. Capital investment appraisal usually involves a statement of the initial investment cost, the ongoing costs, and the anticipated benefits, as well as the calculation of a number of suitable[4] investment performance indicators or statistics.

It is often difficult to formally justify investments in IT (Ward, Taylor & Bond 1996; Willcocks & Lester 1994). This is because reliable estimates of IT costs and benefits are not always available or easy to obtain. This is, at least in part, a result of the complex nature of the impact of IT on organisations and the consequent portfolio of tangible and intangible benefits.

What are models?

In general, a model may be described as a representation of an artefact, a construction, a system or an event or sequence of events. The representation may be abstracted into symbols, equations and numbers (in other words, mathematical expectations); it may consist of a picture or a drawing, or a fabricated likeness such as a model aeroplane; or it may be an expression of a situation or relationship in words. A complex model may contain several of these representations simultaneously. The purposes of modelling are many and various, and include developing a fuller understanding of the relationship between the inputs, the process and the outputs of the issue being studied, as well as calculating the likely results of a project. Models are often produced to facilitate decision-making in the management process (Akkermans 1995; Proctor 1995; Corbitt 1994) and to help in this respect with 'what-if' questions. The extent to which this is achieved is often regarded as a measure of a model's success (Karlin 1983). Alternatively, models may be produced for the purposes of simply seeing how a result may appear.[5]

There are distinctly different levels of modelling. High-level or macro models employ general concepts, rough drawings or imprecise fabrications. The purpose of the macro model is to present a conceptual picture that contextualises the problem or opportunity and provides a suggested solution. An intermediate or meso model will add some detail, perhaps to the form or the structure, and may also express the dimensions of the problem and proposed solution, but will still be expressed primarily in generalities. A detailed or micro model attempts to be closer to reality and thus to use more specific or life-like representations or values. The primary purpose of the micro model is to understand the impact of the proposed solution or course of action. However, all models are by their nature simplifications of the reality that they represent (Zelm, Vernadat & Kosanke 1995). In fact, sometimes the simpler the model the more meaningfully it may be used (Koella 1991; Maynard Smith 1975). This is in keeping with the concept of Occam's razor[6] (*American Heritage Dictionary of the English Language* 1992). Complex models may actually cloud the central nature of the issues being studied and thus reduce the explanatory power and, consequently, the value of the model. Examples of the three levels of model (the macro, the meso and the micro) will be discussed later in the paper.

Information system modelling

There are various forms of information system modelling. A systems specification is a model. IT also uses data models and process models for the purposes of system design. This is quite different from using a business model for the purposes of the study of IT investment. A statement or a drawing of the organisation chart or structure in which the IT will operate may be seen as an information model. A statement of the hardware configuration of a personal computer may be regarded as a model of the system. The IT department's budget for expenditure is also a model. The models suggested here mostly relate to what the IT department produces or consumes rather than the outcomes of their efforts, and much of this paper is dedicated to modelling IT outcomes.

Outcome or benefit modelling

It is important to distinguish between the concepts of IT outcomes and IT benefit. The outcome of an IT investment is the potential[7] that the information system offers to facilitate the delivery of improved business performance, whereas an IT benefit is the improvement in performance that is achieved by utilising the facility. An important issue underlying this discussion is the proposition, already referred to above, that information technologies do not in themselves directly produce benefits. IT does nothing more than facilitate business improvements that can increase organisational performance (Ward et al. 1996). This increase in organisational performance is contingent upon the IT outcome. The outcome represents the whole or the part of the mechanism by which the benefits of the information system, and the change in procedures that it involves, are put in place in order that the benefits will be delivered. The outcome of an information system is thus the production of changes, or improvements in procedures, that lead directly to business benefits. IT outcomes are an intrinsic part of the business model and may help with the process of benefit realisation. The first issue to discuss in the process of establishing outcomes is the level of detail required by the different models.

Different levels of model

As mentioned earlier, there are three distinct levels of modelling, which correspond to differences in detail and corresponding quantification. Each of these will be discussed in turn.

Macro or high-level models

High-level models express in general terms the situation that they represent. In the context of IT outcome and benefit mod-

elling, this could be the statement of the problem or opportunity that the information system will address. The important issue with a macro model is that there is a high level of conceptual clarity so that all the stakeholders involved understand exactly what is being proposed, how it is envisaged that it will work, and what the expected outcomes and benefits are. An example of a high-level outcome and benefit model is shown in Figure 2.

There has been a steady deterioration in the performance of the credit-control activities of the organisation. Whereas the the average rate of bad debts was 0.025% during the 1980s, the rate during the 1990s has been 0.040%. In addition, the average number of days for an account to remain in debtors during the 1980s was 35, and this number has increased during the 1990s to 47 days. There are no doubt several reasons for this, including the tough economic and financial climate generally experienced during the 1990s.

It is also true to say that credit-control activities have not been given as much attention in recent years as perhaps they should have been. As a result of a benchmarking exercise, it has now been established that the industry average for bed debts is 0.02% and the average number of days in debtors in the industry is 40. It is now considered necessary to take action to bring the organisation's experience in this respect in line with the industry averages and then to improve on its performance from that position.

It has been decided that the chief accountants will take direct responsibility for the credit-control activities and work on new systems in collaboration with the credit controller and the sales manager. Together, they will implement a credit-control system that will identify a potential bad debtor before a sale is made so that an informed decision may be taken as to whether or not do business with the potential client.

Establishing an electronic link to the local credit-rating operators will achieve this. In addition, there will be an online interface between the sales order processing activities and the billing and debtors activities, which will indicate if a particular client is about to be given further credit when his/her account is overdue or over the credit limit. Furthermore, online reports will be made available to credit chasers to ensure that payment is made within the agreed number of days. The outcome of the new sales and credit process will be an improvement in profit and cash flow, which will produce a payback of less than one year and an ROI of 120%.

It is necessary that the project be completed within six months of its authorisation.

Figure 2. A high-level outcome and benefit model

The macro model depicted in Figure 2 addresses all the important issues necessary to fully understand:

- The perceived problem or opportunity
- Why it is a problem or opportunity
- The nature of the intervention
- The result of the intervention
- The identify of the owner-users
- The time-frame required.

The statement in Figure 2 qualifies for description as a model because:

- It is a clear description of a problem, it proposes a process that is expected to improve the situation, and it suggests a likely result.
- It facilitates a discussion of the proposed intervention and possible alternative courses of action.

It may be useful to present a macro model in diagrammatic form, as in Figures 3 and 4.

This type of macro model, which does not require much time or effort to develop, may be used as a filter to prevent unsuitable ideas, or ideas that have not yet been developed with sufficient conceptual clarity to be understandable, from being pursued and thus attracting scarce resources. Without a macro model in place, it is unlikely that a suitable or useful meso or micro model will be produced.

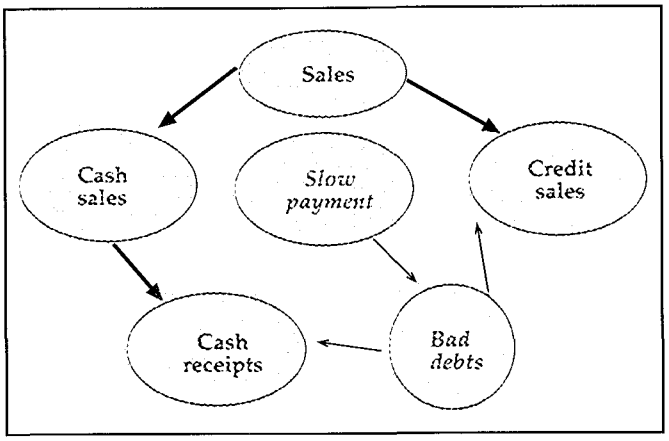

Figure 3. A macro model shown in diagrammatic form

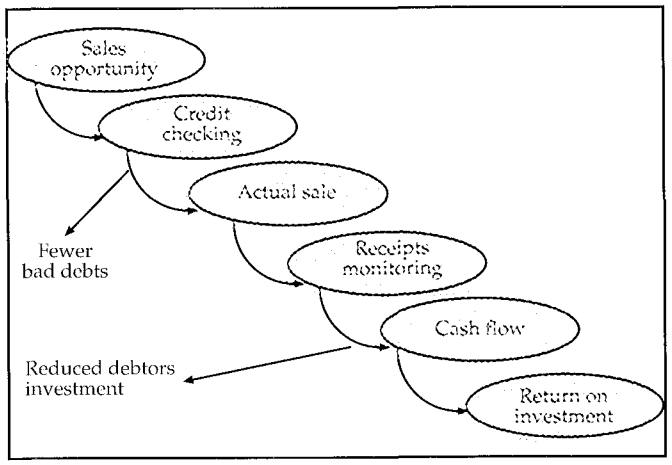

Figure 4. Another macro model in diagrammatic form

3 In some organisations, this group may comprise top managers, while in others it may comprise the eventual users themselves. The greater the involvement from the eventual users, the greater the likelihood of success.

4 There are many different investment performance indicators or statistics which include the return on investment, payback, net present value, internal rate of return and profitability index to mention only a few.

5 Of course models, mostly physical ones made of plastic or wood, are also produced purely for entertainment purposes, such as those found in toy and hobby shops that are produced specifically for children and hobbyists.

6 According to the *Concise Columbia Encyclopedia*, "William of Occam is remembered for his use of the principle of parsimony, formulated as 'Occam's razor', which enjoined economy of explanation with the axiom: It is vain to do with more what can be done with less".

7 The information system does not deliver benefits *per se*, but rather benefits are produced when the information system is used to facilitate improvements in business processes. It is therefore possible to see the outcome of an information technology only in potential terms that will need to be exploited by business users.

Meso or intermediate-level models

An intermediate-level model expands on the high-level concepts by adding considerably more detail, especially as regards the results of the proposed idea. The examples in Figures 3 and 4 would be expanded by specifying the particular issues that the system would have to address to achieve the desired outcomes and associated benefits. These variables would be stated in terms of the effectiveness of the system. A sales administration potential identification system could thus have business outcomes that deliver the ability to:

- Identify high value and low value customers
- Establish a minimum effective sales order value by product
- Establish likely complementary goods for special offers to customers in order to increase sales invoice value
- Forecast clients' requirements by using purchasers' historical records
- Facilitate cross-selling of complementary products and services.

These outcomes would result in the following specific benefits:

- Higher average invoice value
- Lower administrative costs
- Better customer service
- Better utilisation of inventory
- Better utilisation of transport
- Better job satisfaction for personnel in sales administration.

A meso model may also include elements of cost. However, in the example that follows, the cost dimension has been omitted in order to focus on the more difficult aspects of the business outcomes and the specific benefits.

For business outcomes and the corresponding benefits to be achieved, they need to be measurable,[8] in other words, a stakeholder should be able to assess whether they have been delivered. It is thus necessary to establish metrics, which may be associated with any outcomes or benefits that have been specified as stemming from the investment in the information system. The establishment of a metric allows a more objective[9] assessment to be made of the extent to which the information system has delivered the business outcomes or benefits.

As stated above, each identified benefit needs to be assigned a specific metric so as to ascertain whether or not the benefit has been realised. If a suitable metric cannot be identified, the suggested benefit should not be included in the model. Figure 5 is an example of a meso model in which specific benefits and metrics, with reference to a sales administration and potential identification system, have been specified. It is worth noting that, with respect to the majority of the metrics in Figure 5, both *ex ante* and *ex post*[10] measurements are needed. However, no calculation takes place within the meso model. This is essential for the purposes of comparison.

The meso model will often take the form of a flowchart or table, as shown in Figure 5, but not a diagram, which is more appropriate for the macro model.

Figure 5 qualifies as a model because it describes the outcomes of the IT and how these outcomes may be used to generate benefits; it also states an appropriate measurement technique and specifies a metric. Of course, these outcomes or business benefits may be tangible or intangible. At this stage, no attempt has been made to quantify the outcome of the proposed benefits, which is left for the next level of model.

The detailed or micro model

The detailed or micro model takes the issues described in the meso model and attempts to quantify them. This quantification may be undertaken in terms of financial estimates, or it may be performed quite differently, for example, by using estimates of customer satisfaction with the proposed system and its acceptability among users.[11] The low-level or micro model described in Figure 6 attempts to associate financial values with the proposed investment. Note that estimates of costs have been included here in order to allow the calculation of ROI, a popular investment performance indicator.

Output	Business outcome	Specific benefits	Measurement method	Specific metric	Responsibility
Credit history of prospective client	Better return on the firm's sales efforts	Fewer bad debts	Reduction in accounts handed over for collection and less write-off	Number of interactions with lawyers Lower legal fees Fewer bad debts	Credit controller
Reports on law suits	Protection of profit margins	Fewer bad debts	Reduction in accounts handed over for collection and less write-off	Number of interactions with lawyers Lower legal fees Fewer bad debts	Sales manager
Monthly receipts report	Collect cash and slow down or stop credit to doubtful debtors	Faster cash flow More interest earned at bank More supplier discounts available Fewer bad debts	Cash balance Lower cost of purchases Reduction in accounts handed over for collection and less write-off	Cash Profit, etc.	Chief accountant Credit controller Sales manager

Figure 5. A meso model,[12] with specific metrics matched to their benefits for a sales administration and potential identification system

Set-up costs	Units of currency ('000)
Hardware, software, commissioning, etc.	250
Ongoing costs	175
Ongoing benefits	300
Net benefits	125
Performance statistics	
Return on investment	50%
Payback	2 years

Figure 6. The low-level or micro model showing cost/benefit analysis[13]

The type of statement shown in Figure 6 is readily identifiable as a model. It is by far the most frequently used type of model in capital investment appraisal.

In a detailed or micro model, it is not necessary for the estimates of the variables to be accurate. In fact, it is always understood that they will not be so. This model is only required to indicate the general direction of what the results of the project may look like. As shown in Figure 6, this model is described as a deterministic evaluation of the situation and, for a richer understanding of the situation, would need to be developed into a stochastic evaluation. This will be discussed later in the paper.

The issue of tangible and intangible benefits

In developing an outcome or benefit model, it is important to incorporate both tangible and intangible benefits, especially at the macro and meso levels. Some intangible benefits are receptive to modelling at the micro level and, where possible, this should be undertaken. For example, it is possible to list the advantages and disadvantages of a particular course of action and then balance the conflicting interests that these issues represent. Another example of a low-level model of intangible benefits is that of planning a particular profile of user IT satisfaction. An appropriate pictorial model is shown in Figure 7. This type of model has a number of uses, including the allocation of resources to different aspects of an IT infrastructure, especially with regard to establishing the service-level requirements. The organisation may plan different levels of satisfaction for different aspects of the IT service by managing either the expectation levels or the resources available to deliver the appropriate amount of support and thus the eventual satisfaction level.

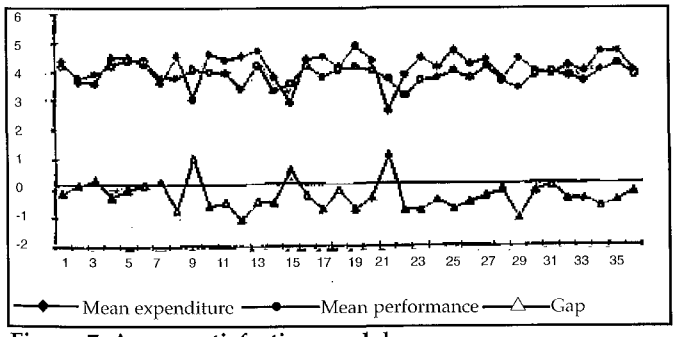

Figure 7. A user satisfaction model

A tangible information system benefit is one that directly affects the firm's profitability, whereas an intangible information system benefit is one that can be seen to have a positive effect on the firm's business, but that does not necessarily directly influence the firm's profitability (Remenyi et al. 1995). In the case of an intangible benefit, the cause and effect relationship may thus not be clearly visible or fully understood.

Within the broad categories of tangible and intangible benefits, a further classification is required, as different types of benefit may be either quantifiable or unquantifiable, or easily measurable or difficult to measure.

A quantifiable tangible information system benefit is one that directly affects the firm's profitability, the effect of which may be objectively measured – for example, a reduction in costs or assets or an increase in revenue. An unquantifiable tangible information system benefit can also be seen to affect the firm's profitability directly, but the precise extent to which it does so cannot be directly measured – for example, obtaining better information through the use of an information system, improving the corporate risk profile and improving the firm's security.

Intangible benefits can also be sub-classified in the same way. A quantifiable intangible information system benefit is one that can be measured, but its impact will not necessarily affect the firm's profitability directly – for example, obtaining information faster, providing better customer satisfaction or improving staff satisfaction. Perhaps the most difficult type of information system benefit to understand is the unquantifiable intangible benefit.[14] This refers to benefits that cannot easily be measured and that have an impact that does not necessarily directly affect the firm's profitability – for example, improved market reaction to the firm, as well as improved perception of the firm's product among customers or potential future employees.

These different types of generic information system benefits can be illustrated in a two-by-two matrix, as shown in Figure 8.

8 The concept of measurability in this context does not specifically refer to the creation of financial estimates. Measures of customer satisfaction or user acceptance that are based on opinion surveys are thus perfectly suitable.

9 It is clearly understood by the author that complete objectivity is an ideal that is unlikely ever to be fully achieved. The aim here is thus to move away from a situation that is primarily subjective towards a higher level of objectivity.

10 The term *'ex ante'* is used to describe estimates of the benefits and, for that matter, also the costs in advance of the investment. *'Ex post'* is used to describe the actual cost and estimates of the achieved benefits after the implementation of the project.

11 The quantification of benefits can be quite difficult. The primary benefits of some systems will essentially be simple functional requirements that will either exist or not exist. Such benefits will be evaluated on a yes/no binary scale. No further quantification is really possible without stretching assumptions beyond an acceptable level. Other benefits will be more relative in nature; benefits like these, which can be evaluated on a qualitative scale (very good, good, satisfactory, poor, very poor), may be converted to an agreed numeric scale of measurement. Other benefits, for example, Average Invoice Value, can be measured on a £ per invoice scale and a target set to define a satisfactory business result from the information-system development project.

12 Many more issues could have been covered in this meso model, but brevity requires that only a sample be addressed here.

13 Much more detail could have been incorporated in this micro model, but brevity requires that only the major headings be addressed here.

14 It is sometimes suggested that the unquantifiable intangible benefits are so distant from delivering real value that they should not be included in any business analysis. This stance represents misunderstanding of the nature of intangible benefits.

Tangible	Measurability: High	Measurability: Low
High	Staff reduction Lower assets More sales	Better information
Low	Faster information Positive staff reaction	Market reaction Access to new staff

Figure 8. Information system output/benefit matrix

The different benefit types described in Figure 8 can be measured using specific modelling techniques, as shown in Figure 9.

Tangible	Measurability: High	Measurability: Low
High	Cost/benefit analysis	Management ranking/scoring
Low	Work study Opinion surveys	Market surveys

Figure 9. Benefit measurement techniques

Several different types of cost/benefit analysis may be used to measure the effect of staff reductions, lower assets or more sales in financial terms. The techniques for modelling these situations are discussed later in this paper. With reference to Figure 9, it is generally believed that cost/benefit analysis is the hard measure, while the other measures (such as opinion and market surveys, as well as management ranking and scoring techniques) are soft.

Tangible and intangible costs

In the same way as there are tangible and intangible benefits, there may also be said to be tangible and intangible costs. It is also possible to make the distinction between costs that are relatively easy to measure and those that present problems.

The definition of a tangible cost is that it will directly affect the profit in an adverse way, while an intangible cost, which may also be referred to as a dis-benefit (Remenyi et al. 1995), may be defined as one that will lead indirectly to an increased cost profile.[15]

Tangible	Measurability: High	Measurability: Low
High	Invoiced purchase	Computer phobia
Low	Staff turnover	Morale Increased politics Rumours, etc.

Figure 10. Information system cost matrix

Figure 10 shows how different types of costs may be categorised using the tangible and the measurability dimensions.

The issue of staff turnover is placed in a quadrant that is low on tangibility as it may be argued that the real cost of losing staff is not so much the expense of recruiting new staff, but rather the disruption costs that occur during the induction period required for a new staff member to become fully productive.

The contribution made by IT outcomes and benefits

There are many different categories of both costs and benefits, and it is essential that all the appropriate elements be generally addressed in the analysis. Unlike IT benefits, the concept of IT costs is relatively well understood and therefore does not need further elaboration or definition. However, the term 'hidden cost' is sometimes encountered in relation to IT. A hidden cost is a non-obvious cost of IT that may in fact appear in another department or function as a result of computerisation. According to Willcocks (1991), operations and maintenance costs are sometimes considered to be hidden, and these may amount to as much as between two and ten times the development and installation costs over the first four years of the life of an IT project. Given the increasing understanding of the impact of IT, there is less scope for costs to be hidden.

The term 'opportunity cost' is also sometimes used. The opportunity cost of an investment or project is the amount that the firm could earn if the sum invested were used in a different way. The opportunity cost of a computer system might thus be the amount that would be earned if the funds were invested in the core business, or placed in an appropriate bank account.

It is interesting to note that the costs of implementing new IT systems have changed dramatically over the past 20 years. According to Bjorn-Anderson (1986), the organisational costs have increased from about 20% to 50% of total cost. This trend is illustrated in Figure 11, and appears bound to continue for quite some time.

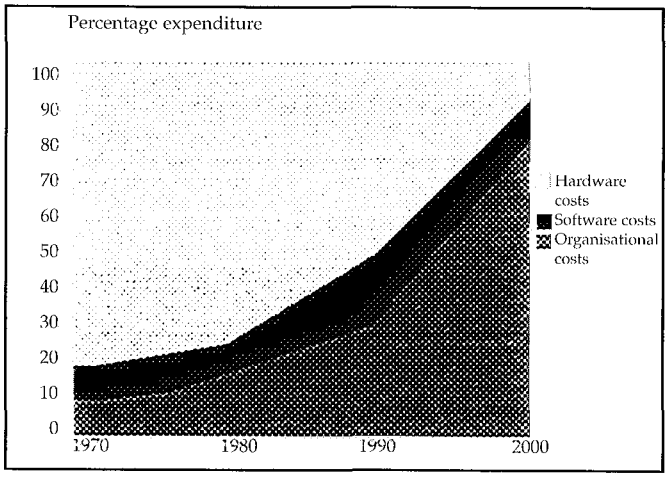

Figure 11. Increase in organisational costs incurred during IT implementation

Figure 11 is very important in the micro-modelling process as it gives an indication of the relative amounts that should be provided for the set-up costs and the ongoing costs and shows that it is easy to underestimate the ongoing costs.

It is therefore sometimes argued that when producing a micro model, the figures included in the cost estimates of a system should be based on the ownership costs over a projected five-year system life. Systems that last longer than five years will thus produce a bonus for the organisation. Systems that do not remain in place for as long as five years may produce

negative results, but this does not necessarily mean that the investment should not be undertaken.

The cost/benefit model

The cost/benefit model is by far the most popular model for determining whether an IT investment should take place. A considerable number of different approaches are possible, and the following sections discuss some of the more important variations of cost/benefit modelling.

The nature of cost/benefit analysis

Cost/benefit analysis may be defined as the process of comparing the various financial costs of acquiring and implementing an information system with the tangible and measurable benefits that the organisation derives from using the system. By definition, therefore, cost/benefit analysis concerns itself only with the top left quadrant of Figures 8 and 10. This means that a cost/benefit analysis of any IT project can only deliver the financial dimension of the equation, and this needs to be supported by models describing the less financially tangible and measurable aspects.

In general, cost/benefit analysis should be performed on a marginal costing basis. This means that only the additional costs incurred by the new system should be included. Likewise, only marginal benefits – new or additional benefits – should be compared to the costs.

It is often thought that benefits are the only factor that is difficult to estimate. However, many (if not most) IT projects over-run in terms of their cost, so this is clearly not the case. Considerable care should be given to cost estimation, especially where software development is concerned. Moreover, ongoing costs are regularly undetected and should therefore be carefully scrutinised.

Different approaches to cost/benefit analysis are required for automate, informate and transformate investments (Zuboff 1988). An automate investment attempts to improve the organisation's efficiency by using computers to automate tasks that were previously done manually. An informate investment is one that attempts to deliver information in such a way that management may make better decisions and thus direct the organisation so that its objectives are more effectively achieved. A transformate investment changes the way the organisation conducts its business so that new and better processes, products or markets are exploited. The following are among the most important approaches to cost/benefit modelling that address these different types of investment.

The cost displacement model

Cost displacement considers the cost of the investment and compares this to the other costs that the system has saved. This type of modelling is typically used in the more traditional data-processing environments where computers are used to replace clerical workers and sometimes even blue-collar workers. Systems designed on this model are often referred to as automate, as already described. The model is not really appropriate for situations where the IT system will add value rather than reduce costs. A cost displacement justification is a classical automate situation, although it may also have informate implications.

The cost displacement approach to assessing an IT investment proposition is an *ex ante* analysis of what the firm plans to achieve. It is nothing more than a statement of intent. To ensure that the intentions are carried out, a list of details about the system and the environment in which it will function should also be supplied.

There is considerable debate as to whether IT investments should be planned on a three-, five- or even seven-year horizon. Some firms use a three-year period for personal computers, a five-year period for mid-range systems and a six- or seven-year period for mainframes. However, a growing number of practitioners believe that three to five years is the maximum period for which IT should be planned. This relatively short period, however, produces problems for some large-scale systems that may take up to three years to develop. In such cases, a longer time horizon should clearly be used.[16]

The cost avoidance model

A cost avoidance analysis is similar to cost displacement, but, in this case, no cost has been removed from the system because the introduction of IT has prevented cost from being incurred. This type of system is also typically used in the more traditional data-processing environments and is generally less relevant to more modern IT applications. Like cost displacement, cost avoidance thus is most appropriate in automate systems.

The decision analysis model

Decision analysis attempts to evaluate the benefits to be derived from the availability of better information, which is assumed to lead to better decisions. In turn, better decisions are believed to lead to better performance. As it is hard to define good information, let alone good decisions, cost/benefit analysis performed using this method is generally considered to be difficult.

Decision analysis is a classic informate situation, requiring a financial value to be associated with the improvements that will result from information being available to managers. In some cases, it is relatively easy to measure the effect of the availability of information, although there will frequently be considerable noise in the environment that may obscure some of the effects of the system. The key to decision analysis is to perform rigorous business analysis of the situation before the introduction of the proposed technology. The types of business relationships at work and their effects on one another should be understood. The ways in which the proposed IT will disrupt these business relationships, hopefully in a positive way, should also be explained. A model of how information is used in the firm to make decisions, and how these decisions impact on actions that in turn affect performance, is useful when conducting decision analysis. A model of this nature is shown in Figure 12.

Figure 12 suggests how information of a higher quality, delivered to the right people, at the right time, may be used to make better decisions. Better decisions, implemented effectively and efficiently, will lead to better action. Better action, which is appropriately directed, monitored and controlled, will lead to better performance, which will result in bigger profits and more cash.

15 There is, of course, a whole range of costs that are normally not quantified, such as the cost of setting up a project team. Such costs are sometimes regarded as intangible cost, while at other times they are regarded as tangible cost but not itemised as they are more properly included in the overheads structure of the organisation.

16 Several other issues concerning the horizon of the investment relate to economic life expectancy, terminal value and taxation legislation. However, these issues are beyond the scope of this paper.

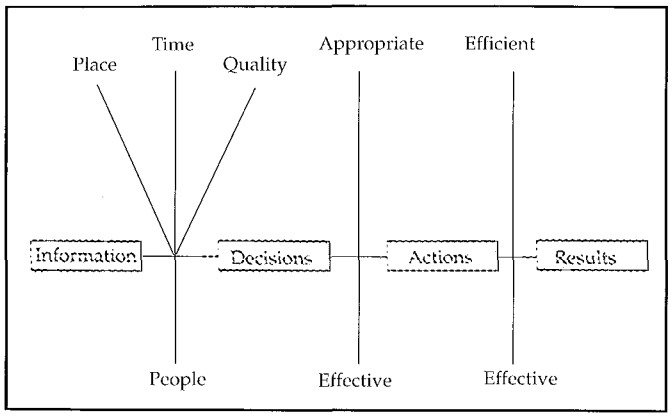

Figure 12. Decision analysis model indicating the relationship between information[17] and results

The transformate/change model

The type of analysis or modelling that is used to assess a transformate opportunity is similar to the analysis employed for any strategic investment. Strategic investments often involve many considerations that are particularly difficult to quantify. Issues such as competitive advantage, market share and new product development are just a few examples. Strategic investments are frequently considered so important that a full *ex ante* cost justification may not be undertaken,[18] or, if it is, the results of the analysis may simply be ignored. Statements such as 'it's too important to ignore' or 'the cost of not doing it will be crippling' are frequently heard in association with strategic investments. Strategic investment appraisal studies therefore often contain more words than numbers. In effect, this means that more emphasis is placed on the macro model than on either the meso or the micro model, and this practice illustrates that for certain types of investment, it may not be necessary to undertake the lower level modelling.

Good practice, however, requires meso and micro modelling, and some numeric analysis should thus be performed. As transformate or strategic investments will usually have a longer time-frame implication than efficiency or effectiveness investments, the simple ROI and payback methods are usually not adequate. Techniques based on the time-value of money, which are required for discounted cash flow analysis, need to be used.

For micro models using discounted cash flow techniques, more data and assumptions are generally required. This technique is shown in Figure 13.

Although it is beyond the scope of this paper to discuss the detail of the calculation for discounted cash flow, it is necessary to point out that this model requires only marginal cash flow to be exclusively used in the calculation. As depreciation is not a cash expense, it is necessary to exclude such costs from the calculations. In addition, corporation tax needs to be included, as well as an estimation of the cost of capital.

In the example model described in Figure 13, an IT allows the organisation to generate additional revenue. This revenue incurs direct and indirect marginal costs. The revenue less the costs produces a before-tax marginal profit. Corporation tax is then calculated and subtracted from the pre-tax profit. Because depreciation on the equipment was included in the costs, it is then necessary to add this amount back. Once this has been done, net cash flow figures appear. These numbers are then used to calculate the net present value and the profitability index.

This well-established approach is used extensively in many different types of capital investment analysis.

Deterministic versus stochastic model

Traditional cost/benefit analysis is undertaken using discounted cash flow techniques involving forecasts of, for example, the investment amount, the annual or periodic benefits and the cost of capital. All these variables are difficult to estimate, and the cost of the firm's capital is frequently considered the most difficult variable to determine. The rate of interest that the firm pays on its debt, or an arbitrarily chosen hurdle or discount rate, is sometimes used as a surrogate for the cost of capital.

As mentioned earlier, IT systems evaluation may be undertaken in several different ways using a variety of measures and at least two different processes. The two processes discussed here are the deterministic approach, which uses single point estimates for the input values and generates a single estimate for the result, and the stochastic approach, which uses ranges as input and generates a range of results in terms of assumed probability distributions. The stochastic can, in practice, also be used in simulations in order to generate different scenarios to examine possible different outcomes of investment.

Deterministic analysis[19] assumes a certain world where the exact value of input variables can be known. Once the values of these inputs are entered, a unique result, determined by the logic of the algorithm and the precise data, is calculated. Because *ex ante* investment analysis makes exclusive use of estimates of future values for the investment amount, the ongoing costs and the benefits, it is frequently said that as soon as the single point values are determined, the input and output will be wrong.

Stochastic analysis,[20] which is also known as probability or risk analysis, attempts to accommodate the inherent uncertainty in the world, and hence the variability in the input estimates, and produces a range of possible results, which more closely reflect the level of possibilities frequently experienced in the real business world. The results of a risk analysis for internal rate of return (IRR) are shown in Figure 14.

In situations where uncertainty is relatively small, deterministic models can provide suitable solutions. However, it is more likely that uncertainty in the input variables, evidenced by their variability, will be relatively high, and this uncertainty will therefore have to be taken into consideration.

This uncertainty is captured by specifying a probability distribution for each of the input variables, such as investment, cash flows and cost of capital. There are many candidate probability distributions that can be usefully employed for this purpose. Some of the more useful distributions are likely to be the uniform, the triangular and the beta.

Operationalisation of the above is through the use of the Monte Carlo method (Hertz 1968). This involves generating a range of outcomes for the input variables (for example, investment, described by some specified probability distribution) and then evaluating the behaviour of an associated output variable (for example, the internal rate of return). The Monte Carlo method can also be used to establish how robust

	Year 0	Year 1	Year 2	Year 3	Year 4
Set-up costs	Units of currency ('000)				
Investment costs					
Hardware	990				
Software	876				
Reorganising costs	700				
Initial training	450				
Commissioning	555				
Total initial costs	**3571**				
Annual ongoing IT costs of project					
Staff	340				
Maintenance	172				
General	38				
Amortisation	900				
Total costs	**1450**				
Annual benefits					
Additional sales		2 700	3 510	4 563	5 932
Cost of sale		2 750	2 819	2 889	2 961
Net profit		-50	691	1 674	2 970
Tax		0	207	502	891
After-tax profit		-50	484	1 172	2 079
Amortisation		900	900	900	900
Net cash flow	-3 571	850	1 384	2 072	2 979
Cost of capital	15%				
Tax rate	30%				
Economic life of the project	4 years				
Net present value	1 280				
Internal rate of return	28%				
Profitability index	1.36				

Figure 13. A micro model for a transformate proposal

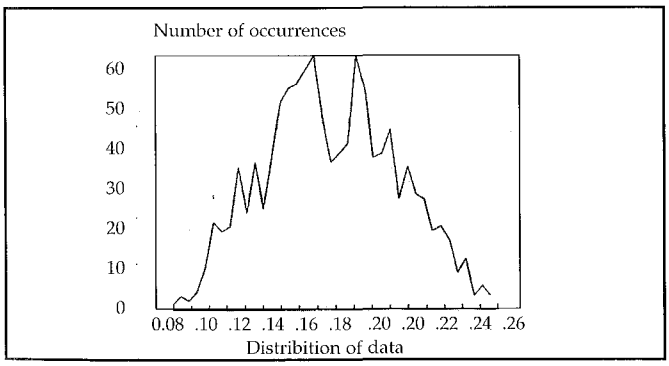

Figure 14. Graphical representation of risk analysis results for internal rate of return

and sensitive the outcomes are with respect to the assumptions concerning the input variable(s).

Johnson & Kotz (1970) and Gonin & Money (1989) go into more detail on the properties of a number of probability distributions and provide guidance on how to generate random samples from such distributions. Within all major spreadsheet programs, there is a facility to create these types of distributions.

Choice of cost/benefit analysis or modelling

The question of which of the approaches discussed would be most appropriate for a particular IT investment is frequently raised.

In general, risk analysis is preferable wherever possible as it delivers a much richer picture of the situation. With regard to the other approaches, however, Figure 15 indicates the most suitable area of application.

Cost/benefit approach	Application	Benefit
Cost displacement	Automation	Efficiency
Cost avoidance	Automation	Efficiency
Decision analysis	Information	Effectiveness
Change analysis	Transformation	New business opportunity

Figure 15. Different benefit modelling approaches

17 Sometimes this model is shown to begin with date, which, if processed in an appropriate manner, becomes information. It has been decided that this aspect of the model has become well accepted and fairly routine for many organisations, and that the key elements actually only come into play after the information has been produced.

18 A peculiar logic sometimes exercised by top management is that an investment may be so important that it is not necessary to delay its initiation by submitting it to any of the standard capital investment appraisal procedures.

19 According to the *American Heritage Dictionary of the English Language* (3rd edition), 'deterministic' refers to the fact that there is an inevitable consequence of antecedents. Once values are specified for the inputs of a deterministic model the result will thus be unique and easily calculated.

20 According to the *American Heritage Dictionary of the English Language* (3rd edition), 'stochastic' refers to involving a random variable or variables and the chance or probability of their occurrence.

The merits of outcome and benefit modelling

As may be seen from the discussion in this paper, a considerable amount of work is required if IT outcome and benefit modelling is to be undertaken successfully and if the results are to be of value. It is therefore often asked whether the additional insight derived from IT outcome and benefit modelling is worth the effort.

In some respects, the question has become obsolete because of the large amount of interest shown in this subject over the past few years. On the one hand, many would argue that IT is so clearly a basic requirement for business that it is unnecessary to perform regular outcome or benefit analysis. Such arguments posit that IT is as essential to the firm as an adequate telephone system. On the other hand, in most organisations, IT consumes considerable resources (Willcocks & Lester 1994), financial and other, and should therefore not be compared to telephones.

In reality, unless some detailed modelling is done, management will not have much idea of what lies ahead, nor will it know how it is actually performing. Even though the estimation and the measurement of IT performance are imperfect, it is essential to produce such models to obtain some sort of indication of the possible outcomes and benefits. Whatever method or level of modelling is used and whatever metric is chosen (whether financial or other), it should be realised that the model is likely to be no more than a subjective assessment of likely results with a low level of objectivity. This does not make the exercise invalid or mean that it has no practical use. It does mean, however, that the results should be used with care and sensitivity to the underlying assumptions on which the models are based.

Summary and conclusion

Without outcome and benefit modelling, the best that can be achieved is an unclear view of what the IT investment might achieve and how this could take place. To ensure that there is a clear understanding of how the investment will proceed and how the outcome and associated benefits will be generated, it is essential to develop models at all three levels described in this paper.

There are thus different degrees of outcome and benefit modelling. These include macro, meso and micro modelling. Within the micro modelling context, there are also different types of cost/benefit analysis, ranging from fairly simple single point estimate techniques to more sophisticated risk analysis. In each case, it is important to choose the appropriate level of sophistication and not to overwork the detail or the numbers. In some cases, where the size of the investment is small, it may only be necessary to perform a general level of analysis.

However, the main reason that modelling is an important subject is that conceptual clarity regarding the impact of an information system investment on the business situation and on the financial resources of the organisation is important if a proposed application is to be successfully implemented and subsequently managed. Planning an IT investment without performing a business modelling exercise is analogous to initiating a complex journey without consulting a map.

Benefit modelling is an important tool for the realisation of the outcomes that management desires from an investment, as it provides a rich picture of the possible results of the investment. However, it is always important to remember the words of one of the greatest economists of this century, John Maynard Keynes (1964), who pointed out that, in the final analysis, it is human "motive or whim or sentiment or chance" that tends to make the investment decisions.

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A framework for integrating GroupWare technology and business process improvement

Harold Campbell* **and René Pellissier†**

Evaluative research on GroupWare technology in organisations has been concerned mainly with the effects and role of GroupWare as a new interactive medium replacing, or, for that matter, extending face-to-face communication in groups. GroupWare as a subset of Computer Group Support Systems (CGSS) has mostly focused on the benefits and drawbacks from a group interaction perspective. This narrow approach tends to disregard the enabling role and impact of some of the other invaluable functions of GroupWare, such as group access, and its contribution to information management and use within the organisation.

This paper explores the opportunities and constraints present in attempting to integrate GroupWare technology and business process improvement (BPI) in a public service department in one of the member states of the Southern African Development Community (SADC). Action research is used to facilitate the supportive and enabling role of asynchronous GroupWare in BPI initiatives.

The efficiency and effectiveness of the business processes may be achieved through asynchronous GroupWare support to group communication, as well as through several other publics (such as access to and sharing of historical information). Furthermore, it provides a repository and/or database of information about the business processes.

A framework is proposed that integrates GroupWare technology (Lotus Notes electronic mail system) with a BPI meta-process, and it is shown how this impacts on the efficiency and effectiveness of the department.

Introduction

Many organisations the world over are caught up in a massive restructuring not seen in the western hemisphere since the second industrial revolution, which introduced the factory system and dramatically changed all aspects of the agrarian economy. There has been an evolutionary wave towards information technology (IT), which is being described as a paradigm shift requiring a new context for leadership and management practice in all sectors of the global economy. Toffler (1980) describes this new paradigm as the "information age". The information age represents a paradigm shift in the way organisations are organised and how they function. Six main elements may be said to impact on current organisational interactions: the global economy, the information highway, employee empowerment, the virtual corporation, a focus on core competencies, and a demand for quality and service delivery. The evolution of information technology is arguably therefore much more than an enabler of organisational efficiency. It may be viewed as one of the main aspects, or critical dimensions, of organisational survival in this age.

Consistent with the foregoing, organisations are defined as sets of interrelated business processes, each of which is composed of interacting agents, suppliers and secondary stakeholders. Their main goal is to transform the value chain with a view to transforming its inputs so as to produce valuable utilities in the form of deliverables and outputs for customers. The returns for the organisation are usually increased inflows of capital, market share and goodwill. This capital is then invested to supply further demand from customers, in a cyclic process (Goldratt & Fox 1986).

A new framework is therefore needed to assist the organisation in realigning its business and functional processes to maximise its potential and performance in the new age. The operating milieu generally consists of the information value chain, the technology dimension and the information dimension. These provide the glue towards organisational efficiency and effectiveness. Organisations that are classified as successful have business processes that are both efficient (an internal, operational perspective) and effective (an external, strategic perspective) – both being measures of productivity. Organisations can be viewed as efficient whenever there is an optimum balance between the capacity for generating outputs and the management of cost drivers. This must be in tandem with effective delivery of outputs, matching or exceeding the expectations of customers. The effective and efficient manage-

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Framework for integrating GroupWare technology and business process improvement

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ment of these factors enables organisations to sustain an equitable balance between production capacity and actual throughput.

The business landscape is changing continuously at an increasing rate (Goldratt & Cox 1986; Hammer & Champy 1993). Organisations are thus required to respond quickly to the market dynamics in order to remain competitive and successful. There is a need to adopt a strategy or framework in response to the new management cultures. Organisations of the future must learn to operate within this context. It is also posited that organisations need both radical and continuous changes in order to be productive (Davenport 1993a; Deming 1986).

For an organisation to maintain its competitive advantage, it must position itself so as to be able to respond timeously and correctly to external changes. The context of the information age dictates that organisations should create local coping mechanisms at the team level in order to respond appropriately and quickly to external changes (Senge 1990). One instance of such decentralised mechanisms is business process improvement groups (BPIGs) (Hammer & Champy 1993), which are dealt with in more detail in this paper.

The focus of the next sections is on business process improvement (BPI) technologies. BPI technologies are identified and discussed in the context of the effect of GroupWare technology on organisational structure and culture. A model for decentralised learning along with the importance of BPIGs is also provided. The role of GroupWare in this context is described and illustrated on the basis of the experience of a public service department. A process model is used to explain the enabling role and effects of asynchronous GroupWare on BPI in that organisation. The limitations and implications of the model for future research are discussed in the last two sections.

Business process improvement technologies

BPI technologies have been considered one of the underlying change dynamic tools of some widely practised and researched, and sometimes revolutionary, management movements (Burke & Peppard 1995). The concept is not new, but it is in keeping with the new frontiers of management thinking. In fact, the much-lauded 'Japanese economic revolution' techniques were based on the concept of incremental process improvement (Deming 1986; Walton 1989). As management techniques, BPI technologies have arguably been the basis for major global organisational development approaches and structures (French & Bell 1990).

Although some texts denote BPI as an incremental business enhancement approach with a relatively small scope for change (in other words, sometimes retaining the existing processes in contrast to a more radical approach where there is not of necessity process innovation), the term 'BPI technologies' in the context of this paper is used to denote a vast family of process change and process innovation technologies, for instance, total quality management (TQM – a continuous process that is not necessarily of a radical nature), business process reengineering (BPR – radically changing the processes of the business) and business engineering (changing the very nature of the business), to name just a few.

The literature on BPI technologies suggests that there are continued efforts and successes in the application of the BPI approach to organisational problems (Davenport 1993b; Hewitt & Yeon 1996; Maull, Weaver, Childe, Smart & Bennet 1995; Ward 1994). For instance, the BPR movement suggests that working groups and teams should propose radical changes in business process redesign. It argues that these proposals should generate revolutionary quality and productivity improvements (Davenport 1993a; Hammer & Champy 1993).

Continuous and radical BPI have often been considered as opposite extremes on the same continuum. This fact has, in the past, led to the definition of a dual taxonomy (Davenport 1993a) and a range of BPI technology approaches, the main difference between which has been the degree of change sought and realised (Damanpour 1988; Dewar & Dutton 1986).

The BPI schema emphasise several themes, namely:

1. Teamwork (Deming 1986; Hammer & Champy 1993)
2. Process management (Harrington 1991)
3. Continuous improvement (Choi 1995; Choi & Liker 1995)
4. Management by fact, or information management (Stoddard & Jarvenpaa 1995; Davenport & Short 1990; Dennis, Daniels, Hayes & Nunamaker 1993; Davenport & Beers 1995).

An amalgam of the last two factors can give rise to a new fourth factor, namely, a replacement of continuous improvement with discontinuous or breakthrough improvement from the third factor, and the addition of significant cost reduction – by BPR, for example (Hammer 1990) – to the fourth factor. The objective in such a case is either to catch up with or surpass global competitors. The role of key stakeholders, such as customers, suppliers and shareholders, helps to define this taxonomy.

Developing a business process model enables effective BPI efforts. Such a model illustrates how the activities in the organisation are currently performed. The BPI model is then used to find innovative approaches to business processes that can be improved to produce process quality and productivity (Harrington 1991). This model is interfaced with the BPI schema.

Business process improvement technology management

General BPI principles suggest that process improvement is best undertaken in organisations that adopt a process management philosophy. While there are many reasons for this, the primary one is that process improvement is both enabled and constrained by existing processes, organisational structures, and the existing technology base.

Process improvement management includes BPR as a corollary to the scientific approach to organisational redesign and the radical rethinking of existing processes, thus giving rise to BPI. For an organisation's orientation, the elements of BPI thus exist to fulfil a defined mission. Arguably, if there is no mission, there is no need for the organisation's existence. Processes that are purposefully designed around a mission fulfil that mission. If no processes exist, there is no way to fulfil the mission.

Process improvement actions and programs are generally required when one or more of four conditions occurs:

1. The mission of the organisation is changed or enhanced.
2. Customer needs, requirements or desires change in substantial ways.
3. Performance measures indicate that process perfomance is consistently below current standards of performance.
4. Performance standards are significantly raised to improve one or more of the four categories of measures: conformance to standards, fitness for purpose, process cycle time or process cost.

BPI actions and programmes are therefore not to be undertaken without reason or consideration for all performance elements – process, people and technology. Moreover, process improvement affects not only existing processes, but also the existing organisational and technological infrastructure. In any process improvement programme, all three elements should be the object of a carefully designed and skilfully executed change management programme.

BPI is a complex undertaking that demands leadership from the highest levels of the organisation and participation from virtually all executives, managers and professional employees (Daniels 1991). Davenport (1993a) posits five elements that together provide the techniques and tools to support the concepts of process improvement, and ultimately, process reengineering:

1. TQM principles and practices ensure high-quality products and services to both internal and external customers of business processes.
2. Industrial engineering provides process measures, controls on process efficiency and effectiveness, and standardised procedures.
3. Workflow design that incorporates the concurrent management of technological and human change.
4. Process redesign incorporates innovations and eliminates non-value-added time and costs from processes.
5. The introduction of competitive (aggressive) information technology enables superlative customer quality and service.

Process improvement management entails overseeing the way work activities, people and technology combine to produce useful outputs. Performance measures are used to evaluate process improvement management success with respect to standards of performance. Performance standards are derived from strategic and business (or functional) objectives and goals.

The scope of BPI management may be represented in a schema of three distinct levels of process improvement, namely:

1. Continuous process improvement (CPI) – Continuous process improvement is generally associated with the total quality management (TQM) discipline. The traditional approach is to empower self-managed teams to make task-level improvements in quality, cycle time and cost. This is closely akin to innovation of a single process.
2. BPR – Process reengineering (or redesign) is the next level of improvement. BPR actions are undertaken in a project context with planned or specific improvement objectives. The focus is on streamlining processes by detecting and eliminating non-value-added process time and costs and incorporating best practices in whole or in part. Hammer & Champy (1990) explain that the effects of reengineering involve the "fundamental rethink and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service and speed".
3. Business engineering – Reengineering is often undertaken in response to dramatic changes in the external environment and on an organisational level (a paradigm shift, for instance) that place considerable pressure on the ability of the organisation to fulfil its mission, to improve its competitive positioning, or even to survive as an entity. Actions are radical and transforming. The focus is on the end-to-end process, or on a considerable subset of that process, and virtually all functions within the organisation are affected.

The three organisational elements or components involved in process improvement technologies at all three levels are process, people and technology. At the CPI level, people and how they perform their jobs is the focus. At the BPR level, process is the focus of improvement efforts. At the business engineering level, technology assumes primary importance. However, all three components are always part of every improvement effort. The differences are only of degree, importance and priority.

The concept of an end-to-end process improvement model with a supporting methodology seems to be the most expeditious way to implement Davenport's (1993a) principles. Such a methodology would:

- Begin with a statement of mission, vision, objectives, goals and strategies
- Produce a reengineered business process to support the stated organisational mission and related strategic and business plans
- Continue through information systems design, deployment and operations consistent with the meta-model
- Employ process management principles to ensure that process improvement gains are maintained
- Focus on cultural and organisational change management issues and structural barriers to change that represent the most risk-prone component of process improvement efforts.

The meta-model orientation used in this framework comprises a study of group processes for BPIGs, and is therefore referred to here both as a group methodology and as a group process. As a meta-process, it is viewed as a high-level process that describes how process improvement can be carried out in organisations. The process improvement framework is dealt with elsewhere in this paper.

Focusing on processes

The new paradigm requires a meta-process model. This is designed to enable process improvement efforts within the organisation consistent with the established body of expertise for process improvement and best practice analysis.

The two components of process management are processes and functions:

1. A process is simply the largest unit referring to the flow of work through an organisation, beginning with external suppliers and ending with external customers. Along the way, value is added at each step through a series of transformations involving the consumption of resources within an established control (rule-based) framework (Porter 1985; Hart 1964).
2. A function is a specified type of work applied to a product or service moving within a process.

In a functionally driven organisation, processes are organised around structure or functions. In a process-driven organisation, structures and functions are organised around processes.

A business process can be subdivided into sub-processes, with lower level processes called 'tasks' or 'activities'. These usually have some kinds of interdependent attributes (Dennis, Hayes & Daniels 1994). A business process is more fully understood if it is split into its various component activities. The interrelations between these activities are then examined to see how they affect the overall performance, efficiency and effectiveness of the business process. This is referred to in the literature as 'modelling a business process'. The aforementioned model is relevant.

Business process improvement groups

From the above discussions on BPI technologies and BPI management, it follows that teams or working groups are the focus of the BPI group framework – resulting in the term BPIG to implement the BPI technologies. Moreover, all instances of BPI share common characteristics, such as their dependence on working groups. These working groups (BPIGs) have the following characteristics:

1. They are generally small groups, with between three and 12 members (Soles 1994).
2. Their *modus operandi* is characterised by a process (King 1990).
3. They have defined roles (Rosenfeld & Servo 1990).

The study of a business process as an activity-based concept, and also as a value-adding unit, provides opportunities for a BPIG to better improve some of the attributes of the business process, such as service delivery, customer satisfaction, product quality, cost drivers, turnaround and throughput time, and process simplicity.

BPIGs facilitate organisational learning in terms of redesigning organisational units, such as business processes. Work teams[1] arising from BPIGs usually enhance the communication dynamics and the sharing of information about organisational processes. This approach fosters team learning and recognises that "teams, and not individuals, are the fundamental learning units in modern organisations" (Senge 1990: 10).

The BPI schema is normally carried out with small groups or teams, the mandate of which is to analyse and propose improvement to business processes. Such initiatives can be anywhere on the BPI continuum, from incremental to radical (Hammer & Champy 1993).

GroupWare and business process improvement groups

Historically, the term 'GroupWare' came into general use in 1991 when it was the subject of a special report in *PC Week* (1991). In 1992, the first major conference on commercial computer-supported co-operative work (CSCW) focusing on GroupWare was held (Coleman 1992). McQueen (1993) added to the discussion by describing experiences of using GroupWare in New Zealand, and Lloyd clarified the implications for potential users of GroupWare technology within the next millennium. Within this perspective, however, cognisance must be taken of the fact that the first academic conference on CSCW was in 1986 (Lloyd 1994).

The term 'GroupWare' is often used as synonymous with commercial CSCW. In some instances, this is acceptable. The understanding must, however, be that CSCW is the over-arching discipline and should thus encapsulate both GroupWare and collaborative computing. The following definition is offered against the background that there are several loose pros and cons on IT that uses GroupWare: "GroupWare is the networked hardware and software, which enables people to support each other in their efforts to achieve their work goals, irrespective of when or where they might want to do this, while collaborative computing is the creation of collaboration systems, in which teams of people use GroupWare to help them achieve the goals of their groups and organisations" (Bate & Travell 1994).

GroupWare thus represents the hardware and software, the applications, of computer-based teamwork, and collaborative computing is the implementation of GroupWare in systems comprising people and networked computers. GroupWare comprises IT that is used to help people work more effectively. Bill Gates, chief executive officer of Microsoft, clarifies the debate on the value of GroupWare as follows: "It's simply allowing everyone in your company to collaborate, allowing you to track everything you've done on a new product design, everything you've done with customers" (Gates 1994: 98). The prime purpose of GroupWare is thus that teams work towards specific organisational goals to improve business processes.

The authors of this paper largely agree with the above argument, but would further state that the use of GroupWare should include the analysis of organisational structure and culture, as well as an examination of how these should be changed and managed for the organisation to be successful. From the researched literature, it was found that GroupWare covers such a diverse area, with ever-increasing boundaries, that the best definitions of GroupWare are a convergence of six other definitions (Richman 1987; Johansen 1988; Olson 1989; Ellis, Gibbs & Rein 1991; McQueen 1993; Dale 1994), as in the following proposed definition: GroupWare is a generic term for computer-based systems that are networked to support groups of people engaged in a common task. These groups are usually small and have particular tasks with definite terms of references.

Understandably, then, GroupWare enables better support for teamwork by providing sophisticated communication and co-working facilities. It consequently has the potential to augment the efficiency and effectiveness of BPIGs by means of characteristics such as the following:

- Better support to group activities, for instance, by making communication faster and cheaper (Sproull & Kiesler 1991), reducing paper flow (Wilson 1991), making filing easier (Brothers, Hollan, Nielsen, Stornetta, Abney, Furnas & Littman 1992), increasing cross-departmental communication (Clement 1994), and better management of information flow through the office (Bate & Travell 1994)
- Positive effects on individual behaviour, such as reducing stress (Pietro 1992) and making individuals communicate more openly (Sproull & Kiesler 1991)
- Positive effects on group behaviour, for instance, by distributing individual contributions more evenly (Nunamaker, Dennis, Valacich, Vogel & George 1991), separating ideas from individuals (Chidambaram & Kautz 1993), reducing the repetition of old ideas, and increasing commitment to group decisions (Sheffield & Gallupe 1993).

Much of the published research in GroupWare systems has been on group decision support systems (DSS). Examples of tasks in such systems include brainstorming, voting, ranking and classifying ideas (Dennis et al. 1994). Synchronous communication is supported by group DSS. Events occur in co-ordination with one another, usually at specified times or simultaneously. This category of GroupWare systems is the opposite of asynchronous GroupWare. Asynchronous events occur at different times without co-ordination. Asynchronous systems allow users to interact at different times and from different locations, and include electronic mail, computer conferencing and workflow control systems.

GroupWare and business process improvement technology: A public service experience

The experience of a public service department in one of the Southern African Development Community (SADC) member

states is investigated in this section to illustrate the concept of BPIGs and the impact of GroupWare technology. The department studied is the National Student's Placement and Welfare (DSPW)[2] arm of the Ministry of Education, responsible for pre-service tertiary level training.

The history of the DSPW can be traced back to the early days of independence when the country had only a handful of university-educated nationals. The department was first established as a small function within the ministry to facilitate the sponsorship of further education. It is primarily involved in assisting students in their placement, and providing them with financial assistance in the form of grants and loans. It also plays a major role in career guidance, serving to reconcile students' career choices with the nation's human resources requirements.

The courses sponsored are category-based to meet the country's human resources needs. The amount spent on the courses is recoverable, either in part or in full, depending on the category under which the course is sponsored.

Typically, the entire financial assistance package to a student is treated as a loan until he/she successfully completes the course. The grant portion of the assistance, which need not be repaid, is based on the category into which the course falls. It is deducted from the amount of the loan when the student successfully completes the course. If a student discontinues a course, all costs incurred towards his/her education are treated as a loan.

Until the end of 1972, the scheme operated without a memorandum of agreement with the student and with no expectation that the student would make any financial contribution towards the continuation of the scheme. All that was expected of students was that they serve in certain sectors of the economy upon completion of their studies. In 1973, the government took a more proactive role in the training of local human resources in order to expedite the localisation process. In line with this undertaking, the government introduced a bursary scheme in terms of which students had to sign a memorandum of agreement requiring that they serve in designated sectors of the economy on completion of their studies and that they contribute 5% of their initial salary to the scheme.

The revised bursary scheme was applicable only to students that were being sponsored through the single national university. Those that were trained at other tertiary institutions – such as the National Health Institute (NHI), now the Institute of Health Sciences, or the national polytechnic, now the Faculty of Engineering and Technology of the state university – were required only to serve in certain sectors of the economy.

An organisational and methods (O&M) review report from the Ministry of Education in 1992 redefined the objectives of the bursaries function and upgraded it to a department, the DSPW. The major objective of the DSPW was redefined as providing pre-service education and training at the post-secondary level, in order to produce the technical and professional manpower needed for the economy. Accordingly, the main functions were streamlined as follows:

- Policy and awards
- Student welfare administration
- Career guidance and counselling
- Departmental management.

The government introduced the grant/loan scheme in April 1995 following the recommendations of the Presidential Commission on the revised National Policy on Incomes, Employment, Prices and Profits in September 1990. The objective of the new policy was to expand the bursary scheme to cover all post-secondary pre-service training, as well as to introduce the element of cost recovery. This would serve to make the scheme self-sustaining, in other words, a revolving loan scheme.

The new scheme significantly increased both the clientele and the budget of the DSPW. It is against this background that the DSPW is now at the centre of the implementation and operation of the scheme. However, an inappropriate structure and inadequate resources that are not commensurate with the mandate and responsibilities of the department have grossly hampered the efficiency and effectiveness of the scheme.

Inability to learn and adapt to change

A review of the DSPW was necessitated by the numerous complaints from members of the public, including prospective grant/loan applicants, about the poor administration of the grant/loan scheme. Consequently, senior management decided to undertake a review of the DSPW with a view to strengthening and improving service delivery. By then, a consultant with experience in the administration of student loans had already been contracted by the DSPW to assist in finalising the modalities and administrative aspects of the implementation of the grant/loan scheme. In particular, the consultant was tasked with developing, designing and setting up a broad-based database system for the DSPW to increase its efficiency and effectiveness.

Against the advice of the Government Computer Bureau (GCB), senior management at the DSPW took the decision to develop software systems in-house to support their operations. This led the DSPW into a three-year project to develop a computer system designed to integrate the various aspects of its work. Ultimately the system had several limitations.

The computerisation consultancy was conducted in two phases, the first of which involved developing the functional specification document. This was done by analysing the needs of the DSPW and by working closely with other stakeholders, like the Government Computer Bureau. The second phase of the consultancy involved the implementation of the system as detailed in the project proposal. This phase had three parts: confirming the technology environment, designing and developing the grant/loan scheme, and implementing the system.

The system took more than three years of development to reach some level of efficiency, but by then the increased number of applicants had placed a great burden on the effectiveness of the DSPW, and the system is still not fully utilised.

Starting the business process improvement groups

The inability to motivate staff at the DSPW called for changes in the management approach. Some techniques for enhancing the level of participation in decision-making, such as brainstorming sessions, suggestion boxes and departmental meetings, were tried as efforts to promote participation and to campaign for ideas from staff on how to improve service delivery. None of these endeavours generated the expected gains, for two main reasons:

1. They were strictly based on the assumption that desk officers (front-line staff) should play an active role in management and the solution of problems, which is one of the several facets of process improvement. Desk officers

were, among other things, called on to participate in taking routine strategic decisions, irrespective of the type of decision, following an approach suggested by Semler (1989). This proved to be a counterproductive strategy, however, which seems to support the assumption that group decisions are not better than individual decisions. In fact, group decisions may delay the taking of decisions and may also be of lesser quality (Senge 1990). Strategic decisions – for example, to form partnerships with the private sector or to decentralise the functions – were found to be better made only by managers. Sharing the responsibility of taking decisions with large groups of staff that were not directly involved in decision-making on a daily basis simply delayed what could not afford to be delayed, thereby undermining the confidence of both staff and management in participatory management.

2. Business processes received low priority. For example, the whole set of interrelated activities involved in awarding a loan, signing a memorandum of agreement (loans contract) and recovering loans (credit control) – from gathering relevant applicant/student and human resources information to the analysis of programme quality assurance, as well as the care and welfare of students – was never discussed. The emphasis was staff participation in management activities, rather than analysing how activities were executed and how improvements could be attained. The ideas generated by the officers covered a broad range of subjects, from increased staff levels (so that there would be more hands to cope with the increased volume of work) to better wages. The broad range of subjects and the repetition of ideas progressively undermined the interest of managers, and consequently employee motivation, to generate new ideas.

One of the authors has been working as an organisational consultant with the public service in question for more than a year and a half and has an intimate knowledge of the operations of the DSPW. This enabled him to perform a study with action research characteristics (Elden & Chisholm 1993; McKernan 1991). The work began with an analysis of the organisation, and a set of changes at the management and operational levels was proposed.

Based on previous experience and on a methodology developed to implement group-based quality and productivity improvement, a project to establish BPIGs was planned and put into practice. It was pre-determined that all such groups established at the DSPW should complete a process-improvement proposal within a specified time. As opposed to BPR groups (Hammer & Champy 1993; Soles 1994), the BPIGs at the DSPW were not constrained in their composition, and the improvements sought were not expected to be radical.

The BPIGs had between one and eight weeks to complete the analysis and redesign of a business process. They were then expected to generate a proposal and hand it for evaluation to an improvement committee (which included one of the authors). If the proposal was considered to be attainable and likely to generate improvements in the operations of the DSPW, the BPIG would co-ordinate the appropriate staff functions to implement the proposed redesign.

Introduction of an asynchronous GroupWare system

The groups were initiated by an electronic mail message sent to the facilitator and copied to the group leaders, notifying them of their nomination and of the start of the asynchronous GroupWare system. Three months after this message and the consequent formation of BPIGs in the department, four BPIGs had successfully completed their assigned tasks and three others were still engaged the procress. (The department has the potential of accommodating between five and 12 BPIGs. Given the total staff size of 35, it is thus possible to convene at least 16 groups per quarter.[3]) BPIs were proposed by three of the BPIGs. The fourth group, however, proposed only some incremental changes, based not on business processes but rather on business process (BP) analysis. In other words, the solutions were based on problem analysis,[4] which is consistent with the results of previous research (Dennis et al. 1993). At most, ten officers per session, including all staff members, were trained in the concept of BPI (with the main objectives of learning how to conduct structured analysis and design) in one-day training sessions.

The major characteristics of the asynchronous GroupWare system that was installed in the DPSW were designed in the knowledge that some officers would be unable to attend regular BPIG meetings because of external engagements. Because the DSPW is fully networked (with all officers involved in the BPIGs having computers with Lotus Notes electronic mail capability), it was a simple matter to introduce computer conferencing. Public mailboxes were assigned to each BPIG, and the different stages of their BPI meta-process were posted to them. Some of these mailboxes allowed public accesses, so that there could be full participation at various stages of the BPI meta-process. Public access had to be restricted in the case of certain BPIGs that were dealing with confidential information. During the training in the BPI meta-process methodology, all officers in the DSPW were trained to use the Lotus Notes GroupWare tool.

The main business processes of the DSPW were posted to the public mailboxes, providing information on the department's main activities, staff and resources, external service providers, and current student beneficiaries and scholarships. There were also postings about the business process performance, giving details of its effectiveness and efficiency, the cost drivers and the level of customer service.

Qualitative results from the use of the system

By the end of the first quarter, seven BPIGs were using the Lotus Notes GroupWare tool. The facilitator of the groups provided assistance to each BPIG by building help-support documents into the system to enable group members to remain focused on the process. The response to this user interface enhanced the media-richness of the communication. It was reported that more than 75% of all BPI interactions were conducted via the GroupWare system.

Notwithstanding the achievements of the BPIGs, the groups reported certain shortcomings with respect to the impersonality of the GroupWare system. Many group members had difficulty in communicating their ideas by means of the GroupWare medium and at times excused themselves from participating in discussions. (Against this background, it should be noted that each BPIG had a facilitator and a group leader.) The reason identified was that some members preferred face-to-face meetings and interactions. Although the leader and facilitator provided coaching and support on business process modelling, there was cultural and technophobic resistance to the non-simultaneous time and location dimensions of the interactions. Arguably, interaction in a face-to-face situation is higher, and group members were well socialised to

this form of communication. The asynchronous alternative is not only a matter of increased personal convenience, but it also allows communication to cross time and space (Sproull 1993). In some instances, asynchronous communication is able to "increase the informational and emotional connections" of peripheral employees for whom satisfying face-to-face relationships at work are not possible (Sproull & Kiesler 1991). Taking into consideration the concerns raised by members, and recognising that electronic group attributes and process may differ from those of conventional groups, the structure of the BPIGs was changed.

It was decided that members of the groups would each be given responsibility for the sub-tasks associated with particular stages of the meta-process. Members were thus easily able to share feedback by making both an initiating message and all responses visible to the entire group and by allowing a record of this information to be available for future use by new members. Since groups usually affect organisational learning by providing occasions, procedures and repositories for specialised memory, the roles and functions of the facilitator and leader became paramount, and at times overlapped. The facilitator reported that there was much improvement in process loss, and that employees' task performance improved, especially at the meta-process stage of process analysis. The leader that continues to co-ordinate the work of the BPIGs has reported that it was technically easier to ask for and provide information in the restructured BPIGs than in conventional face-to-face meetings.

Several perceived benefits were observed, for example:

- A reduction in process loss was evident in the new BPI approach because there were no physical meeting spaces, meetings of specified time length, or constraints on the number of people that could speak simultaneously.
- Group members that had been at a disadvantage in face-to-face meetings, because they were reticent or of lower status, were empowered to contribute more equally in the new BPIG setting.
- Group members reported that their performance and effectiveness improved within and outside of the asynchronous GroupWare setting because they made use of diverse sources of information that they would otherwise have found difficult to access.
- Improved efficiency was reported in the analysis and redesign stages of the BPI exercise, and greater importance was placed on both stages.
- A reduction in superfluous and redundant improvement proposals was reported after the introduction of the new BPI approach.
- Greater use of archived information in public mailboxes allowed better identification of BPI opportunities and performance in the BP analysis.
- The speed and ease of the asynchronous communication interface in the BP analysis and design stages were perceived as value added in terms of the more rapid identification and correction of mistakes and false assumptions.
- Members of the BPIGs appeared to experience significantly more involvement in the work of the groups, and to be more satisfied with the outcomes of group proposals. It was discovered, however, that electronic communication did not simply replace the use of traditional media. Instead, the BPIGs maintained higher levels of communication in general through all channels and at all stages of the BPI approach. The transparent sharing of historical BPI and business process-related information was facilitated.

Everyone was impressed with the results obtained and posted in the BPIGs' public mailboxes. It was reported that the system improved the relationships between senior management, desk officers and line staff in the registry. After a newspaper report, in which the DSPW was severely criticised by the ombudsman about the delay in processing applications and awarding scholarships, BPIGs were formed to explore solutions to the problem.

An explanatory model

The analysis of the problems at the DSPW suggests the building of a model regarding the use of asynchronous GroupWare to support BPI. This model is illustrated in Figure 1.

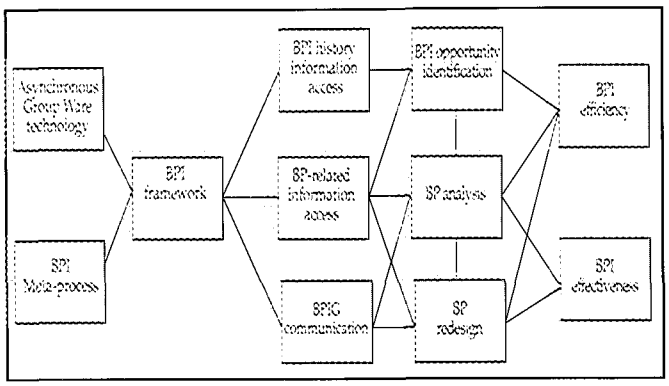

Figure 1. Asynchronous GroupWare and business process improvement framework

A brief description of each variable is provided, starting at the right of Figure 1 and moving leftwards:

- *BPI efficiency:* The efficiency of the BPI meta-process is a combination of the measures of the average time spent to redesign a business process, the number of BPIGs operating at a specific time and the costs involved in the BPI meta-process.
- *BPI effectiveness:* This is the average effectiveness of a business process redesign. It measures the effect that the redesigned business process has on quality and productivity.
- *BPI opportunity identification:* This variable represents both the efficiency and effectiveness of the identification of BPI opportunities. It provides cost drivers, efficiency feedback and information about similar business process improvements that may be replicated, and draws on the variable 'BPI efficiency'.
- *BP analysis:* This variable represents both the efficiency and the effectiveness of the analysis stage of BPI. Measurements are usually based on the time taken to carry out the BP analysis, and on the quality of the information generated for the next stage in the BPI meta-process, BP redesign.
- *BP redesign:* This variable usually affects both the efficiency and effectiveness of the BPI meta-process, of which it is a substantial part. A loss of efficiency in the BP redesign stage, for example, extended time and high costs, will directly impact on the efficiency of the BPI, while a poor quality redesign may reduce the effectiveness of the BPI meta-process. This relationship between the efficiency and effectiveness of the BP redesign and the BPI meta-process is posited by Davenport (1993a), Dennis et al. (1994) and Hammer & Champy (1993).
- *BPI history information access:* This is the degree of access that prospective BPIG members have to historical information about former BPIs, which usually has a positive effect on the variable 'BPI opportunity identification'.

- *BP-related information access:* This is the degree of access that current and prospective BPIG members have to information on business processes. It affects the two variables of 'BPI opportunity identification' and 'BP analysis'.
- *BPIG communication:* This variable represents the efficiency and effectiveness of communication between the members of a BPIG and those outside. It is likely to affect both the efficiency and effectiveness of the 'BP analysis' and 'BP redesign' stages. Information exchange and discussion between BPIG members and others, even though they may not be group members, can provide relevant information about the business process under scrutiny and suggest possible redesign alternatives incorporated in the meta-process. The literature on group work supports this view (Napier & Gershenfeld 1993).
- *BPI framework:* This framework is the result of combining a BPI meta-process (a structured process to perform BPI) with asynchronous GroupWare technology (a software system with asynchronous GroupWare features), in this case Lotus Notes. The BPI framework allows BPI to be carried out with technology, which directly affects the three variables of 'BPI history information access', 'BP-related information access' and 'BPIG communication'.
- *Asynchronous GroupWare technology:* This variable represents the presence of a software system with asynchronous GroupWare features, which is integrated with the BPI meta-process to form the BPI framework.
- *BPI meta-process:* This variable represents the existence of a BPI meta-process to perform BPI. It is integrated with the asynchronous GroupWare system to generate the BPI framework.

The GroupWare literature on evaluative studies reports gains in productivity and in the quality of the interaction processes of GroupWare systems to support communication in groups (Brothers et al. 1992; Chidambaram & Kautz 1993; Clement 1994; Nunamaker et al. 1991; Sproull & Kiesler 1991). The experience of the DSPW demonstrates this, especially with the introduction of the asynchronous GroupWare system.

The model explores the role of GroupWare as a tool to replace or expand face-to-face communication in groups (Serida-Nishimura 1994). It also focuses on gains and losses from a group interaction point of view, with a few exceptions (Orlikowski 1992; Rein, Holsapple & Whinston 1993). The exceptions usually disregard the impact of other functions, such as allowing public access to relevant historical and business process information within the organisation. These points are the seminal features of the model.

Limitations of the current research

The results outlined in the explanatory model may have been distorted by some sources of bias. The two main sources of bias in this research were:

1. The study was based on a single site, which may affect the generality of the research from an organisational perspective.
2. The researcher was highly involved with the organisation, conducting the research concurrently with consulting projects.

In fact, both of the sources of bias are characteristic of action research (Galliers 1992; Sommer 1994). Most action research in organisations has been performed in a small number of sites (and very often in a single one) in order to allow the researcher to gain a deep understanding of the context being studied within a relatively short period of time (Candlin & Wright 1991). Studying several sites would either delay the reporting of results or disperse the focus of the research, both of which are undesirable. The second source of bias, the high involvement of the researcher, was inevitable since it is one of the attributes that defines action research as a distinctive research approach (Francis 1991).

The first source of bias could be reduced in the current study by following one of the following two options:

1. Producing as the final result of the research a specific model explaining the relationship between asynchronous GroupWare and BPI within a specific context (for example, a type of organisation or activity)
2. Basing the investigation on units of analysis that are common to all organisations, such as business process, business process agents, BPI and BPIGs. The second option was used. It also allowed access to a considerable number of instances for each unit of analysis, which is likely to improve the significance of the results.

The researcher following two complementary protocols could also reduce the second source of bias by:

- Analysing the data in a rational way and from a disengaged perspective. This approach is highly dependent on the researcher's own ability to detach himself/herself from the context being studied, and on his/her lack of commitment to positive results for the organisation
- Involving a group of external researchers in the analysis of the data collected.

Recommendation for further research

This model is not exhaustive and may be enhanced and refined by further research efforts.

The qualitative nature of this study was informed by action research methodologies (Checkland 1991), although on a limited scale. However, several other research approaches could have been used to improve the characteristics of the model, for example, case research (Yin 1989) methodologies. Other effective research tools, such as survey research and experimental research methodologies, are not recommended. They are constrained by:

- The longitudinal property of the research with which the model originated, and its disparity with cross-sectional studies
- The limited number of organisations currently using asynchronous GroupWare systems to support BPI
- The orientation of the model towards the description of real organisational settings, as opposed to controlled environments.

1 A team is a permanent group that performs activities in a business process. A BPIG is typically a temporary group, the main purpose of which is to improve a business process, whether its members are involved with it daily or not.
2 The name of the organisation has been altered to protect confidentiality.
3 Considering that a group would take an average of four weeks to complete its work.
4 For example, the response to students'/clients' complaints on delays in applications for awards and scholarships was a change in the format of the application form itself, rather than any change in the way the application process was carried out.

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Deengineering the corporation – A manifesto for business evolution

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Since the inception of Hammer & Champy's (1990) concept of reengineering as the solution to the failure of total quality management (TQM) to deliver sustainable competitive advantage for organisations, much has been written about the subject. Many organisations have claimed that reengineering is not delivering on its promises. In this paper, the notion of reengineering is critically evaluated, especially in the light of evolving information technology and information needs. The paper also proposes 'deengineering', following from the notions of chaos theory, to rectify the deficiencies of reengineering.

Introduction

A collision of technological, competitive and cultural pressures forms the vortex of the information wave. At the heart of the chaos brought about by markets and businesses trying to redefine themselves, organisational forms that no longer work and dated business thinking, leaderships have to make informed decisions. Futurists and management thinkers have invented terms to explain and navigate these changes, such as 'paradigm shift', 'transformation', 'reinvention', ' reengineering' and 'revitalisation'.

'Change' is too mild and misleading a term to account for the market chaos that businesses face today. The magnitude of the changes the world is experiencing today is similar to that experienced some five hundred years ago, at the dawn of the Modern Age, when the printing press, the scientific revolution and overseas exploration began the democratisation and vigorous expansion of human knowledge. The current explosions in telecommunications, materials science and biotechnology, coupled with efforts at space and oceanic exploration, have combined to create a similar effect. The proliferation and integration of work stations, laptops, fax machines, cellular telephones and personal digital assistants have served to democratise information, spread power and dismantle traditional organisational forms based on hierarchy and functionalism. Old ways of thinking are being challenged concurrently with an enlarged understanding of the world. Some of the cornerstones of business success are (Imperato & Harari 1994):

- Products are standardised and undifferentiated – in place of 'radical segmentation' and one-to-one customisation.
- Quality is best managed as assurance at the end of the product, rather than being designed in at the source by self-managed teams (often in collaboration with 'outsiders' like customers and suppliers).

This paper will explore the ability of information technology (IT) to enable the company to transform itself as it should – sometimes negatively perceived as the so-called 'IT black hole' and what has been termed the "keeping up with the Joneses effect" (McCune 1998). In this, the notion of radical change will be researched – why it is necessary and how it may be achieved. This paper will study the chaotic and turbulent environment in which the organisation has to exist and survive. In this, it will focus on the information available to assist the organisation in sustaining a competitive advantage. It will show that, in order to survive, the business should focus on information management (the demand side of information).

New drivers of change

According to Champy & Nohria (1996), the three major drivers of the quickening pace of change are:

1. Technology, particularly IT, which is transforming business dramatically. Examples include virtual banking, digital commerce and digital publishing. IT not only changes the way work is done but it redefines the nature of business. It alters organisational structures and enforces dynamic new leadership models.
2. Government, in particular, which is dramatically rethinking its role in business. Deregulation, privatisation and increasing free trade (for example, falling trade barriers that allow new players to enter markets and change the basis of competition) are taking place world-wide, leading businesses to rethink their purpose and organisational structures and enforcing new leadership.
3. Globalisation, which is forcing organisations to reorganise themselves in radically different ways. Businesses across the globe are competing to deliver the same products or services. The differentials are speed, quality, deliverability and price.

From the above, it follows that change is prevalent in all aspects of society. The need for radical change will be discussed next.

The need for radical change

Societal concerns (for instance, fear of nuclear events, the thinning of the ozone layer and the quality of food and water) are exacerbated for businesses by added pressures like downsizing, restructuring and the chaotic nature of the capital markets. There is pressure from global competitors in a once-secure domestic market. This is underscored by new commercial arrangements, with American capitalists interacting with Japanese and German models, where command economies more oriented towards free markets fuse to create a single world economy consisting of multiple markets. The focus of

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trade has migrated from the Atlantic to the Pacific. The primary lesson to be learnt from history is that periodically, as with Toffler's (1980) economic waves, society needs to break sharply with old habits and deliberately learn new ways of existing and doing business. Leadership should see that simply 'pressing the pedal harder', by doing more of the same, does not work, nor do cosmetic changes according to the 'flavour of the month', nor do piecemeal solutions. Businesses need a radical redesign and total rethink of the ways in which they conduct business.

Conceptions and misconceptions of reengineering

Definition

In 1990, Hammer & Champy introduced the concept of "reengineering the business processes" (BPR), which forever changed the scene for companies that were trying to reinvent themselves because the environment and their customers said that they should. They wrote: "Reengineering involves the fundamental rethink and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service and speed" (Hammer & Champy 1990: 32).

However, Hamel & Prahalad, (1995: 12) conceded that "[a]ny company that is more successful at restructuring than reengineering will find itself getting smaller faster than it is getting better".

The above summarises the (general) consensus and concerns with regard to the misconceptions surrounding reengineering and its confusion with downsizing and restructuring. Hammer himself, the father of reengineering, thought it necessary to plead for "a reengineering of reengineering" (Hammer 1995). Whereas in 1990 Hammer & Champy outline how companies should restructure in order to cut costs and position themselves for rapid growth and aggressive competition, in 1995, Hammer emphasises reengineering for growth rather than cost cutting. He believes that many organisations misinterpreted his message and used reengineering as an excuse to slash employee numbers. He states that, after an organisation has trimmed off the fat, it should reengineer for growth. He believes that organisations that want to aggressively challenge their competition should follow through on their reengineering efforts to focus on products, customers and market share – in other words, put the business in a position to be more competitive and adaptable to change. This means an evolution of reengineering as business evolves with it. Moreover, "[a] company that cannot change the way it thinks about information technology cannot reengineer. A company that equates technology with automation cannot reengineer" (Hammer & Champy 1990: 83).

Hammer & Champy (1990) set seven principles for successful reengineering, in all of which IT acts as a contributor and enabler. These are:

- Organise around processes and outcomes, not tasks and departments
- Have output users perform the process
- Have those who produce information process it
- Centralise and disperse data
- Integrate parallel activities
- Empower workers and use built-in controls
- Capture data once, at its source.

The effect of IT on these steps is studied below.

The case for reengineering the corporation

There are tremendous benefits to BPR. The CSC INDEX report (1994) finds that BPR produces an average improvement of 48% in cost and 80% in time, as well as a 60% decrease in defects. After Citibank reengineered a credit-analysis system, its employees were able to spend 43%, instead of 9%, of their time recruiting new business. Profits increased by 750% over a two-year period. When Datacard Corporation reengineered its customer-service operations, its sales increased sevenfold. Bell Atlantic reduced both the time (from fifteen days to a few hours) and the costs (from $88 million a year to $6 million) required to convert customers to long-distance carriers.

The problem with the organisation as machine

Although the metaphors have changed over the centuries, the idea of designing (or engineering) an organisation for maximum efficiency or effectiveness, in the way that one would design a machine, is not new – it is known in the literature as "Taylorism"(Perrow 1972: 51).

The creation of wealth has always depended fundamentally upon people acting as machines. Whether in agriculture, manufacturing or services, in ancient or modern times, efficiency and effectiveness have relied upon workers repeating tasks with discipline, precision and predictability. Traditionally, such tasks have been physical ones, for instance, sowing crops evenly and harvesting them cleanly, spinning and weaving for a regular and unflawed cloth, working metals or preparing chemicals. The most common modern image, of the assembly line and the classic applications of industrial engineering, was in automobile manufacturing. The principle also applies to administrative and service functions and skilled and unskilled labour. Workers – from machine operators to actuaries and auditors – perform best as machine-people. As machines, they are reliable and efficient. As humans, their propensity to innovate, think and depart (accidentally) from scientifically prescribed procedures is a liability resulting in added costs and lower quality.

This presents the greatest challenge to business and society in the search for wealth creation, namely to maximise the machine potential of the workforce and to control its unpredictable (human) behaviour (Hendry 1995). With relatively simple tasks, the main emphasis, historically, was on control – even through simple and overt oppression. However, with the complex task characteristics of modern organisations, these controls are no longer sufficient. It has become necessary to redesign the organisation's processes and systems (and the tasks within them) while maximising the efficiency of the machine process.

BPR and process-focused industrial engineering

In the 1980s, the main management tool for change was quality (Tapscott 1996). The total quality and continuous improvement movement enabled many organisations to respond to the newly emerging global situation. In the 1990s, attention shifted to BPR. It is true that old business processes, management practices, organisational structures and ways of doing work have become inappropriate for the new volatile, global, competitive business environment. Clearly, many organisations needed to reengineer to reduce their cost base.

Whereas earlier versions of industrial engineering restricted their attention to efficiency, newer trends also embrace effectiveness. Porter's value chain (1985) and the total quality movement focus not only on the costs associated with processes, but also on the value generated for customers. Porter's value chain model is particularly powerful as an engineering model of the operations of an organisation. The creation of products and services is broken down into processes, subprocesses and individual tasks. This added information is used to design new and better machines to maximise customer value by eliminating tasks and processes that do not add value. Hendry (1995) argues that there is too much emphasis in the value chain on tasks and not enough on outputs. In other words, it starts with a process and seeks to maximise value, rather than starting with the value and seeking to minimise process. Proponents of the value chain concept argue that there is no point in redesigning processes without looking at their linkages to other processes. The importance is the reconfiguration of the whole value chain rather than the processes within.

To achieve large gains in productivity, technological improvements must be combined with significant changes in management and organisational structure, as well as the reorganisation and redefinition of work practices. This radical change is referred to as BPR. A business process is one or more tasks or activities that add value to an organisation or to a customer.

BPR is not a process of trying to make marginal improvements. Rather, it ignores how work is currently done and starts from scratch. It is a revolutionary process that challenges all the old organisational structures, work flows, job descriptions, management procedures, controls, and organisational values and culture. It discards those that cause businesses to underperform and replaces them with more effective and efficient processes. In other words, BPR is a reinvention of business processes rather than an improvement or enhancement.

There are two propositions to reengineering: the first is that of reengineering the business processes, and the second, of a more radical nature, is that of reengineering the business. Whether these two conjectures could be construed as having the same solution is questionable. Reengineering an entire organisation, rather than just a function or unit, is an extraordinarily complex undertaking (Jordan 1996). The human and organisational complexities exceed those arising from technological innovations. The top-level strategic redesign is done first, and the subsequent redesign of lower level processes should support that new top-level design. The reality of time-based competition necessitates a simultaneous reengineering of the various elements of the organisation. This further increases the complexity of the reengineering. Control by enumeration becomes virtually impossible and, if attempted, may defeat the reengineering effort.

For many years, organisations have applied the concepts of industrial engineering to their production processes, with administrative processes and services remaining largely untouched. Technology was still limited and the emphasis was on automation and the streamlining of existing processes rather than rethinking the processes themselves. At the time, technological advances were not such as to impinge upon these processes. The technology and environment advanced, but the processes (designed to meet specific circumstances and a particular business and technological environment) remained unchanged. Processes changed only incrementally and without any comprehensive determination.

The message from the new industrial engineering is that wastefulness is unsustainable. Disciplines already applicable to manufacturing processes must now be applied across all organisational processes. Not only the production line but all aspects of the organisation must be engineered. Modern information systems provide the technology to do so. IT is deemed by some critics not only to be the basis of the newly engineered processes, but also to provide the ability to undertake the redesign, maximising value added and minimising costs over the large range of interdependent variables that enter into a complex administrative system. Hendry (1995) believes that, when the core technology of administration changes (as with the rapid development of IT), when the commercial environment changes (leading to changes in relative costs and values), or when the strategy of the organisation changes, it makes sense to reconfigure the value chain in line with the new circumstances and objectives. Enhancement of value added and the minimisation of costs must be the core objectives of this configuration, with the choice of strategy determining the balances between them.

From 'fundamental', 'radical' and 'dramatic' to process integration and knowledge

Some experts believe that the concept of reengineering is handicapped by its unfortunate and technocratic label, which in no way suggests what it is. Indeed, one author felt it necessary to publish an article entitled 'What re-engineering is not' (Harrison, 1994). It is not any of the following: downsizing, automation or autonomation, restructuring, reorganising, debureaucratisation, delayering, total quality management (TQM), continuous improvement or mass customisation.

The essence of reengineering is 'process integration'. It is true that process integration is partially a spontaneous process, taking place all the time and everywhere in response to the extremes of specialisation and the division of labour. However, it is also partly an engineering process. In this, Hammer & Champy (1993) describe reengineering as "the idea of reunifying [previously "breaking down"] those tasks into coherent business processes". They continue by saying that reengineering rejects Adam Smith's industrial paradigm – the division of labour, economies of scale and hierarchical control. However, they still fail to provide a more useful definition of reengineering than: "Re-engineering is the fundamental rethinking and radical redesign of business process to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality service and speed" (Hammer & Champy 1993: 24).

They maintain that their definition contains four key words, namely 'fundamental', 'radical', 'process' and 'dramatic'. However, it is suggested that there is only one, namely 'process'. The essence of reengineering has little to do with the other three, but focuses totally on reintegrating the process – in terms of tasks, labour and knowledge. This idea is depicted in Table 1.

Table 1. The main focus of reengineering – Reintegration of processes

Process reintegration	How this is achieved
Reintegration of tasks	Combine smaller processes into larger integrated units. Reduce number of parts in products and processes.
Reintegration of labour	Allow workers to perform and co-ordinate larger portions of the process. Encourage multi-functionality and co-ordinate autonomous teams.
Reintegration of knowledge	Workers must know larger portions (not smaller ones) of the process and product.

Source: Adapted from Zeleny (1995)

Thus, the reengineering solution deals with at least three separate and relatively independent and differentially manageable aspects, namely division of task, division of labour and division of knowledge.

The revolutionary nature of reengineering

The concept of BPR is not new. It is viewed by some as a contemporary repackaging of industrial engineering methods. The United States navy used the concept around the turn of the century. Henry Ford performed BPR in the automobile manufacturing industry in 1910.

At the heart of reengineering lies the notion of 'discontinuous thinking' – of breaking away from outdated rules and fundamental assumptions that underlie operations and of 'jumping the curve' of the existing ways of doing business. Breakthrough performance improvements cannot be achieved unless there is a challenge to old assumptions and a shedding of the old rules that made the business underperform in the first place (Hammer 1990). Every business is replete with implicit rules dating back to earlier decades. These rules are based on assumptions about technology, people and organisational goals that are no longer valid. The contemporary repertoire of IT is vast and expanding. Quality, innovation and service are more important than cost, growth and control. The workforce wants to share in the decision-making and have control over their jobs. This is in contrast to the old hierarchical models prevalent in the second wave and needs a radical rethink of work processes and control mechanisms.

The nineteenth century social theories, with their tenets of loyalty to roots in the past, historical development and gradual evolution, were considerably more realistic and tenable than the blue sky dreams of the revolutionary utopians (Sanders 1997). However, in a period rife with revolutions (for example, the French, American and Napoleonic revolutions), these theories were considerably weakened by their inability to deal with momentous change. Karl Marx addressed this shortcoming of theory by using Hegel's dialectical philosophy to synthesise social theory with some recognition for revolutionary change. Marx called upon social revolutionaries to seek their organisational ideal as a potentiality already organically immanent from within, but antithetical to the existing organisation. They would subsequently create a revolution to emancipate that potential organisation from whatever obstacles prevented its realisation. Although Marx was mistaken in much of his economic and historical analysis, one may apply his maxims to modern-day businesses by substituting 'business organisation' for 'society' and ' reengineering' for 'revolution'. Thus, BPR in many ways restates both aspects of Marx's synthesis, namely revolution over evolution and holistic processes over fragmentation (Sanders 1997). When a business is lagging, gradual, incremental (TQM-type) improvements will therefore be insufficient to enable it to catch up with competitors and environmental changes. The second part of the Marxist synthesis is the organic character of the process that the revolution is to emancipate. According to BPR theorists, reengineers are required to hunt for potential processes to reengineer within the fragmented activities of modern organisations. They must understand these processes without obscuring their identity with an analysis of their disjointed parts. Finally, they will replace fragmented tasks with comprehensive processes that integrate values, goals and customer needs, along with the nascent ability to satisfy them. This is a recurrent theme of Hammer & Champy (1990). In this, they identify a need to overturn the division of labour, which underlay the increased productivity of industrial economics. According to Hammer & Champy, the fragmentation of business processes (which worked well when processes were relatively simple and did not need complex integration) is inadequate in a world of intense competition, a geometrically accelerated rate of change, and customer self awareness.

Their BPR theory is as revolutionary as Marx's, although the revolution they preach is a revolution from above. Serving as a sort of central nervous system, new information and communication technologies permit organisations to retain centralised intellectual control over resources and processes while benefiting from the increased flexibility and customisation inherent in physical decentralisation. Finally, organic business processes have personalities – they are composed of people with different values, needs and goals. The reengineering/revolutionary tone is set by the authors when they consistently invoke violence and revolution in rhetoric and practice. Hammer & Champy's dogmatic pronouncements resonate with the radical views put forth by other revolutionaries, such as Robespierre, Lenin, Mao and Marx. Some authors warn that, by replacing some of Hammer's nouns, it is possible to produce slogans attributed to those who gained power by overthrowing the existing orders (Zeleny 1995). It is noteworthy that the most widely read book on reengineering carries the subtitle 'A Manifesto for Business Revolution' and claims to be a seminal book comparable with Adam Smith's *An Inquiry into the Nature and Causes of the Wealth of Nations* (which serves as the intellectual underpinning of capitalism), whereafter another Manifesto successfully spread the premise that the only way to improve capitalism was to obliterate it.

The most fatal reengineering mistakes

By all accounts, BPR is in trouble. According to one survey, companies will spend $52 billion on business reengineering, of which $40 billion will go towards IT, but it has been estimated that two-thirds of such [IT reengineering] projects fail (Zeleny 1995).

A brief summary follows of the reasons for BPR failure as portrayed in the literature (Hammer & Champy 1993). These are mentioned without in-depth discussion, since (apart from the IT relevance) they generally fall beyond the scope of this paper:

1. Unclear definitions: BPR is more than automation or reorganisation, although it almost always brings about organisational change. It goes beyond TQM, seeking breakthrough measures of performance and pursuing multifaceted improvement goals (for instance, quality, cost, flexibility, speed, accuracy and customer satisfaction – concurrently and with little trade-off).
2. Unrealistic expectations: One of the consequences of point 1 is the over-optimistic viewpoint about the domain of BPR.
3. Inadequate resources: Adequate resourcing of the BPR is a balanced mix of insiders and outsiders for the reengineering. The question of IT resources also plays a part in this.
4. Taking too long: Although it is generally contended that reengineering projects may take as long as three to five years, few executives are that patient and few organisations can sustain themselves that long, particularly if the reengineering is done from a reactive/pre-active perspective.
5. Lack of sponsorship: In conjunction with point 2, BPR cannot be driven from a narrow supply chain perspective only; it

needs buy-in from top management – especially because it generally entails culture changes.

6. Wrong scope: It is not possible to reengineer an organisation, it is only possible to reengineer its processes, with many processes being intra-organisational and cross-functional. The opportunity for success is decreased if the scope of the BPR is limited to certain processes only.
7. Mysticism: BPR is not a paradigm shift; it is an engineering discipline that enables transformation.
8. Lack of effective methodology: Without a scientific approach, the BPR may consist of an examination of the business 'AS IS' without the provision of a proper 'TO BE' scenario. A generic model proposed by the author consists of four phases, namely analysis (AS IS), design (TO BE), transformation and evaluation.
9. Technocentricism: As this concerns the focus of this paper, it is important to note that implementing IT and implementing BPR are not the same (although IT implementation may be radical by nature in terms of the applicable software delivery system) and have different objectives. In the literature, this is sometimes referred to as the "keeping up with the Joneses effect" (McCune 1998).

In conclusion, the 'popularity' of BPR is a signal that organisations perceive the need for improved performance. From Hammer's perspective (1995), it entails an ongoing process rather than a once-off cure. It is thus important to implement the BPR with the minimum scope for failure. With research pointing to the many failures of BPR implementation, it is imperative for organisations to address the culture imperative as one of the key variables in the implementation of radical change. Thus, the individual and combined impact of culture and strategic relevance could resolve some of the BPR challenges that organisations are facing today.

IT and reengineering – Second-generation reengineering

As the management fad of the moment, BPR is well advanced in its cycle. Intended to boost competitiveness through simpler, leaner, more productive processes, reengineering is rampant in labour- and capital-intensive industries (such as the motor, telecommunication, drugs and aerospace industries) and has spread to the service sector, particularly insurance and banking. Whether BPR is called process innovation, business process redesign, business engineering or process engineering, organisations are trying to make radical and dynamic changes to the ways they operate. At the heart of BPR are two concepts: firstly, organisations should view themselves in terms of processes (rather than functions, divisions or products) and, secondly, organisations should think inductively instead of deductively. The proliferation of new IT is increasingly becoming a major contributor to this disruption.

Underlying each of Hammer & Champy's (1990) nine principles above is the use of information systems technology, such as user-friendly software, expert systems, imaging technology, mobile computing and networks of personal computers. Expert systems encapsulate the expertise of specialists in a computer-based system. Imaging technology makes it possible for users at different locations to access and work with the same information at the same time. Mobile computing allows people to maintain constant communication with their companies and their customers. Local area networks (LANs) connect multiple users in a single location, and wide area networks (WANs) connect users in multiple locations.

Between 1983 and 1993, when over a trillion dollars was spent on IT, productivity increased by only 1% (CSC INDEX 1997). Businesses merely used computers to speed up their paper flow and manual procedures and continued to use methods that fail to utilise the powerful processing capabilities of today's computers. Host information systems were unable to handle the flood of new information available or to take advantage of the steady stream of new technological advancements. With the advent of networks and powerful desktop computers, the technical capability to do things radically differently from previous generations is now available and should be investigated.

The BPR devised by Hammer & Champy (1990) heralded IT as an enabling mechanism allowing corporations to reinvent themselves. IT was deemed *the* enabling technology, at the core of what reengineering promises to achieve. The redesign of work processes, the elimination of processes with little or no value, and the overall redesign of the organisation depend heavily on the existence and support provided by IT. Since the authors provide only a cursory description of *how* IT should serve as an engine for the proposed change, it was left to the organisations themselves to determine how this should be done. In this process, various tools and publications have been born.

Hammer & Champy's proposition of replacing a lack-lustre diamond with a sparkling one suggests that IT plays an integral part in the new way of work. They believe "state of the art information technology" to be "an essential enabler" in corporations reinventing themselves and cite examples of the misuse of IT in the organisation of work.

Some IT gurus believe that the main problem with reengineering lies in the unflinching focus on the bottom line, rather than on IT (Cowley 1995). They believe redesigning processes as a cost-cutting measure to be counterproductive, as much valuable knowledge and information associated with these processes are simply discarded. Cowley believes that the shift towards reengineering for growth is less an evolution of reengineering than a mask for its failures.

Geisler (1997) contends that BPR, as proposed by Hammer & Champy, cites IT as an enabling mechanism for organisations to reinvent themselves. The redesign of the work processes, the elimination of processes with little or no value added, and the resultant overall redesign of the organisation depend on the existence and support provided by ubiquitous IT (Geisler 1997). She believes that the fallacy of Hammer & Champy's contention lies in two major dimensions that help to explain the inherent failure of BPR as a comprehensive cure for organisational problems:

1. The information dimension: Supporters of BPR and IT claim that the fact that new, adequate and sophisticated technology is available to transfer, store and retrieve information finally allows organisations to exercise BPR and to extract its promised advantages. However, IT is merely the technology that carries information faster, better and more clearly and that allows for more sophisticated manipulations. (This notion does not, in essence, support the idea of reengineering as a form of crisis management.) There is a growing realisation that the introduction and proliferation of IT in an organisation is not enough to drive reengineering or to assure its success. This leads to

the following rationale for the failure of IT to promote reengineering: "Even the best, most timely, correct and clear information is not enough to fuel reengineering, and if reengineering is already flawed as a concept and major change programme, IT and the ubiquity of information will not overcome its flaws" (Geisler 1997).

Thus, IT may have a stronger effect in changing the ways that business is conducted and organisations behave than as a dynamic force in reengineering. It simply does not have the capability to salvage a change programme if the other dimensions of reengineering are flawed. If reengineering as a concept is feasible and produces positive results with few side effects, then IT may serve as a technology that facilitates the execution. However, if the reengineering is already flawed, not even the best information can save an ailing effort.

2. The technology dimension: IT itself has undergone, and is still undergoing, a fundamental change. IT has moved from back-office data processing performed by IT professionals and is now a fundamental strategic tool (if used appropriately) for overall organisation performance, performed by knowledge workers in the organisation, enabling the organisation to advance on the learning curve. IT should form the focus of business organisation of the future – the so-called "IT enabled organisation" (Gartner Group 1999). With respect to the evolution of IT, information technology/information system projects have become so huge as to effect their own reengineering (for example, SAP R/3 implementations) – denoted 'second-generation' reengineering.

It is thus possible that IT is not the catalyst for BPR and cannot act as such. It is suffering its own evolution. It has certainly brought about many changes in culture and the way work is performed. However, it brings about its own form of change in the organisation – one that does not necessarily correlate with the intentions of BPR. In this, Hammer & Champy's contention (discussed above) seems to be seriously flawed. However, if Hammer & Champy (1990) regard IT as a very powerful force that already exists in organisations, and if their BPR scheme is designed to take advantage of this powerful technology, they may be correct. This will depend on the type of IT involved, and it is suggested without further elaboration that this cannot be generalised.

According to Hammer (1990), the usual methods for boosting performance (process rationalisation and automation) have not yielded the dramatic improvements companies need. In particular, heavy investments in IT have delivered disappointing results – largely because organisations tend to use technology to mechanise old ways of doing business, leaving the existing processes intact and simply using computers to speed up the processes. However, speeding up the processes cannot address the fundamental performance deficiencies. Many job designs, work flows, control mechanisms and organisational structures came of age in a different competitive environment and before the advent of the computer. These are still geared towards efficiency and control, whereas the watchwords for the information wave are innovation, speed, service and quality. Hammer (1995: 104) himself believes: "It is time to stop paving the cow paths. Instead of embedding outdated processes in silicon and software, we should obliterate them and start over. We should ... use the power of modern IT to radically redesign our business processes in order to achieve dramatic improvements in their performance".

The difficulty of creating adequate tools and usable knowledge for managers is compounded by the less than successful transfer of technologies. Three categories of transfer are identified by Geisler (1997):

1. Intra-organisational technology transfer: Technology (including knowledge and information) is transferred within the organisation from one department to another.
2. Inter-organisational technology transfer: The transfer occurs between organisations when (generally) large organisations are required to share skills and technology with the smaller organisations they use as suppliers. Compliance becomes an issue, especially on the part of the smaller business insofar as the utilisation and absorption of technology is concerned.
3. Intersector technology transfer: Difficulties experienced with technology transfer within the same industry are exacerbated when organisations belong to different industries/sectors. This occurs when there is a transfer of technology, knowledge and usable information from one sector of the economy to another. Cultural differences and the internal uniqueness of each sector make this difficult to achieve. In addition, knowledge acquisition and adoption is a difficult process that requires commitment by both organisations.

Consequently, the development of adequate and applicable knowledge and tools for managers is a difficult task to accomplish. It becomes a crisis in knowledge, forming an integral part of the crisis in management. The difficulties of technology transfer mentioned above create enormous barriers to proper business intelligence. The consequence of this is a general lack of unifying theories and systems thinking. Geisler (1997) believes that this crisis in management can only be resolved by rapidly moving from reengineering to regeneration.

Second-generation reengineering's failures

One group of critics argues that reengineering is merely an elegant word for re-labelling. Its key ideas – putting customers first, using teams, empowering workers, rewarding performance, tearing down divisional walls – have been conventional wisdom for two decades. Another group argues that reengineering is simply not practical. According to one widely quoted estimate, 85% of reengineering projects fail (Zeleny 1995). It seems that companies are putting themselves through an enormous amount of pain for little or no gain.

It seems unusual that the first assessment on BPR comes from a leading reengineering consultancy, namely, the CSC INDEX. Based on a survey of 497 large companies in the United States and another 124 in Europe, the report confirms that reengineering is immensely popular: 69% of the North American and 75% of the European companies surveyed were already reengineering, and more than half of the rest were thinking about it. The report admits that reengineering is a disruptive process, but plays down job losses, which it says amounted to an average of just 336 in each of the initiatives in North America and 760 in Europe. More unexpectedly, it admits that reengineering is far from a guarantee for corporate renewal. Fewer than half of the organisations achieved the increased market share they planned for. Moreover, some reengineering initiatives failed dismally (CSC INDEX 1994).

According to the CSC INDEX (1994) "seven in ten companies that have undergone reengineering, expect to spend just as much on such initiatives in the future". They continue that, of the 782 organisations investigated, about 75% of the execu-

tives conceded that their organisations had succeeded in reducing operating expenses and had increased productivity, while only 47% believed that they had succeeded in generating revenue growth and only 37% believed they had succeeded in increasing market share. Moreover, only about half of the executives interviewed during the investigation believed that their companies knew how to measure the impact of their reengineering programmes. Gemini (in Moser 1996: 4) suggests that unless organisations close some significant gaps between their expectations of reengineering and the reality, such efforts will not succeed. The study further investigates the contradictions between what executives say they want to change about their business and what they are able or willing to do. Although 90% agreed that "technology is a critical enabler of our organisation's reengineering efforts", only 41% agreed that "we are good at managing the deployment of our IT resources against our reengineering initiatives".

Other gaps identified in the research include:

- Corporate culture: Two-thirds of the respondents reported that changing the organisational culture was a major component of reengineering, while only 8% ranked changing the organisational structure among the top three priorities – thus missing the link between culture and structure.
- Customers: Although 84% of executives agreed that they knew their customers' needs and reengineered the processes to meet these, only 64% reported that their customers were helping them to redesign the processes.
- Supply chain: Fewer than half of the executives reported that their suppliers were helping them to redesign their processes, while only 28% said that their distributors were helping them to do so.

Since the supply chain is the biggest organisational money drain, organisations are squandering a ready resource of expertise in improving the business. Moreover, given the growing notion of outsourcing, vendors are possibly more involved in an organisation's business than ever before.

Hammer (in Mullin 1996) discusses the simple shift beyond reengineering. He retains his old definition of reengineering, but the emphasis moves from the word 'radical' (connoting clean sheet design) to 'processes' (representing the aspect of the organisation that is redesigned). He believes it should be recognised that there are two distinct but related ideas – one of aligning the organisation around processes and the other of instituting major changes in how processes operate. In this, Hammer believes that the ratio of workers to managers could double. This notion stands in contradiction to the notion that automation (using technology) can decrease the numbers of workers.

Opponents of reengineering believe that the inherent problem of the concept lies not so much in IT's inability to do the reengineering as in the misleading label that in no way defines what it is, but rather what it is not. They maintain: "The case against reengineering is continually handicapped by its unfortunate and technocratic label which does not in any way suggest what it is all about. The label itself is neutral, directionless, purposeless and therefore misleading" (*Human Systems Management* 1995: 105).

From the first CSC INDEX (1994) studying the successes (or failures) of reengineering, the most important theory to emerge (corresponding to other similar studies) is that reengineering is not enough on its own. It needs to be linked to strategy. The underlying objection is whether it is worth streamlining a particular business when technology is about to render it obsolete.

Managers need to reflect on what they are doing, as well as how efficiently they are conducting their business. For example, contracting out may be more sensible than reorganisation; switching to a new business may be more sensible than simply making the old one more efficient. It is clearly time to reengineer the reengineers.

Hammer (1995) himself presents a different viewpoint in his subsequent book. He contends that many organisations misinterpreted the message and used reengineering as an excuse to slash employee numbers. He strongly suggests that, after an organisation has trimmed off the fat, it should reengineer for growth. He continues that organisations should follow through focusing on products, customers and market share – going beyond reengineering. This proposes an evolution of reengineering as business evolves with it. The gurus of reengineering are unanimous that the problem with BPR lies in its unflinching focus on the bottom line (Cowley 1995). They believe that redesigning processes as a cost-cutting measure is counterproductive, as much valuable knowledge and information are simply discarded. The fact that Hammer himself is 'reengineering' reengineering proves this more than anything else could.

The evolution of 'deengineering' the corporation

By its very definition, the term 'deengineering' infers a self-organising pattern for leaders and workers. Wheatley (1994: 20) contends: "Re-engineering is the supernova of our old approaches to organisational change, the last gasp of efforts that have consistently failed" and adds that "[r]e-engineering is the biggest and most dramatic bandwagon that has hit the business and organisational world in a long time".

She agrees that it is necessary to fundamentally redesign bureaucratic organisations, but that the net effect is a string of failed change efforts over the years. There is a growing concern in the literature that reengineering is another attempt, usually by top management, to impose new structures over the old and to take one set of rules and impose them on the rest of the organisation (Hammer & Champy 1993). It presupposes that one can design a perfect solution, in which the 'machine' will comply with the new set of instructions. The question remains what happens when the organisation needs to change once again, since with reengineering there is little attempt to instil ongoing workable processes for creating positive change. With deengineering, the questions shift to: "Has the organisation's capacity to change increased and improved? Have we developed an organisation that can continue to be responsive and adaptive or have we created a new structure that will atrophy as the environment shifts?" (Wheatley 1994: 20).

The deengineering phenomenon is thus built on the premise that there is natural order and that patterns do exist, arising without any management at all and without any pre-engineered design, following on the self-organising/self-renewal principles in chaos theory (Murphy 1996). The contention is that any change programme that tries to impose a structure on everyone works against people's natural tendencies (but without their involvement). It has already been stated that people have the natural tendency to create order as needed, provided that certain conditions are present. In this, the two major resources of organisations (the people and the information) need to work in coherence. Organisations need to merge the science of management and leadership with the modern studies of complexity so that people may work in an information-rich environment. Organisations use the term C^4I, the first two Cs of which stand for Command and Control, supplemented by Communication, Computers and (business) Intelligence (*Defense Electronics* 1989).

Deengineering therefore entails a new definition of leadership, whereby the traditional leader may not even be present at times of crisis. The challenge is to move information through the organisation without knowing ahead of time who will need what and where it may be needed. This addresses the vital issue of value and use of information, since it imposes leadership on employees using appropriate information at the appropriate time – thus moving the level of autonomy to where it may have maximum effectiveness.

In this, it is important that organisations clearly define what the organisation is trying to achieve and how people should behave, given a particular situation. From the notions of chaos, it is thus possible to create well-ordered and efficient organisations that will be able to constantly change their physical structure – by creating an awareness of the conditions necessary for the order of the organisation to emerge and change. The new challenge is therefore that order and answers do not come from consultants, management programmes or the external environment. People are able to create the answers and the order needed, provided that information is available, accessible and timeous and that decisions can be made at the local level based upon a strong sense of organisational identity. It is suggested that these points make organisations truly agile, adaptive, versatile and resilient. The difference between this approach and reengineering lies in the fact that reengineering assumes that the solution for failing organisations will come from some group of experts or consultants, whereas deengineering presupposes that the organisation has access to its own intelligence, provided that conditions exist that support the use of that intelligence. From this viewpoint, it is possible for organisations to change continuously and to become living entities, rather than well-tuned machines. In deengineering, the supposition is that people are involved – not only the reengineering teams. It entails a meaningful involvement of the entire organisational force. It is still important to fundamentally redesign how organisations do their work, thereby not only radically changing the organisation's structures, but also creating an organisation capable of and committed to the next round of change.

Wheatley's (1994) contention is that all approaches to change have been based upon a scientific model, generally from the engineering sciences. The flaws in this approach are suggested as the lack of questioning every assumption about making the organisation effective, as well as the lack of commitment to search for fundamentally new approaches to organisational learning.

The new framework for understanding businesses and the problems they are facing often appears, seemingly spontaneously, in widely separated places or from several disciplines at once. Emerging from the constant flux is a state of global stability whereby incremental movements merge into a whole that can resist most of the demands for change at global level. The motion that keeps all systems in harmony will be that of self-reference and self-renewal, which will replace Newton's mechanistically regulated world. It is thus contended that out of chaos and complexity comes a new notion of simplicity over revolution and reengineering. In quantum physics, the world ceases to be a mere machine, finite or discrete. Using the analogy of quantum physics, the notion of deengineering could be described as more than a solution, but rather a replacement for reengineering (a revolution). Cole (1985: 106) contends: "Most of the other steps in our understanding of nature were really evolutionary in that they sprang from previously established foundations: facts were reorganised or connected in new ways, or seen in a different context. Quantum theory, however, broke away completely from those foundations; it dived right off the end. It could not (cannot) adequately be described in metaphors borrowed from our previous view of reality because many of those methaphors no longer apply. But the net result has not been to obscure reality or make the nature of things more elusive and murky. On the contrary, most physicists would agree that what quantum theory has brought to science is exactly the opposite – concreteness and clarity".

Conclusion

There have been countless case studies of organisations showing dissatisfaction with their notion of reengineering, and the term 'deengineering' seems to be replacing its predecessor. Even the proposed vehicles are thus undergoing a change within themselves.

It is suggested that the emergence of a new organisation and new organisational structures follows from the emerging new technologies at an ever-increasing pace. This brings with it a new turbulence, changing forever the classic management model and the ways business decisions are made. The business world is flooded with information and it is up to the new age leaders (managers will simply not exist) to deal with it intelligently and transform this into knowledge.

Since the early 1990s, organisations have undergone radical transformations – generally under the name of BPR. This has resulted in downsizing and a host of other side effects. The consequences and aftermath of the reengineering intervention have been described here. What remains is the cleaning up after the intervention and the restoration of shattered stability. In this, no manifesto for reengineering or deengineering is proposed.

Two hundred years of knowledge accumulated in the managerial sciences cannot and should not be wiped out by decisions to restructure or reengineer, nor should such knowledge be ignored in any programme of organisational transformation. Like every other revolution, BPR claims to obliterate the past and build a brand new future. Yet reengineering is anchored in more than a century of scholarly pursuit of better ways of organising and managing work, workers and work organisations. The fact remains that the more radical and dramatic the intervention, the greater its potential harm, regardless of the benefits it imposes. This paper has endeavoured to clearly map the role of reengineering in organisations, identify the failures of reengineering (and the reasons for such failures), and effectively clean up and follow through with deengineering.

To a large degree, the (incremental) TQM movement (originating in the 1980s) legitimised the need for change. This was followed by a strategic management approach as a comprehensive tool for competitiveness, combined with global thinking and a redirection towards a global market place. It forced organisations to seriously question where they were at present (the 'AS IS' state) and where they intended heading (the 'TO BE' state). Porter (1985) introduced the five forces impacting on the organisation's environment and the generic strategies to navigate between these. Hamel & Prahalad's (1994) introduction of the notion of organisational core competencies opened the door for the concept of BPR in the tracks of restructuring, downsizing, mergers and acquisitions, strategising and globalisation. Moreover, the technological infusion into organisational culture was growing, with new and vastly improved

software, hardware and networks automating business functions. Proponents of BPR claimed that organisations would enter the twenty-first century with concepts and designs that were introduced more than a hundred years ago.

This paper is an endeavour to show that reengineering is by no means deemed the ultimate in business enhancement tools. It forms part of a vast and broad band of evolutionary tools and techniques – each serving the forces of its time and each creating the pathways towards its own destruction. With a faster changing world, the future content of subsequent techniques cannot even be fathomed. It is up to the scientists, the leaders and the members of the organisations to enlarge the scope of our knowledge.

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Growth through strategic alliances

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An important interrelationship exists between growth, strategy and shareholder value. Many companies favour external growth by means of mergers, acquisitions and strategic alliances over organic growth. However, there are also misconceptions about external growth, as the 'boom' period in mergers and acquisitions activity in the 1980s revealed. More recently, the trend in most industries has increasingly been towards strategic alliances and co-operative agreements. This paper presents an overview of the literature pertaining to the topic of growth and strategic alliances and seeks to detail some of the important aspects of co-operation and learning in these organisational forms. Reference is made to the chemical industry in particular, and the paper provides some insight into the South African situation.

Introduction

Given the changing business environment, both locally and globally, and the growing presence of large-scale international investors in local markets, it is necessary for South African firms to become part of the globalisation of the South African economy. Over the past two decades, the competitive environment has changed radically and, in some cases, even the basic rules of competition have been redefined, moving business from an era of competition to one of co-operation (Hamel 1991; Harbison & Pekar 1998; Littler & Leverick 1995; Hamel, Doz & Prahalad 1989; Kanter 1994; Parkhe 1991; Pekar & Allio 1994). This development has been accelerated above all by sweeping advances in technology and the related trend towards globalisation (Mirow 1990; Hwang & Burgers 1997). Technological change, deregulation and globalisation are driving many industries to consolidate (Miller 1997; Willmott, Phillips & Watkin 1996). After a period of downsizing and cost cutting, companies worldwide are turning to the all-important task of growth and value creation (Porter 1996; Kim & Mauborgne 1997; Richards 1997; Pekar & Allio 1994; Henkoff 1996). Success in the global marketplace increasingly requires linkages between firms, and new corporate alliances, joint ventures, acquisitions, mergers and consortia are constantly being announced (Hwang & Burgers 1997). Small and large firms – both in South Africa and abroad – use such partnerships to reduce costs and risks, to provide access to technology, markets and human and financial resources, and to develop the size and expertise to deal with challenges that would otherwise have been impossible to overcome.

South African firms have felt the need to focus on their core competencies, and firms with an international focus, such as Gencor/Billiton, Barlows and South African Breweries (SAB), have been consolidating their previous growth through diversification and are now focusing more heavily on their core businesses. Anglo American Corporation is similarly in the process of restructuring its business portfolio. Since growth in many industries is limited to GDP growth, local firms are increasingly looking to international markets for new growth prospects. Historically, many South African firms were limited to growth in the local economy as a result of the impact of the apartheid era and the foreign exchange control regulations that were – and to a large degree still are – in place. With the new political dispensation came greater access to international growth, as well as the increased threat of international interests to South Africa as an emerging market and the consequent loss of market share to international competitors. The outcome of these politico-economic constraints is to a large extent evident in the limited scale economies most South African firms were able to attain, leaving them at a serious disadvantage *vis-à-vis* their international competitors.

Many South African companies find themselves needing 'critical mass' to compete with international players and, to this end, they require a strong balance sheet to leverage their

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growth opportunities. This is especially true for South African firms that operate internationally and are limited in the amount of foreign direct investment they may undertake, given the exchange control regulations that are still in place in South Africa. The proposed acquisition of AECI by Sasol to further its growth imperatives in the explosives and fertiliser business in 1998 was an example of how a company sought to gain such critical mass and economies of scale. The deal would have allowed Sasol to consolidate the fragmented fertiliser industry in South Africa and realise synergies and cost reductions that would effectively have enabled it to compete more aggressively with international players such as Norsk Hydro and Cargill. The explosives interests would have placed Sasol among the top three players in the world and would have provided the impetus for the acquisition of further international interests.

South African firms, with few exceptions, are still novices at international competition, hence the increasing need for, and evidence of, co-operation in moves towards internationalisation. The attainment of growth through mergers and acquisitions, often fueled by buoyant stock markets, is being superceded by growth through strategic alliances, allowing the companies involved to 'leapfrog' the learning curve (Murphy 1997). Foreign mergers, acquisitions, joint ventures and other alliances consume much time and effort and frequently require new skills to make a success of such strategic investments. Organic growth and 'going it alone' can often be a perilously risky strategy if the South African firm is unfamiliar with the various procedures, regulations and markets it seeks to be involved in.

Time, then, is of the essence, and South African firms need to consider seriously the option of strategic alliances in the light of the dire consequences of the increased presence of international companies. This was evident in Dow Chemicals' acquisition of Sentrachem in 1997. Sentrachem had failed to deliver shareholder value and sought to expand internationally by acquiring US-based Hampshire chemicals in 1995. The irony of the situation is that within the South African chemical industry, both Sentrachem and AECI had initiated the requisite restructuring of their activities in order to be internationally competitive, but both were subsequently the target of takeover bids.

The objective of this paper is to explore the literature pertaining to the topic of growth and strategic alliances and to detail some of the important aspects of co-operation and learning in these various organisational forms. Some of the more important issues in forming successful alliances are also addressed. Reference is made to the chemical industry in particular, and some insight is provided on the South African situation and the possibilities for strategic alliances with local and foreign corporations.

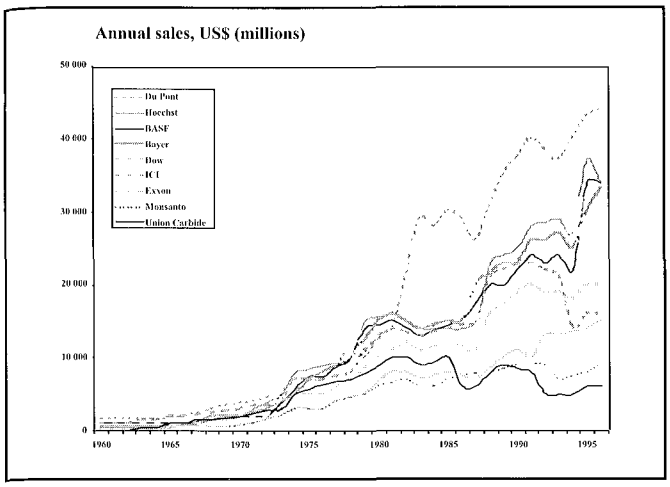
Growth as a strategy

The need to create shareholder value

The pressing need for both organic and external growth is a result of the unyielding pressure to unlock value for shareholders (Richards 1997; Willmott et al. 1996). South African Breweries has recently divested the bulk of its non-core businesses to focus on the brewing of beer and related interests and the growth of these interests in attractive foreign markets. Shareholders want an acceptable return on their investment – they want growth. Given this ferment, slow and studied internal growth is simply not an option. The public markets demand growth of between 15 and 20 per cent; such bottom-line expansion has to come from somewhere, mergers, acquisitions and strategic alliances being the logical choice. Maximising shareholder value is universally accepted as management's paramount goal, and research conducted by Bughin & Copeland (1997) has provided evidence for the existence of a virtuous cycle linking shareholder value with overall economic performance. Lucier & Asin (1996) dismiss the conventional wisdom linking revenue growth and shareholder value as only partially accurate and potentially misleading. The authors advance preliminary ideas on a new theory of growth and they identify two fundamentally different paradigms, referred to as "managed-growth" and "innovative-growth". Managed-growth focuses on achieving market and cost positions superior to competitors through better planning and management to achieve commendable, if not spectacular, shareholder value. General Electric Company, with a 12 per cent annual return over the past decade, is cited as an excellent example. Innovative-growth leverages strategic innovation, or a stream of product innovation, to drive growth in profitability. Innovative companies specialise in being different from their competitors – strategically or product-wise – and customers perceive them to be of significantly superior value. Examples of strategic innovators trading on their differences include Wal-Mart, Microsoft, Southwest Airlines, Tyson Foods and The Gap.

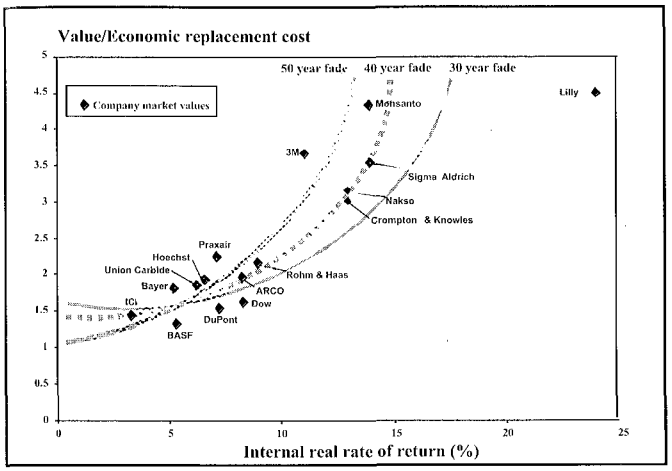
Baghai, Coley, White, Conn & McLean (1996), in a study of 40 of the world's leading growth companies, revealed that such companies implement their growth strategies by single steps (the "staircase approach"), thereby continuously *compounding skills and options*, and that this is consistent with the competitive reality of most industries. Kick-starting and sustaining profitable revenue growth is tough, and the harsh statistical reality is that only 10 per cent of companies with above average growth will sustain it for more than ten years (Baghai et al. 1996).

The current assessment of corporate managers is based on the price performance of the company's shares. Richards (1997) shows that despite the considerable variations in the growth rate of corporate sales (Figure 1), the share-price performance of most of the chemical companies analysed was almost identical for practical purposes. The message is that growth does not always create value. Companies grow because they invest or acquire, not because they have been successful. Moreover, it is a company's return on investment relative to its cost of capital that determines value. Thus, if a company increases its growth rate merely by increasing its cash retention rate, value increases only if the retained cash is invested in positive net present value (NPV) projects – an all too rare occurrence in many segments of the chemical industry (Figure 2). Although not conclusive, the research presented by Richards (1997) suggests that a focus on cost is an essential element of excess returns (in other words, returns above the industry average), but that more often than not, the large excess returns are actually achieved by judicious investments in research and development. The



Source: Richards (1997)

Figure 1. Chemical company sales, 1960–1996



Source: Richards (1997)

Figure 2. Value versus internal rate of return in the chemical industry

relevance of the above findings is that the potential gains may be realised from the formation and management of carefully chosen strategic alliances, with a focus on synergies, cost reduction and the sharing of research and development (R&D) capabilities. The pertinent question is whether growth through strategic alliances adds more value than other growth mechanisms, such as organic growth or growth through mergers and acquisitions.

At present, the most popular methodology for assessing a firm's performance is the economic value added (EVA) analysis of Stern & Stewart (1997). There are also many other competing methodologies of value-based management, including HOLT's cash flow return on investment (Madden & Eddins 1996) and the Boston Consulting Group's total shareholder return (TSR) (Hax & Majluf 1984). While most of these techniques represent clear improvements on simple measures, such as return on equity (ROE) and return on capital employed (ROCE), many still have meaningful flaws – not the least of which being that they are often quite difficult to implement properly.

Table 1. Alternative growth strategies

Mode	Mechanism	Advantages	Possible drawbacks
Internal Growth (*Organic Growth*)	Various	Lower risk Allows more on-going learning More control	Slow Lack of early knowledge May be misjudgements
External Growth	Acquisition*	Fast Buys presence Buys market share Buys expertise	Premium price may be demanded High risk if any misjudgement Preferred organisation may not be available May be difficult to sell unwanted assets
Local and/or global	Strategic Alliance*	Cheaper than takeover Access to market knowledge Useful if acquisition impractical	Possible lack of control Potential managerial differences How to get co-operation
	Joint Venture*	As for strategic alliances plus greater incentive and closer contact Lock out other competitors better	As for strategic alliances

* *This could be horizontal, vertical, concentric or conglomerate diversification*

Source: Adapted from Thompson (1996: 524)

The traditional growth mechanisms

There are numerous growth options that a company can undertake. Growth strategies, such as diversification, mergers and acquisitions, strategic alliances and joint ventures, may be broadly classified into internal and external growth mechanisms (Thompson 1996; Brigham & Gapenski 1994). Some of the advantages and potential drawbacks of external growth strategies are compared with internal (or organic) growth in Table 1. However, it should be appreciated that the growth strategies described are not fully discrete and mutually independent. The ideas behind them are closely linked, and it may be difficult to classify a particular expansion move as a single of these strategies.

Organic or internal growth may include concentration, market development, product development and innovation (Ansoff 1965), and may manifest as brownfield or greenfield investments. A concentration or specialisation strategy implies what Peters & Waterman (1982) designate as "sticking to the knitting". It involves concentrating on doing better what one is already doing well. Although it may seem similar to doing nothing, growth is still an objective, and there is an implicit search for ways of doing things more effectively. In this respect, the strategy overlaps with the ideas of market and product development. Resources are directed towards the continued and profitable growth of a single product, in a single market, using a single technology. This is accomplished by attracting new users or customers, increasing the consumption rate of existing users, and, wherever possible, taking consumers and market share away from competitors. There are two main advantages. Firstly, the strategy is based on known skills and capabilities and in this respect is generally low risk. Secondly, because the organisation's production and marketing skills are concentrated on specialised products and related consumers, these skills can be developed and improved to create competitive advantage. The company has the opportunity to be sensitive to consumer needs by being close to them, and may build a reputation for this. Many South African firms have followed, or have had to follow, this strategy, a prime example being SAB. However, the strategy has three limitations: long-term growth is likely to be gradual rather than explosive, changes in the growth rate and/or attractiveness of

the particular industry may threaten a firm's survival, and innovations from firms operating at the periphery of the industry may bring about an industry revolution with which other firms operating in the industry cannot cope.

Market development and product development are very closely related to a strategy of specialisation. These strategies build on existing strengths, skills and capabilities. Market development can be regarded as another relatively low-risk strategy. The idea is to market present products, with possible modifications and range increases, to customers in related market areas. Changes in distribution and advertising will typically support this strategy. Product development implies substantial modifications or additions to present products in order to increase their market penetration within existing customer groups. It is often linked to an attempt to extend or prolong the product life cycle.

Innovation is linked to the three strategies described above, but involves more significant changes to the product or service. The strategy implies the replacement of existing products with ones which are new, as opposed to modified, and which introduce a new product life cycle. A typical symptom of the local economic reality of the previous era in South Africa was that much of the skills development was geared towards the implementation of existing technologies, rather than the development of really innovative technologies and products (Simon & Sohal 1995). Innovative companies are able to stay ahead by introducing new products ahead of their rivals and by concentrating on production and marketing to establish and consolidate strong market positions. However, constant innovation is likely to prove expensive, as continuous streams of new products have to be developed, placing high demands on limited sources of funds.

External growth strategies, in contrast, are frequently implemented through acquisitions, mergers or joint ventures. Franchising provides another means of external growth, but it is only likely to be applicable for certain types of business. External growth could involve the acquisition of a firm that might be behind or ahead of the acquirer in the value chain, one that is in a related business, one that is tangentially related through either technology or markets, or one that operates in an altogether unrelated business. Generally, the key objectives of external growth strategies are to increase market share and to seek opportunities to generate synergy. The expected result would be increased size and market power, as well as improved profitability from synergies.

Horizontal integration occurs when a firm acquires or merges with a firm operating at the same stage of the value chain, although the two firms may well target different market segments (in other words, they may not necessarily be direct competitors). Market share should increase and pooled skills and capabilities should generate synergy. Conversely, vertical integration is the term used to describe the acquisition of a company that supplies a firm with inputs of raw materials or components, or serves as a customer for the firm's products or services (as a distributor or assembler). Many of the benefits of vertical integration can, however, be achieved without merger or acquisition. A joint venture is one such option. In addition, there may simply be agreements between companies that appreciate the substantial gains to be had from co-operation, thereby creating what is referred to as a network organisation (Alvarez & Ferreira 1995). Of course, the effect of vertical integration can also be created organically, without merger or acquisition, but this is likely to be more risky. Any form of diversification involves a departure from existing products and markets. The new products or services may relate to existing products or services through either technology or marketing; where this is the case, the diversification is know as concentric, rather than conglomerate (or unrelated). In the case of conglomerate diversification, there is no discernible relationship between existing and new products, services and markets. The diversification is justified as a promising investment opportunity. Financial synergy might be obtained in the form of greater borrowing capacity or acquired tax credits. The strategy is regarded as high risk, because the new technologies, new skills and new markets involved constitute unknowns and uncertainties.

External growth strategies are popular alternatives for many companies, particularly the larger ones, but research suggests that they often fail to meet expectations (Thompson 1996; Harbison & Pekar 1998; Bleeke & Ernst 1991; Killing 1982; Copeland, Koller & Murrin 1995). Although not all acquisitions are aimed at bringing about diversification, the majority appear to represent some form of diversification, which nowadays tends to be of the related type (Brigham & Gapenski 1994; Thompson 1996; Ferreira 1997a; Markides 1995). While making acquisitions is still one of the most popular growth mechanisms, it is a strategy that fails more often than it succeeds. Research by Copeland et al. (1995) suggests that only 40 per cent of acquisitions succeed financially in their objectives. These less than acceptable statistics on the success of mergers and acquisitions imply a probable destruction of net shareholder value over time. A recent study by Van der Vliet (1997) points out that acquisitions in the 1990s are more likely to be driven by strategy and restructuring than by the sheer financial hubris that fuelled the mergers and acquisitions binge of the greedy 1980s. However, the study also showed that almost half the mergers of the 1990s have not yet created shareholder value.

A common objective is often the drive for expansion abroad by means of one of the above-mentioned growth mechanisms. This strategy, however, is fraught with peril and for the uninitiated; foreign bureaucrats and antiquated infrastructures can make going global an exercise in futility (Henkoff 1996).

Globalisation

Although globalisation is not a new concept, certain factors have contributed to its recent prominence, such as the opening of new markets for local businesses, as well as new information technology. 'Globalisation' has, however, become an overused term, to the extent that its meaning has become imprecise, thus sparking considerable controversy (Mirow 1990). For present purposes, an international company may be regarded as one that earns significant foreign income from exports, while a global company obtains substantial income (more than 20 per cent) from businesses (assets) in foreign countries in which it has equity interests (Pyke 1997). Examples of international chemical companies include Sasol, BASF and Du Pont, while truly global chemical companies include ICI and Dow Chemicals (Pyke 1997). Companies that go global may choose the growth or expansion mechanism most suitable to their purpose – merger, acquisition, joint venture, strategic alliance or any other strategy (for example, foreign direct investment).

Globalisation often allows growth that is consistent with strategy, opening up larger markets for a focused approach. Unlike broadening domestically, expanding globally is likely to leverage and reinforce a company's unique position and identity (Porter 1996). Companies that seek growth through broadening within their industry can best contain the risks to their strategy by creating stand-alone units, each with its own brand name and tailored activities. For firms with global aspirations, limitations on foreign ownership may make an alliance the only route into some markets. Such alliances also provide an appealing way to accelerate entry and reduce the risks and costs of 'going it alone'. This line of reasoning has certain implications for South African firms that in the past were confined to the limited size of the local market, and thus had no real alternative for growth other than to seek conglomerate diversification. In following this strategy, companies often diluted their core competencies and blurred their strategic direction.

The successful businesses of the future will treat the entire world as their domain in terms of meeting their supply and demand requirements. In general, globalisation affects the entire value chain, as competitive advantages can be gained from the regional distribution of value-adding activities (Klein & Dev 1997; Chan & Wong 1994) while still allowing the firm to remain focused on its strategy. The question then is how the firm should distribute its core business activities in the global arena, and whether this could be done more effectively through strategic alliances as opposed to 'going it alone' or undertaking an acquisition. As markets and industries become increasingly global, a certain minimum size and market share ('critical mass') is often necessary for competitive viability. This is one explanation for the growing incidence of mergers and alliances between related and competing organisations (Thompson 1996; Gomes-Casseres 1994; Chang 1998).

Strategic alliances

What are strategic alliances?

Strategic alliances embody a future-oriented relationship, forged between two or more independent companies, in which each attempts to leverage the strengths of the other to achieve mutually beneficial goals (Spekman & Sawhney 1990; Stafford 1994). A strategic alliance is a trading partnership that enhances the effectiveness of the competitive strategies of the co-operating firms by providing for a mutually beneficial trade of technologies and skills, or of the products based upon them (Lei 1993; Vyas, Shelburn & Rogers 1995). A strategic alliance may then be defined as a particular mode of inter-organisational relations, in which the partners make substantial investments in developing a long-term collaborative effort and common orientation towards their individual and mutual goals (Parkhe 1991; Johanson & Mattson 1991; Chan, Kensinger, Keown & Martin 1997). Often these alliances are described as partnerships in which more intimate connections evolve between separate organisations (Kanter 1988). In many cases, the linkages between the two companies are so strong that the boundaries blur and it becomes difficult to discern where one organisation begins and the other ends.

The literature remains divided over the exact definition of strategic alliances. In fact, the term is often used as an umbrella to include almost any type of partnering, from mergers and acquisitions to 'true' strategic alliances. In this paper, the term is used to mean a form of co-operative behaviour between two or more local and/or global firms that is able to affect the competitive positioning of either participant in the market segment in which it set out to compete. The term 'true' strategic alliance is used primarily to differentiate the organisational type of strategic alliance from mergers, acquisitions and joint ventures. This is what Ohmae (1989) refers to as the forging of an entente. Kay (1995) differentiates this form of alliance by suggesting that there is an important and general distinction between perfunctory and consummate co-operation. Perfunctory co-operation is the degree of co-operation that it is possible to impose through legal agreement or the threat of sanctions. In consummate co-operation, both parties work together towards a mutual end, responding flexibly and

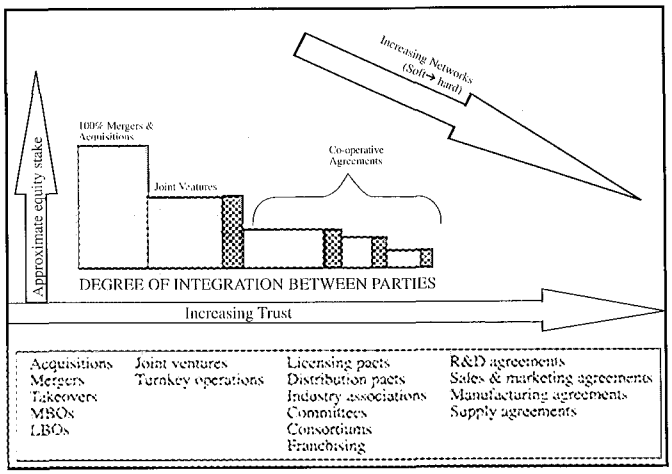
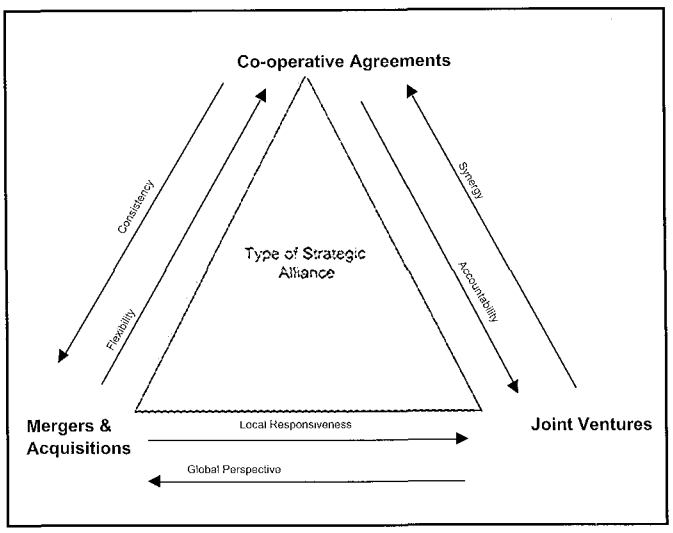


Figure 3. Scope of strategic alliances



Source: Adapted from Keidel (1990)

Figure 4. Pyramid of co-operative structures

sharing skills and information. As an organisational form, a 'true' strategic alliance falls short of being classified as a merger but is deeper than 'an arm's length market exchange'. One could consider this as the ultimate form of co-operative behaviour that many firms strive to achieve, but rarely seem to

obtain. An appropriate example is that of Toshiba, which is renowned for its numerous and highly successful alliances (Schlender, Brenton & Kano 1993). Many Eastern firms exhibit this sort of co-operative relationship, to the point of dispensing with contractual agreements and relying instead on agreements of honour and mutual understanding between the parties.

There are different modes of strategic alliance, and these may be represented, as shown in Figures 3 and 4, on a continuum that spans from rigid licensing arrangements through joint ventures (equity stake) to 'true' strategic alliances (Kanter 1994; Pekar & Allio 1994; Vyas et al. 1995; Chan et al. 1997; Ernst & Young 1994; Stafford 1994). It must be appreciated, however, that such classification is crude at best and should not be regarded as encompassing all the factors that define the various organisational forms. Mergers and acquisitions are typically classified as forms of strategic alliance but are, in reality, differentiated from strategic alliances by the notion that control is absolute and that only one organisation results with total equity investment.

A joint venture usually results in the creation of a new company that may involve equity stakes, or it may simply be a mutual venture on a specific project that is dissolved when the parties involved accomplish their objectives (Pekar & Allio 1994; Ernst & Young 1994; Stafford 1994; Copeland et al. 1995). Joint ventures tend typically to be fairly short-term or to be based on a specific project; thus the equity stake depicted in Figure 3 does not necessarily refer to equity in one anothers' companies (Ohmae 1989). An operating joint venture may be defined as a separate entity (partnership or collaboration) that has two or more companies as owners. The partners contribute capital to the joint venture in the form of cash, inventory, distribution networks, manufacturing processes, fixed assets or intellectual property, such as technology patents and trademarks (Ernst & Young 1994).

The 'true' strategic alliance should not be conceptualised as a separate type of organisational form; it should rather be viewed as the culmination of trust and co-operative behaviour in each of the types of strategic alliance. This may be represented by the right-most quadrant in Figure 3, which conveys the 'ideal' state that firms may seek to achieve through each type of strategic alliance. Strategic alliances, therefore, range from mergers, acquisitions, joint ventures and minority investment in one anothers' companies, to non-equity co-operative strategies, such as technological licensing, marketing agreements, management contracts or long-term contractual arrangements, with each organisational form presenting different and unique problems and opportunities for collaboration and learning. Finally, almost all alliances can be grouped as either horizontal arrangements (between firms in the same industry) or vertical arrangements (between firms in different industries along the value chain), depending on the collaborators' strategic objectives, as discussed in terms of alternative growth strategies in the previous section.

Growth through strategic alliances

Motivations for using strategic alliances as a growth mechanism

Going it alone in the global economy is becoming increasingly difficult, even for the largest companies, because of the nature of competition in global markets and the consequent need for firms to focus on core competencies and outsource activities in which others may have a competitive advantage (Alvarez & Ferreira 1995). This relaxation of the notion of self-sufficiency is becoming a necessity in today's business environment. Thus, most large companies have found it impossible to grow and achieve market objectives without aligning with other firms (Vyas et al. 1995; Bleeke & Ernst 1991; Chan & Wong 1994; Lei 1993; Day 1995; Ohmae 1989; Gomes-Casseres 1994; Bachelor 1998; Wang 1996). A growing number of firms recognise that they cannot be the 'best in the world' in all the areas related to their businesses, so, instead, they attempt to leverage their core competencies by linking with others that have complementary expertise. Forming a partnership with another (complementary) organisation can give both companies an advantage over the competition, provided that the relationships are formed with clear and well-defined objectives in mind (Bachelor 1998). This has been evident in the motor, financial and information technology industries (Wang 1996; Chan & Wong 1994; Burgers, Hill & Kim 1993). Strategic partnerships also promote the development of technologies that would not, or could not, be developed by firms working independently. This is changing the very nature of business, breaking the self-reliance on technology and product-line integration as a means of achieving competitive advantage.

The result of the changing business environment has been a surge in alliance activity, equity and non-equity joint ventures, and other forms of collaborative inter-firm arrangements in all industries and in all manner of situations. In the first years of the 1990s alone, more than 20 000 alliances were formed worldwide and, strikingly, more than half of them were between competitors (Kanter 1994; Chan & Wong 1994). Alliances, thus, have become a central, essential and permanent engine to achieving growth and profitability. In this regard, the results from a 1997 survey on the institutionalisation of alliance capabilities (Harbison & Pekar 1998) indicate that:

- Strategic alliances have consistently produced a return on investment of almost 17 per cent among the top 2 00(companies in the world for nearly a decade (50 per cent more than the average return on investment that the companies achieved overall).
- The 25 companies most active in alliances achieved a 17.2 per cent return on equity (40 per cent more than th(average return on equity of the *Fortune* 500 companies). The 25 companies least active in alliances lagged the *Fortune* 500, with an average return on equity of only 10.1 per cent.

Since it appears that the more experience a company gains in alliances the greater its returns from them, Harbison & Pekar (1998) suggest that companies should move beyond alliance building on an *ad hoc* basis to creating an *institutional alliance capability*. They found that, to meet this challenge and take advantage of the many positive elements emanating from alliances, successful alliance companies create "centers of alliance excellence". In this process, learning through alliances is captured and transferred to key employees by building best-practice databases (repositories of knowledge to be tapped into), augmented by case studies and external expertise, by incorporating their partners' assessments into the process, and by developing learning-transfer channels (for example, workshops and role-playing programmes). Such companies, there-

fore, recognise the importance of alliances to their success and reach out for knowledge and expertise to create an alliance capability, supported and sustained by appropriate management systems and processes. Naturally, building an institutional alliance capability takes more than just in-house efforts. It is thus not surprising that the most forward-looking alliance-building companies (such as Oracle, Xerox, IBM, Hewlett-Packard, Motórola, Merck, and Johnson & Johnson) have each formed considerably more than 100 alliances.

An increasing number of global enterprises recognise that strategic alliances can provide growth at a fraction of the cost of going it alone (Chan et al. 1997; Richards 1997; Harbison & Pekar 1998). US companies and their international partners, for example, have been entering into alliances at an annual rate of 27 per cent since 1985 (Sherman 1992), with more than 20 000 alliances forged between 1988 and 1992 (Pekar & Allio 1994). In the case of mergers and acquisitions, firms acquire the 'baby and the bathwater', but strategic alliances provide firms with more freedom as to the nature and degree of involvement in any particular area of interest, thus allowing them to leverage firm-specific resources. It is the synergistic interaction between alliance partners, with meaningfully differentiated core competencies, that provides the engine for growth (Lei 1993). In the process, risks are reduced, the costs of new product development are shared, and improved access is gained to technologies and markets (Achrol, Scheer & Stern 1990). The result seems to be a move away from mammoth, diversified, control-based structures to loose, flexible and relationship-oriented partnering. Organisational forms based on strategic alliances can, therefore, be expected to be a major form of corporate organisation in the future (Ohmae 1989).

Costs and benefits of strategic alliances

A strategic alliance can result in greater access to raw materials, capital, markets, technology, and other forms of expertise that allow the firm to make better-informed decisions (Vyas et al. 1995; Bleeke & Ernst 1991; Chan & Wong 1994; Lei 1993; Day 1995; Ohmae 1989; Gomes-Casseres 1994; Bachelor 1998; Wang 1996). As mentioned before, success in alliances also seems to translate into superior revenue growth. More importantly, the development of an alliance capability positions a firm for faster growth over future periods. Successful alliance builders thus expect about 35 per cent of their future revenues to come from alliances in the next five years, up steeply from 21 per cent in 1998 and 15 per cent in 1995 (Harbison & Pekar 1998).

However, many alliances are still formed because they are possible rather than because they are appropriate. Statistics indicate that the median life span for alliances is only about seven years, and almost 80 per cent of joint ventures – one of the most common alliance structures – ultimately end in a sale by one of the partners (Bleeke & Ernst 1995). Since an alliance does not generally receive the same intense market scrutiny that an acquisition or a divestiture does, the board and shareholders may also be unaware of the true nature of the risk involved. However, an alliance can be a good acquisition or divestiture vehicle if its evolution is planned. While, at first glance, alliances appear to offer an alternative to acquisitions, such ventures could be a strategic move by entrepreneurs to allay takeover fears before launching an attack.

Forming an alliance with another company, whether a competitor or not, presents some very real challenges. Establishing a strong ongoing relationship, critical to the success of the partnership, is even more difficult than the initial undertaking of forming an alliance. Bachelor (1998) found that over 90 per cent of the executives interviewed felt that forming an alliance, partnership or joint venture with another company was absolutely essential to maintaining a competitive advantage. The same study also found that the majority of interviewees (54 per cent) thought that the long-term prospects for an alliance or partnership were only fair. The primary reason for this was the partners' unrealistic expectations of what the alliance could accomplish. Thus, there seems to be too much emphasis on a vague 'synergy' and too little on common strategy.

Strategic alliances may also stretch the level of cultural adaptability in alliance partners. Firms engaged in alliances are faced with having to deal with one anothers' cultural norms and quirks. Issues pertaining to culture are often neglected by managers at various stages of the alliance-formation process. The same seems true for mergers. Davy, Kinicki, Kilroy & Scheck (1988) attributed almost a third of merger failures to employee problems caused partly by lack of cultural compatibility. Also, cross-national alliances have frequently been aborted because of the inability of one of the partners to deal with 'culture shock' – a disturbing and unpleasant exposure to an entirely different national culture (Rao & Swaminathan 1995).

Of course, cultural problems become even more pronounced in multi-firm alliances that join several companies in a single, larger and overarching relationship for a common purpose. In such alliances, which have gradually emerged in a number of industries (Hwang & Burgers 1997; Vyas et al. 1995), firms have to deal with increased complexity brought about by a diversity of cultures, systems and management processes. With 50 per cent of alliance failures found to be the result of poor management (Ernst & Stern 1996), and given expectations that alliances will account for more than 20 per cent of the average large firm's revenues by 2000, firms will have to become adept at managing complex multi-alliance relationships. As Smith (1996) remarks, the real problem of growth comes down to the people. In addition, firms will have to understand the long-term implications of joining multi-firm alliances or alliance blocks, as these represent real strategic turning points. Because alliance blocks – especially where assets or operations are entwined – are far less likely to unravel than bilateral alliances, joining one can be a once-in-a-decade decision.

Making the right alliance choice requires a set of strategic planning and alliance skills that few firms, as yet, seem to have in place. The research of Harbison & Pekar (1998) shows that learning by experience has been the traditional way for most companies in the alliance arena. Successful alliance-building companies, for example, average a 90 per cent success rate on their alliances, while low-success companies average only 37 per cent. A principal component of such success can be attributed to reciprocal learning and co-operation.

Learning and co-operation in alliances

Whenever an alliance is formed, the partners to the alliance open up their organisations to *sharing and learning* (Hamel

1991), which is regarded as one of the most important benefits of collaboration (Hamel et al. 1989). Conceiving of the firm as a portfolio of core competencies and disciplines (Hamel 1991; Ferreira 1997b; Teece, Rumelt, Dosi & Winter 1994) suggests that inter-firm competition, as opposed to inter-product competition, is essentially concerned with the *acquisition of skills*. According to this view, global competitiveness is largely a function of a firm's pace and efficiency and the extent of its knowledge accumulation (Hamel 1991). Thus, from an alliance perspective, understanding a partner's capabilities and skills is an important prerequisite for a successful relationship. The problem is that many alliance seekers are plagued with the 'quick investment disease' and enter into partnerships to reduce the high costs and risks associated with a new venture. Instead, the underlying motive should be for each partner to learn from the other, while at the same time limiting access to confidential information and proprietary expertise.

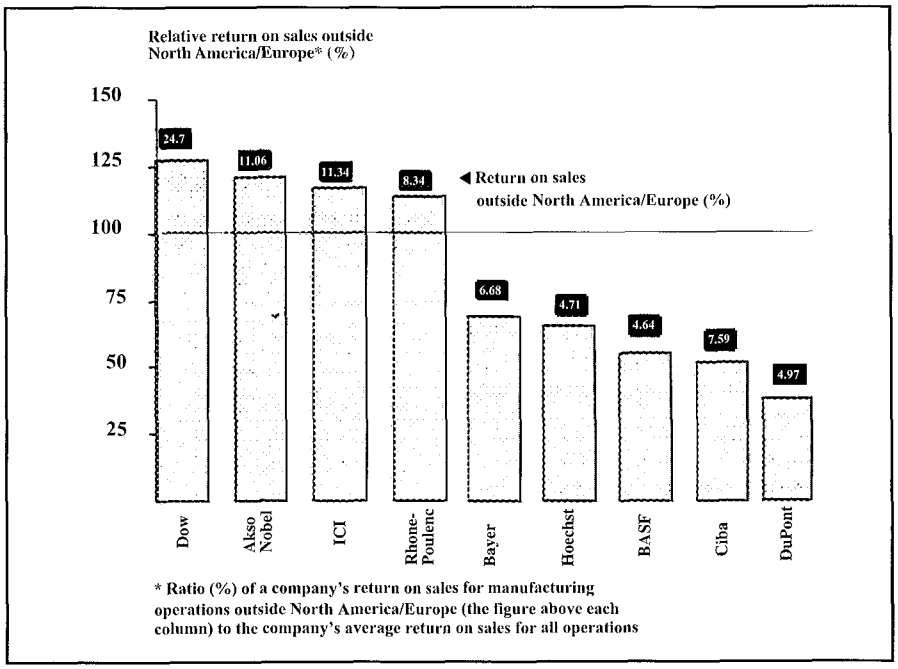
However, it is generally difficult for a firm to relinquish control in the pursuit of a true co-operative alliance (Bleeke & Ernst 1991), as this involves reduced self-sufficiency. It is thus not difficult to see why distrust among alliance partners accounts for the majority of alliance failures (Kay 1995). Irrespective of this, however, co-operation among firms has grown rapidly since the early 1980s, as alliances have proliferated in one industry after another (Gomes-Casseres 1996). At the same time, competition in these industries has in many ways become even fiercer than before, giving rise to a new 'collective competition' – between sets of allied firms, rather than between single firms. Thus, contrary to the received wisdom, Gomes-Casseres (1996) suggests that the spread of alliances in the industries studied increased the intensity and pace of competition.

This persistence of competition, despite extensive inter-firm collaboration, generally flies in the face of traditional economic thinking, and the interplay between alliances and rivalry still appears to puzzle analysts. Particularly puzzling is the co-existence of collaboration and competition, termed 'co-opetition' (Brandenburger & Nalebuff 1996), *between* firms in a strategic alliance. However, despite the theoretical puzzles, learning to compete and collobarate within alliances appears increasingly to be a prerequisite for building and maintaining competitive advantage (Parkhe 1991; Gomes-Casseres 1994; Lei 1993; Littler & Leverick 1995; Khanna, Gulati & Nohria 1998). Thus, institutionalising the process of screening, forming, monitoring and nurturing alliances is becoming ever more important for building an alliance-based competitive advantage. This translates into a firm using its resources to create successful alliances more often and more quickly than competitors, and then effectively managing its alliance portfolio and the performance implications thereof (Vasudevan 1996).

Globalisation, high customer expectations and increasingly competitive markets all demand from organisations the ability to adapt rapidly to change and to institutionalise learning. As Stata (1989: 2) notes, "[t]he rate at which individuals and organisations learn may become the only sustainable source of competitive advantage, especially in knowledge-intensive businesses". Organisations that develop as one of their core competencies the ability to learn through strategic alliances may well gain the robustness needed to adapt quickly to changes in the marketplace.

Strategic alliances and the chemical industry

Developments in the global chemical industry can be used to illustrate the effect on industry structure of the changing business environment and, in particular, increased alliance activity. Such developments have implications not only for the local chemical industry, but also for South African corporations in general. The purpose is to highlight the increasing need, glob-



Source: Pyke (1997)

Figure 5. Globalisation and the chemical industry

ally as well as locally, for strategic alliances as an opportune vehicle for growth and a prerequisite for competitiveness.

Strategic alliances in the chemical industry

As is the case with many other industries (for example, financial services and motor manufacturing), the international chemical industry is in a state of transition characterised by the coalescence of companies into larger groups (Willmott & Wigdahl 1997). After extensive diversification until the late 1980s, many international chemical companies are now restructuring in order to focus on their core businesses (Willmott et al. 1996; Mullin 1997). As the chemical industry has matured, the average returns for the industry as a whole have declined steadily over the past four decades and in the future appear destined to oscillate around the cost of capital (Richards 1997). The response was to turn to globalisation as a route to growth, principally through mergers and acquisitions (Chang 1997). Although most large chemical companies have aspired to globalisation for over a decade, Pyke (1997) argues that few of these companies can truly call themselves global. In fact, fewer than 50 per cent of them earn higher returns outside their traditional European and North American markets, as indicated in Figure 5.

While strategic alliances have proliferated in the 1990s throughout a range of industries, such as electronics, airlines, telecommunications, automobiles and pharmaceutical biotechnology (Gomes-Casseres 1996), they are just starting to creep into the chemical industry (Lebeer 1992; Chang 1998). Van Arnum (1998) reports that more than 90 per cent of the chemical executives surveyed believe that the primary long-term source of new customers for their traditional products lies in the world's emerging markets. Alliances have been the traditional source of entry into new markets and, in new innovative forms, their strategic importance is likely to increase. It is predicted that by 2010, alliances will account for between 20 and 40 per cent of the revenues of the world's largest chemical companies, up from the 1997 level of between 5 and 15 per cent (Van Arnum 1998). Future winners are believed to regard their ability to form and manage alliances as a core competency.

The South African context

Rapid technological change and the increasingly global nature of competition are forcing South African firms to distribute their products more widely and quickly, cope with environmental change, and reduce costs (Chapman 1997; Salgado 1997; Hogg 1996; Simon & Sohal 1995; Efrat 1997). In response to these demands, many South African companies are considering alliances with local and foreign partners. Their objectives include seeking out new markets as a means of sustaining and increasing growth in sales and profits, achieving lower development, research and marketing costs, sharing resources, and learning new skills from competitors. However, the greatest challenge to South African companies is to adapt to the need to reach the necessary global size without having to abandon their corporate identities.

The arrival of the Dow Chemical Company in South Africa in 1997 turned the spotlight on the local industry, which was then emerging from isolation and protectionism under the previous government to face the reality of international competition (Simon & Sohal 1995). Over the past few years, at least 20 multinational chemical companies have established themselves in the local market, and the products of many others are being imported. The reduction of import duties on chemicals from an average of 21 per cent to between 10 and 15 per cent has made foreign players more competitive in the South African market. The local industry is also hurt by its history which, in many respects, has left it uncompetitive. During the apartheid years, the South African chemical industry was shaped by a philosophy of isolationism and protectionism that tended to foster an inward-looking approach, focusing on import replacement. Such thinking encouraged the building of small-scale plants, with accompanying poor scale economies, geared mainly to meet local demand. Thus, the industry's isolation from international competition and the high prices of raw material (a result of the import protection received), led to many of its products not being competitive in export markets.

The South African chemical industry, the largest in Africa, makes up about 23 per cent of South Africa's manufacturing sales, is worth some R65 billion a year, employs about 200 000 people and contributes around five per cent to the country's GDP, making it the most important secondary industry after manufacturing. While companies such as Sasol, AECI and Sentrachem are the dominant local players, the industry consists of an estimated 350 manufacturers and suppliers. However, with the South African GDP a mere 0.4 per cent of world GDP (indicative of the limited local market potential for commodity chemicals), the reality is that for most commodities, the South African market is too small to support world-scale plants. The top three markets for chemicals in South Africa are plastics and rubber, agriculture (fertilisers, pesticides and animal feed) and mining chemicals. A second tier includes textiles and formulated items, such as paints, adhesives, sealants, cleansers, and pulp and paper.

The South African chemical industry has been based largely on Sasol's Fischer-Tropsch coal-to-synthetic-fuels technology, with chemicals extracted from the synfuel streams at Sasol's plants. Despite the disadvantages of an inland base, Sasol's raw materials give South Africa global positions in some product areas. Sasol has the world's lowest cash cost for the production of intermediates and its core competence lies in technology and operations. Furthermore, its Fischer-Tropsch technology offers a competitive advantage in the production not only of fuels, but also waxes, chemicals and low-cost feedstocks from coal (such as propylene and ethylene used in plastics).

Given increased competition from multinationals following economic liberalisation, the South African major players (in particular Sasol) have begun to realise that their future survival depends increasingly on their ability to compete in the global market. Since 1993, Sasol has thus seen a 62 per cent compounded increase in foreign sales, which now account for 25 per cent of total turnover. The company expects sales from chemicals to contribute 50 per cent to turnover by 2000, and some of this growth will be achieved through international ventures and alliances. The second major thrust in Sasol's globalisation strategy is the use of its world-beating Fischer-Tropsch process for converting otherwise unprofitable deposits of natural gas into high-quality diesel. Sasol will not license its new technology, but instead is establishing joint ventures such as the proposed Statoil and Qatar ventures. The commercial strategy is to form partnerships in which Sasol will contribute the technology as well as a portion of the capital, while the partner contributes the gas and the remaining capital.

Thus, a more competitive domestic market has forced top players Sasol, AECI and Sentrachem to strengthen their domestic businesses and to look abroad for new customers. The problems facing all South African chemical companies are that the domestic market is small and import–export and supply logistics are daunting, particularly for commodity chemicals. What was adequate when sanctions enforced a closed home market has proved inadequate for tough world competition. Hence, companies have expended efforts to move into more specialised products and international ventures and alliances. Sasol has already entered into two international joint ventures – with Merisol and Schumann Sasol – and further strategic alliance activity is under consideration. Sentrachem's alliance strategy in the 1995 acquisition of the USA-based Hampshire Chemicals Corporation was aimed at gaining improved access to world markets. However, Sentrachem was subsequently acquired in 1997 by Dow Chemicals in its pursuit of growth in the specialty chemicals business, illustrating the reality of the global market.

Strategic alliances in the South African chemical industry are thus likely to become an increasingly familiar part of the economic landscape. South African companies need to focus on creating joint venture alliances, particularly with offshore companies, in order to extend their market share, apart from the advantage of acquiring access to much-needed skills and other resources. The increased activity among South African corporations in the strategic alliance arena is supported by the findings of a recent Deloitte & Touche survey (McKay 1996) on the growth of joint ventures in South Africa. It was found that about 39 per cent of the respondents were involved in at least one local or foreign alliance; another nine per cent were considering forming alliances; and more than 40 per cent of such alliances were with overseas companies, while 73 per cent involved local and international alliances.

Conclusion

Many companies, after a decade of restructuring and cost-cutting, are turning their attention to growth. The previous era of growth through diversification met with mixed success, and companies are now striving for consolidation and a focus on core competencies. Among the various influences, perhaps the desire to grow has the most perverse effect on corporate strategy. Too often, efforts to grow blur uniqueness, create compromises, reduce fit and ultimately undermine competitive advantage. Broadly, the contemporary prescription is to concentrate on deepening a strategic position rather than broadening and compromising it. One approach would be to leverage an existing activity system by offering features or services that rivals would find impossible or costly to match on a stand-alone basis. Strategic alliances offer one way of achieving this.

Growth strategies need careful, thorough and objective analysis before they are pursued, as well as care and attention in implementation. The competitive landscape is changing so rapidly that the best a company can do under the circumstances is to build appropriate capabilities and create *strategic options.* No single strategy can offer a complete view of how to grow, and any approach that over-emphasises any one strategy also over-simplifies the challenge. The mere existence of financial capability, however, often causes management to pursue 'growth for the sake of growth'. Utilising excess free cash flow, accumulated liquidity and unused borrowing power to finance acquisitions, simply because acquisitions are financially possible, reflects dangerously flawed reasoning. What the findings on merger and acquisition success reported in this article suggest is that these initiatives are often driven by opportunity alone (for example, booming stock markets) and not necessarily by corporate strategy – a severe weakness indeed.

In a world characterised by global competition, rapid technological change and intense resource constraints, firms are increasingly using co-operative relationships with other firms as an essential mechanism for achieving their overall strategic objectives, reflecting the need to achieve growth at the lowest cost in the shortest time. One reason for this lies in the inability of companies to buy assets that are difficult to price, such as brands or research and development capacity. Another reason is the potential for combining complementary skills and assets while investing little cash, relative to organic growth or growth through mergers and acquisitions. In addition, partnerships provide a low-cost opportunity to learn about the value of new skills and resources.

The problem seems to be that alliances involve mutual dependence and decision-making. The paradox is that, while commitment is needed, statistics show that the alliance is likely to fail, and so it is prudent for the individual partners to protect themselves at the same time. Like a successful marriage, a successful alliance involves selecting the right partner and working hard at the relationship. In particular, partners should complement one another, as the most basic requirement of an alliance is that a partner should have skills or resources needed by the other company. The problem, however, is that it is unusual for two firms to have strategies that mesh perfectly.

Shared decision-making in an alliance is not easy for most partners to accept – even when the level of similarity between the partners is high. Cultural factors have much to do with how different managers interact and deal with common interests. Just as countries have a dominant culture, so too do industries and companies. These need to be meshed in some way to make the alliance work. South African businesses tend to be very hierarchical, top-down institutions and, in alliances, seem to find it hard to overcome a strong preference for autonomy and a resistance to compromise. Managing alliances requires a different mix of management skills from those that were effective in traditional organisations. These include the ability to cope with cultural diversity, to evaluate potential partners, to determine the potential for synergy, and to implement and, most importantly, maintain the relationship. Going global is an important concern for South African businesses, but one that is fraught with danger. Learning and co-operation will play an increasingly important role in strategic alliances. The institutionalisation of alliance skills in a collaborative core will be at the heart of the new learning organisation.

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Gencor transformed: the Keys era

A case study[1]

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Considerable research effort has been channelled over the past 25 years towards examining the nature, process and content of organisational change and transformation, as well as the contexts or conditions under which such change occurs. Although much of this research effort has been concerned mainly with the antecedents or the consequences of change, there appears to be growing interest in the study of organisational change processes over time; in other words, a shift in emphasis towards how change is brought about.

This case study provides a vivid description of organisational transformation in a South African context. It shows how Gencor, the second largest mining finance house in the country and widely regarded as underperfoming and drifting in 1986, was transformed (or more accurately, recreated) along all dimensions: corporate strategy, structure, power distribution, control systems and, most notably, belief systems. In the process, an internal environment was created for growing divisional independence, entrepreneurial responsiveness and self-sufficiency, underpinned by a corporate obsession with shareholder value addition.

> Get hold of the best people, make sure they are all pointing in the same direction, and then get out of the way. Things usually happen. *Derek Keys.*

Introduction

Despite the fact that the assets and earnings of Gencor, South Africa's second largest mining house, had doubled over the period 1986–1990, Derek Keys, Gencor's executive chairman, recognised by 1990 that problems and challenges had started to emerge that highlighted the need not only for the short- to medium-term maximisation of shareholder value, but also for the continuous renewal of the corporation itself over the longer term.

One of the emerging problems within Gencor related to the viability of the centre to continuously support the growth demands of its divisions. Numerous mega-projects were being proposed by ambitious divisional management teams, particularly those in highly capital-intensive industries, and Gencor had to turn increasingly to the market and the main shareholder, Sankorp, to raise the necessary funds. Gencor had become extremely hungry for capital and found its ability to support all its divisions diminishing.[2] Moreover, Gencor's demand for the cashflow of its divisions started to give rise to considerable stress in the corporate system. An executive director of Genbel (Gencor's investment arm and one of the divisions), summed it up: "They [the industrial divisions] were seeing their profits being sucked up by Gencor ... and reinvested in mining projects".

Another problem was the persistent discount at which Gencor's shares were trading relative to their net asset value (NAV). The share price still reflected only 80 per cent of its underlying value, representing a substantial value gap for shareholders. A third problem was the emerging inefficiencies in the pyramid system of corporate governance. For example, major decisions, requiring shareholder approval and what Keys termed 'owners' decisions', took too long. In most cases, such decisions had to be presented to three boards: the operating company board (if listed), the Gencor board and the Genbeheer board (Gencor's holding company). Apart from the costs associated with delays and duplication, an even more serious concern centred around the quality of decision-making of these higher-level boards. Mike Salamon, managing director of the ferro-alloy and manganese subsidiary Samancor, stated that "the Gencor board was weird; nobody really knew much about anybody else's business, but nevertheless they had to approve things on the basis of this limited understanding".

Internationally, global competition had become a reality, conglomerates such as Gencor were regarded with increasing suspicion from an investment point of view, and the discovery of significant shallow precious-metal deposits (especially gold) heralded a new era for the mining industry. Nationally, the opening up of the economy and the liberalisation of trade signalled the potential for a drastic increase in local competition, while restrictive exchange-control measures still prevented most big South African corporations from expanding their operations internationally. Furthermore, the imminent trans-

1 This case is intended as a basis for class discussion and not to illustrate either effective or ineffective handling of an administrative situation.

2 Between 1989 and 1992, close to R10 billion had to be raised on the Johannesburg Stock Exchange. Eugene van As, managing director of Sappi, one of Gencor's subsidiaries, remarked: "Gencor couldn't support us anymore – it had a huge balance sheet but no money. We didn't have a 'big daddy' anymore; we had a 'hungry daddy'".

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Exhibit 1. Gencor company data, 1975-1985

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Scale:											
Total assets[1] (Rm)	409.6	1 067.8	1 083.7	1 310.7	1 555.2	2 573.1	2 922.2	3 900.1	5 340.6	7 260.5	7 387.8
Total assets[2] (Rm)	499.3	1 278.7	1 373.5	1 712.6	2 513.7	3 736.0	4 165.7	5 349.8	6 925.0	8 652.8	10 473.2
Turnover[3] (Rm)					1 037.9	1 884.6	2 597.5	3 254.3	3 903.7	4 414.9	5 069.0
Income before financing costs and tax (Rm)	55.0	140.0	144.6	191.3	258.7	447.0	536.7	457.3	597.9	818.4	1 070.2
Income before tax (Rm)	40.1	106.8	113.9	152.7	217.9	406.4	476.1	378.6	484.1	412.3	485.2
Income after tax[4] (Rm)	32.5	78.0	86.3	124.4	180.2	334.7	408.7	331.5	399.4	317.9	403.0
Attibutable income 5 (Rm)	26.0	34.5	43.3	63.4	98.5	269.7	319.8	267.4	310.6	275.5	458.0
Profitability:											
Return on total assets[6] (%)	11.0	10.9	10.5	11.2	10.3	12.0	12.9	8.6	8.6	9.5	10.2
Return on equity[7] (%)	17.4	14.2	15.1	19.9	23.6	26.8	26.7	19.4	18.8	10.7	11.7
Asset leverage:											
Total debt/equity[8] (%)	119.0	94.4	90.0	109.6	103.9	105.7	90.6	128.0	150.9	147.4	114.2
Long-term debt/equity[9] (%)	58.2	38.0	34.7	36.5	25.7	18.4	21.1	47.4	64.1	68.5	60.9
Current ratio [10]					1.1	1.2	1.2	1.1	1.0	1.1	1.3
Acid test[11]					0.9	1.0	0.9	0.9	0.7	0.8	1.0
Interest cover[12]	3.7	4.2	4.7	5.0	6.3	9.1	6.6	3.5	3.3	1.7	2.3
Growth rates:											
Total assets[2] (%)		156.1	7.4	24.7	46.8	48.6	11.5	28.4	29.4	25.0	21.0
Income before tax (%)		166.3	6.7	34.1	42.7	86.5	17.2	-20.5	27.9	-14.8	17.7

Source: Gencor Annual Reports

[1] Fixed assets, current assets and loans, plus investments at book value
[2] Total assets[1] plus total valuation surplus on investments
[3] When reported only
[4] Before outside shareholders' interest
[5] Income attributable to Gencor shareholders, after tax and outside shareholders' interest but before extraordinary items
[6] Income before financing costs and tax divided by total assets[2]
[7] Income after tax[4] divided by total owners' interest (including outside shareholders' interest in subsidiaries)
[8] Total long-term debt plus total current liabilities divided by total owners' interest
[9] Total long-term debt divided by total owners' interest
[10] Total current assets divided by total current liabilities
[11] Total current assets minus stock divided by total current liabilities
[12] Income before financing costs and tax divided by financing costs

Exhibit 2. Gencor stock data, 1975–1985

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Earnings per share[1] (cents)	88	83	104	151	235	343	401	335	388	308	481
Earnings per share growth (%)		-5.7	25.3	45.2	55.6	46.0	16.9	-16.5	15.8	-20.6	56.2
Share price[2] (cents)	560	480	590	790	1 950	2 325	2 325	2 950	2 850	2 390	3 250
Earnings yield[3] (%)	15.7	17.3	17.6	19.1	12.1	14.7	17.2	11.4	13.6	12.9	14.8
Price/earnings ratio[4]	6.4	5.8	5.7	5.2	8.3	6.8	5.8	8.8	7.4	7.8	6.8
Dividend yield[5] (%)	7.5	8.8	7.6	7.6	5.1	6.4	7.5	5.9	6.7	8.0	6.0
Dividend payout ratio[6]	47.7	50.6	43.3	39.7	42.5	43.7	43.6	52.2	49.0	61.7	40.5
Net asset value per share[7] (cents)	795	911	1 090	1 367	2 428	3 035	3 138	4 023	4 125	4 339	5 850
Net asset value discount[8] (%)	30	47	46	42	20	23	26	27	31	45	44

Source: Gencor Annual Reports

[1] Attributable income (income after tax but before extraordinary items) per permanent capital unit (number of issued ordinary shares and compulsorily convertible debentures and preference shares)
[2] Per ordinary share on 31 December
[3] Earnings per share divided by share price at close
[4] Share price at close divided by earnings per share
[5] Dividend per share divided by share price at close
[6] Dividend per share divided by earnings per share
[7] Book value of assets plus attributable valuation surplus on investments per permanent capital unit[1]
[8] Net asset value per share minus share price at close, divided by net asset value per share

fer of power to a Mandela-led African National Congress government (committed to a policy of wealth redistribution through a process of nationalisation) created considerable unease among big business groups.

Nobody was more aware of these challenges than Derek Keys, who was contemplating his upcoming presentation of 'not-so-hot' financial results for 1990 to the financial community. He knew that he was going to need something to put the sparkle back into the Gencor share.

Gencor: a brief history

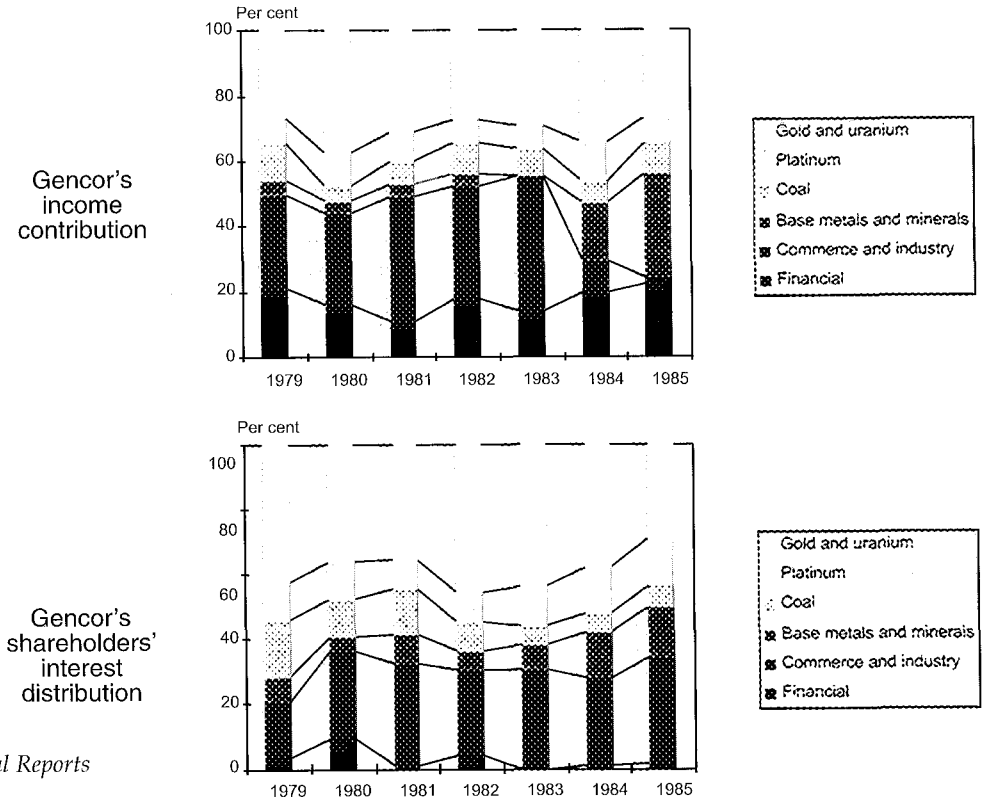
Since his appointment as executive chairman of Gencor in September 1986, Keys had overseen a dramatic transformation of the company. Before he had taken charge, the share had underperformed the rest of the South African mining sector for three consecutive years and had traded at a discount of more than 40 per cent to its NAV. The financial press frequently referred to "the ill-fated system of management by committee", "the headless chicken", "a moribund and fearful management team", the company's "lack of purpose and direction" as well as its "lack of staying power on new mining developments", and "the progressive erosion of confidence in the stock and shareholder wealth".

The economic and industrial development of South Africa had been driven by its mineral wealth, which had provided the basis for the founding and spectacular growth of many of the major corporations in the country. Gencor, having been a typical 'mining house',[3] was no exception. Its history dated back to the founding of two mining companies, General Mining and Finance Corporation (hereafter referred to as General Mining) by the Albu brothers in 1895 and A. Goertz and Co. (later renamed Union Corporation) in 1897. Together, their histories encompassed the discovery of gold fields in the Free State province, in the Evander area of the Transvaal province and in the West Rand, the acquisition of an important stake in platinum, and the diversification into industry (for example Sappi, the pulp and paper producer). Both companies developed a broad range of industrial businesses.

In 1965, with the assistance of Anglo American Corporation (conscious of the need to give Afrikaners a stake in the gold-mining industry), the interests of the small Afrikaner mining house Federale Mynbou (mainly active in coal, a less glamorous commodity) were merged with those of General Mining. In the process, General Mining (the operating company) became the only subsidiary of its holding company (Federale Mynbou), which was by then controlled by life insurance giant Sanlam. This control structure was subsequently to prove critical. In 1975, General Mining acquired Union Corporation, more than double its size, with the clandestine assistance of the Rembrandt Group, thereby dramatically strengthening its minerals portfolio. Together, the two companies controlled 17 per cent of South Africa's gold output and 25 per cent of its uranium, while platinum was added to General Mining's only other major mining involvement, coal. Initially the two companies continued as separate entities, but by the end of the 1970s, the logical step was taken to fully merge the groups' respective interests into what was to become known as Gencor.

Subsequently, bad investment decisions coupled with lack of strategic direction paved the way for Gencor's decline. The situation was aggravated by an unprecedented corporate governance feud between the two major shareholders, Sanlam (controlling 50.5 per cent of Gencor through Federale Mynbou, later to be renamed Genbeheer) and Rembrandt (holding 25 per cent of Federale Mynbou). This resulted in the replacement in 1982 of executive chairman Wim de Villiers with a non-executive chairman, Ted Pavitt, and a management committee of five executive directors to look after the corporation's diverse interests. The feud between Sanlam (adamant to maintain *real* as opposed to *effective* control over Gencor) and Rembrandt introduced a period of unfocused drift. Although

Exhibit 3. Gencor's income contribution and shareholders' interest distrubution by sector, 1979–1985



Source: Gencor Annual Reports

Exhibit 4. The activities of the Genkor Group: 1985

SECTOR	INDUSTRY	ACTIVITIES
Mining	Gold (Gengold)	Thirteen mines including the development of a mine in Brazil; Gencor's gold output represents 18 per cent of the country's production
	Uranium	Two plants accounting for 17 per cent of the country's production
	Platinum (Impala)	Mining, refining and world-wide selling of platinum group metals, nickel, copper, cobalt
	Coal (Trans-Natal)	Eleven collieries, more than 60 per cent of output earmarked for local consumption
	Base metals and minerals (Samancor)	Mining of manganese, chrome and fluorspar, and the production of ferrochrome, electrolytic manganese, titanium slag, rutile, high purity iron, zircon and monazite
Commerce and industry	Farming and food industry	Agriculture, beef and pork production, livestock auctioneering, wholesaling and retailing of fresh and processed meat products
	Engineering, foundries and pipe manufacturing	Five principal subsidiaries whose activities included: • Ship building and repair; high quality gear cutting and gearboxes; general precision engineering; and pumps • Steel wire and wire rope products; twist and cutting tools; copper and copper alloy semis; security hardware; scrap reclamation; and the distribution of stainless steel, aluminium and other non-ferrous products • Manufacture and distribution of large-diameter steel pipes, pressure vessels and process equipment; pipeline construction • Manufacture of concrete pipes, box culverts and asbestos cement pipes • Production of steel and non-ferrous castings and formed products
	Oil and petrol	Retailing of oil and petroleum products through a limited network of service stations
	Construction	Civil engineering construction; production of cement; manufacturing of supplies to the mining, construction and related industries
	Paper, printing and packaging	Four principal subsidiaries involved in: • Integrated pulp and paper production • Conversion of paper, film, foil, paper board and polymer plastics into specialised print and packaging products • Supply of paper, machinery, technical consumables and equipment to the printing, packaging and allied industries • Manufacturing, selling and distribution of creped tissue paper, toilet and facial tissue, roll towels, serviettes, feminine hygiene products, disposable diapers, non-woven fabrics and other disposable products
	Shipping and containers	Two subsidiaries involved in: • The provision of regular liner services on the African, Asian and South American continents; the provision of non-liner services for the carriage of bulk cargo; supply vessels; operation of container storage and repair depots as well as cargo terminals and warehousing facilities • Various operations in the fields of airfreight services, road transport, containerisation, ships agency, warehousing and marine services

Commerce and industry	Trading	Three principal subsidiaries active in: • Manufacturing and distribution of Sony, Blaupunkt and other well-known brands of television sets, radios, audio and hi-fidelity equipment, video recorders and other domestic small appliances; distribution of Commodore computers and Casio calculators, timepieces, cash registers and musical keyboards; sewing and knitting machines; and a dominant player in the South African lighting industry • A leading distibutor of household furniture through 275 stores throughout southern Africa • Trading with the mining industry, including centralised purchasing and stock control
	Township and property development	The acquisition of promising land and the development of industrial and residential erven
Financial	Portfolio investments (Genbel)	Two associated companies involved in: • Managing Gencor's non-strategic portfolio investments, includ ing investments in overseas companies • The utilisation of short-term investment opportunities in listed shares

Source: Gencor Annual Report (1985)

Gencor had obtained a controlling interest in the world's biggest manganese and ferro-alloy producer, Samancor, by 1985 the Gencor share price lagged the average for the industry, its industrial interests were in total disarray and heavy losses had been incurred, annual growth in net income before tax since 1981 was a dismal 5.5 per cent, and profitability ratios lagged the rate of inflation.

The early 1980s were, in general, good years in the mining industry, with the price of gold rising exponentially, the demand for platinum remaining buoyant, and coal becoming increasingly important as Eskom, the electricity utility, undertook major expansions. However, a decade after the takeover of Union Corporation and five years after its incorporation as a wholly owned subsidiary, Gencor seemed to have lost the entrepreneurial spirit which had been characteristic of the Union Corporation culture for 90 years (see Exhibits 1–4).

The appointment of Keys

Marinus Daling, chief executive of Sanlam's fully controlled investment arm, Sankorp, had realised for quite some time that the committee management experiment was not working and that drastic change was necessary:[4] "Gencor had been in a total mess. Management by committee cannot work, for the simple reason that you need a captain on the field". Centralisation of decision-making and the time it took to get decisions made were major obstacles to senior subsidiary and business unit managers.[5] Eugene van As, managing director of Sappi, said that "you couldn't go to Gencor for a decision, because you would never get it". Even technical decisions seem to have been referred to the top. John Raubenheimer, a senior geologist, commented that "you always had to wait for these guys to decide before you could do anything. For example, a geologist would call in from the field, describing a core [borehole sample] to a guy at head office, who then on the basis of a telephonic description, would decide what to do next!"

The managerial abilities of the top team also came under sharp attack for numerous reasons – bad decisions, lack of controls, lack of financial know-how, lack of commercial expertise, bad labour relations, and a general inability to run a multi-faceted corporation. This was reflected in the dismal performance of the group's industrial interests, which accounted for almost a third of owners' interest yet contributed a mere 2.3 per cent to income in 1985, and the decision to fire 23 000 mine workers at Impala's platinum operations in early 1986. One executive director remarked that "they didn't even ask: 'What will the likely cost of this exercise be?'" With regard to lack of financial controls, Mike Salamon, then a senior manager at coal subsidiary Trans-Natal, commented: "Financial management was really a haphazard affair, to put it mildly. The guys didn't even measure their cash directly – it was horrendous!"

Keys was well known to Daling, who had seen him in action as the chairman of another major Sanlam investment, the diversified industrial firm Malbak. The announcement in April 1986 of the appointment of Keys, to take up the chairmanship on 1 September 1986, marked a change in Sanlam's

3 The mining houses were, and to a large extent still are, in essence financial holding companies with very complex internal structures. Given the enormous amount of capital required to develop a new mine (especially the deep-level gold mines in South Africa, which could easily require US$1 billion or more in today's money), the role of the mining houses was to conduct exploration and to develop new mines by raising the bulk of the capital required externally. Typically, a new mine would be floated on all the major stock exchanges around the world, with the mining house generally retaining a controlling (although not majority) interest (25 per cent for example). Earnings would come to the mining house by way of dividends, management fees (the mining houses would provide the managerial and technical resources to operate the mine) and equity-accounted profits.

4 A retired executive director commented on the management team as follows: "They, the five, watched each other like vultures – there was no trust, no common purpose, and a lot of wheeling and dealing". Sanlam's insistence on effective control of Gencor also manifested in direct interference in operational issues. As one corporate executive put it: "There used to be weekly or bi-weekly executive committee meetings which they would attend. They took a very close interest in operational issues – even instructing us to take out forward cover on foreign loans!"

5 One executive commented: "In management meetings we spent hours talking about car schemes and things like that", and another: "You had to ask permission to do everything – that was the culture. I once saw the minutes of an executive committee meeting approving the purchase of a bakkie for one of the mines – mindless!"

control philosophy. The major shareholder clearly lacked confidence in the existing top management team but had complete faith in the ability and integrity of Keys. As Daling stated: "Derek is not the calibre of man that you try to prescribe to. You appoint him and let him get on with it. The initiative was going to be in his office".

Although the appointment of Keys came as a surprise to the market, it was met with widespread approval. High expectations were set for his tenure. The financial press, for instance, referred to the need to "inject confidence into Gencor", "set Gencor firmly on the road to a better rating for the long-depressed share", "improve morale and give the group positive direction", "improve profitability", and "coordinate and motivate management and the top echelon in particular". Richard Stuart, corporate finance director of stockbroking firm Fleming Martin, commented: "Key's appointment was probably the most important thing ever to have happened at Gencor. The company really needed an outsider. It is seldom that an insider can change a company's direction or its ethos radically".

Internally, especially at subsidiary level, where there had been wide-spread dissatisfaction, the need for an outside appointment had also been accepted. As one senior executive put it, "the whole organisation was in waiting – for some change". Although there was surprise and some apprehension about the new executive chairman being a 'mere beancounter' with no prior exposure to the mining industry and seemingly an 'intellectual' rather than a hands-on mining executive, Keys soon gained widespread acceptance, popularity and respect within Gencor (see Exhibit 5).

Exhibit 5. Keys's background

Keys's background gives an indication of an unconventional personality. Following an auditing stint as Chartered Accountant with the Industrial Development Corporation, Keys went into business on his own at the age of 34. His first material achievement was the listing of Malbak, a small industrial concern, for which he managed to negotiate a substantial shareholding from Sanlam. This relationship with Sanlam was subsequently deepened when Malbak came to acquire control over another Sanlam investment, Protea Holdings. It was during the negotiation of this transaction, which elevated Malbak in a stroke to the first league of South African industry, that he and Daling got to know each other, and which probably laid the foundation for his appointment as the new Gencor chief. In Keys's words, "my first real job in 21 years!"

The experience that he gained at Malbak, in corporate finance, industry, and the management of a widely diversified firm, dovetailed exceptionally well with the need to improve, in particular, the asset management of Gencor's industrial interests. However, his appointment did not seem to be without risk. Firstly, he did not have any mining experience and secondly, his previous experience had always been from the position of chairman rather than CEO. As Stuart stated, "he never really had run a company before". Nevertheless, it soon would become clear that his particular style of management, developed during the years at Malbak, suited the requirements of Gencor extremely well.

Keys's first impressions

Apart from excessive bureaucracy and related problems (such as rigid personnel policies, an intolerance of mistakes, and an internal environment that stifled creativity and entrepreneurship), Keys would also be faced with a corporation plagued by a cultural rift. Five years after the merger of General Mining and Union Corporation, each element still seemed to have maintained its own distinctive culture. Gary Maude, who would later become executive chairman of Gengold, elaborated: "They [General Mining] had the name for being a 'wheeling and dealing' company which never created a new mine, and we had been this technically excellent company – we could start a new mine every two years...They made a classic mistake; when you take over a company, you must be clear what immediate changes you want to see, and you should implement them within the first six months. They didn't, mainly because they didn't want to upset people". It had been difficult to establish a new 'merged' culture, especially in view of the fact that the acquirer was so much smaller than the acquired.

The cultural rift extended to the core businesses (mining) and the rest. Van As commented that "Sappi was run like a big mine!" Furthermore, there had been a lack of subsidiary identification with Gencor as a whole. Salamon stated: "[W]e called ourselves the coal division (not Trans-Natal). You didn't get much of an identity for either the group or its operations, and very little feeling of strategy". Similarly, Maude observed that "by the time Keys arrived, the way we had protected ourselves from all the lack of integration, was to say bugger them! We work for the gold division and that's it – we're the biggest and the best anyway, so we don't need them".

The Gencor culture and its problems did not come entirely as a surprise to Keys. He had previously been on the boards of both Sappi and Samancor. However, although he expected to find a slow-moving bureaucracy, the extent to which the bureaucratic culture had permeated all layers came as a surprise:

> I had the impression of a fair amount of bureaucracy...of people trying to run a multi-faceted corporation who have basically been brought up in the mining industry...very dedicated and often intelligent sort of people. But they have spent most of their lives outside the commercial environment; and now here in the end they were in the commercial and industrial environment and with no real solid background to deal with problems ...
>
> They also didn't know how to control adult managers. The mining system, because it is concerned with life and death, has very short control spans and very direct supervision; and it is absolutely normal for the manager of a mine to tell a chap six levels down from him that he isn't doing a certain job correctly. So, you get that kind of approach – it's the background. Now they tried to moderate it slightly, but that fundamentally is their conception – this very steep pyramid. Whereas as we know, if you want to stimulate creativity in people, you have to go to the absolute opposite extreme – have very flat structures with lots of room for people to do things, and with not much reference to the level above as to what you should do in specific circumstances – and certainly not what you may do.
>
> Then there was also this terribly bad blood that developed between the main shareholders in the Wim de Villiers era, and that had left its scars, to the point where mistakes weren't tolerated...So the attitude to people who have tried things and failed, was damning. Thus, it was better to try nothing, or make sure you get everything signed off on

everything you want to do, which again implied tremendous delays.

Then, also coming out of the mining culture, they had the idea that every job could be analysed in terms of degrees of responsibility, degrees of difficulty, and so on, and that you could determine by that sort of analysis what the right salary for that job was and where it should rank in the pecking order. And when that didn't allow you to hire people at that salary, then you would introduce something called a market adjustment factor, which actually was a statement that the market was wrong, but that in order for life to go on, you had to introduce this factor. So they had that – and the stupidities that that gave rise to were not apprehended by the top people, because doing these job evaluations is an all-aching business and so it got delegated to lower and lower levels of management for whom it became a kind of a holy rite.

When one got in and looked at what sort of committees were in existence and what they were trying to do and how many manhours it took, and what the perceived benefits were and so on, you had to come to the conclusion that you are actually gumming up or stifling a lot of good creative work that was coming from elsewhere. And I came from having the pleasure of working with Grant Thomas for years, and being the chairman of Malbak, which we ran on a completely different basis – a basis of trust. We were a strong informal network and a very weak formal network – almost a collegial sort of relationship. So, it wasn't that I knew what was right and spotted it once I came here. It was just that I came out of an environment which was run on a completely different philosophy.

The other aspect which has to be mentioned was that the particular people in charge knew what was 'right'... and so one knew that one would help the organisation really by messing up the minds that thought they were 'right'. Some of them left more or less as I arrived; but others had to go through that process of having their minds messed up as to what was right and what wasn't right.

In an interview with the *Financial Mail* in April 1986, Keys hinted at his philosophy: "You don't have to reinvent the wheel...You form a team and get people to enjoy themselves...You get hold of the best people and make sure they are all pointing in the same direction – and then get out of the way. Things usually happen". However, for things to happen, the top team had to be restructured and minds had to be 'messed up'. Changing the culture at the top would prove to be the biggest single challenge for the newly appointed executive chairman.

Recreating the internal context

Focusing on the critical while 'messing up' the minds at the top

Keys thought that although it was not his explicit intention, he "really came in as a sort of a saboteur of the present system". Various actions served to bring this about, which he reinforced through sometimes dramatic example. At the top, the appointment of Keys was not received with unanimous enthusiasm. Two directors announced their resignations with almost immediate effect. Keys promoted younger executives to the Gencor board and, more importantly, executives from different business environments, such as Thomas and Van As, neither of whom showed any respect for the order and traditions of the traditional mining house. By constantly questioning the rationale for the old system, they introduced new perspectives, which were quickly adopted by the new generation of top executives in the mining division.

Keys was looking for something different in his executives and he demonstrated it on every occasion. However, it was not only through substantive actions but also through personal example that he managed to bring about a dramatic change in belief systems. The story most often told concerned his refusal to play arbiter for two executive directors and make an important decision for them. The two directors couldn't agree and sent a memorandum to Keys, asking him to advise. "Solomon is not in today", was his reply. The two then made an appointment to see him. On their arrival at his office, Keys said: "Oh, it's nice to see you guys. Do you want to use my office? Very well, I'm just on my way out. So now you guys sit down there and sort out your problems!" In another symbolic action, Keys moved his office away from the Gencor head-office building to a building across the street, where he operated in his preferred style – in the background and removed from day-to-day activities. His abhorrence of formal authority was reflected in his choice of office design, where the absence of a desk, computer and piles of papers was particularly striking. Instead, the office was furnished with comfortable sofas and coffee tables – a lounge rather than an office.

Even before he formally took up his position, Keys started to negotiate a deal with his long-time friend, Grant Thomas (managing director of Malbak), whereby Gencor sold its industrial businesses to Malbak and, in return, obtained control over the firm. Thus, in September 1986, Thomas was appointed as Gencor's executive director (for industry) as well as executive chairman of Malbak. In a stroke, Gencor took control of an industrial conglomerate with an established infrastructure and a reputation for creating an environment for the development of industrial businesses. Keys decided not to include Sappi, the pulp and paper manufacturer, in the deal, but rather to give it separate divisional status within the Gencor structure. The fiercely independent Eugene van As, managing director of Sappi, became an executive director of Gencor in March 1987. Thus, Gencor, the traditional South African mining finance house, was being transformed into a true conglomerate and a new divisional structure was taking shape.

Redefining the structure and managerial roles

Among the first things Keys did after he took up his position was to identify the potential elite – everybody that had been running various bits and pieces of the firm and whom he wanted to meet. He identified 75 executives, divided them into nine multidisciplinary groups and gave each the assignment to report back within four weeks on how Gencor should be restructured and organised. Following this consultative process, Keys presented the top echelon with the new group structure. Firstly, a clear and very important distinction was made between the roles of the Gencor and Genbeheer boards. Whereas membership of these boards had overlapped considerably in the past, Keys resolved that in future, the Gencor board would be a management-controlled board with only the two Sanlam and Sankorp representatives as non-executive directors. Genbeheer, in turn, would become a shareholder-controlled board, chaired by the chairman of Sanlam and with Keys as the only Gencor representative.

Secondly, the new corporate structure was based on three autonomous business divisions – Mining, Malbak (industry) and Sappi (paper and pulp) – and four corporate service divisions – operational services, finance and investments, human resources and public relations, and corporate services. Each business or service division was headed by an executive director. At a time when such ideas were still relatively unknown,

Keys used concentric circles to represent the structure: Keys would be in the middle, surrounded by a circle of executive directors that were in turn surrounded by a circle of business unit executives.

Thirdly, a new 'coach–athlete' metaphor for managerial roles was introduced. Keys explained: "The 'coaches' were executive directors...trained to think like coaches; to get the best performance out of the athletes, instead of judges who decided what was right and what was wrong. The 'athletes' were the guys running the mines, businesses, etc., and who were expected to perform...With the directors sitting there I defined for them very clearly what the coaches ought to be doing for them. It was really a question of them interpreting the athletes well to me, and me well to them. And if the coach couldn't do that, he was misplaced – so, I had a fair bit of teaching to do in that regard". To deal with some of the directors and other senior executives who were 'past their prime', Keys introduced the concept of 'senators'. Defined as executives who were still part of the 'nervous system' of Gencor but no longer part of the 'muscular system', senators had to observe and give advice to him and other younger executives. They retained their job titles, but they were taken out of executive roles. Although some of them flourished in their new roles, others could not make the transition and left.

Finally, Keys requested each of his 'athletes', working with their respective 'coaches' and the immediate subordinates in their businesses, to complete their approval frameworks. These frameworks, developed by Keys during his years at Malbak, involved a simple system whereby all the important activities and decisions of each business were listed, followed by the assignment of decision-making authority for each decision. Thus, the executives had to indicate who would make the final decision, who had to agree with it, who had to be consulted before the decision was made, who should be informed after it was made, and who had to implement the decision. From a corporate point of view, Keys was interested only in 'owners' issues' such as succession planning in the divisions, their budgets, capital projects likely to have an impact on Gencor's balance sheet, and the compensation levels and bonuses of the divisional heads.

Once he had received these frameworks, he moved them all one level down. Suddenly, executives and managers were trusted with decisions that, in the past, had always been referred up to an executive director or to the Gencor board. Keys commented: "[A]nd of course, I threw all my copies of these frameworks in a drawer and never looked at them again, but they observed them religiously and we still use the system today". Keys also insisted on being the chairman of only one body, namely the Gencor board. At divisional board level, he would be an ordinary director under the chairmanship of the particular executive director. "And so in that way one raised a lot of people to a higher level where they really felt they had the ultimate responsibility for these companies and those collections of assets. And all of this was really to strangle the bureaucracy at the heart of the machine." Keys reinforced this with his own 'shock therapy' to jolt the organisation into a change mode. Eugene van As recalled a popular tale:

> I arrived at one of Keys's services council meetings one morning and there he was dressed in funny trousers, an open-neck shirt, vividly coloured non-matching socks, etc. And all these guys came funnelling in and made presentations about all sorts of insignificant stuff. Around lunch time, he asked to say something, and everybody thought that he was going to explain his extraordinary attire. However, he said something like this: "When I read the papers for today's meeting last night, I was filled with depression and a feeling of gloom. I had a vision of a company in which people would think for themselves; in which people were free to act out their roles effectively; where people actually had initiative; where people were not restricted by rules and regulations; where people even could dress as they like. But when I read these papers, I knew that I had failed. If this is what we are going to keep ourselves busy with, we may just as well all go out and play golf all day!"

Differentiation through control and incentive systems

Closely linked to decentralisation was the establishment of formal control and incentive systems. Keys focused on two instruments – the discipline of the budget and the motivational impact of bonuses and share-option schemes. Although budgeting was not a new concept at Gencor, there hadn't been any pressure in the past to keep to budgets. Especially at the centre, cost control was virtually absent (consistent with the traditional 'fat-cat' mentality of rich mining houses), and typically costs incurred were accumulated and distributed among the operating companies. With the introduction of stringent budgetary control, these costs were suddenly made visible, with the effect that operating division executives started to query corporate expenses and the value added to their businesses.

Similarly, operating executives were required to 'contract' their budgets with the centre, where they were held accountable for achieving targets. Meeting and exceeding these targets were linked to lucrative performance bonuses, a substantial part of which was given in the form of Gencor shares. While the incentive systems for directors were agreed at corporate level, it was left to the divisional executives to decide on their own remuneration and incentive systems. Peter Cook, then chief executive of corporate services, noted: "Keys went out of his way to let people recognise that there were different requirements in different businesses". In addition, the Paterson job-grading system was phased out, which also allowed for differentiation between managerial and technical positions. This was an important shift in thinking, as it allowed divisions considerable freedom in terms of the sourcing and retention of technical experts, who had previously had to be promoted to managerial levels in order to earn more.

Shareholder value and a new role for Gencor's investment arm, Genbel

Keys had always been a believer in the market and he expended considerable effort in making the whole of Gencor sensitive to the market and the need for shareholder value creation.[6] He was concerned from the start about the more than 40 per cent discount at which the Gencor share had been trading. Tom de Beer (executive director of finance at the time) recalls that Keys used to refer to this discount, which at times amounted to as much as R4 billion, as "the biggest single asset that we have, and nobody manages it!" One of the problems was that with the extremely complex financial structures within which Gencor and its subsidiaries had been embedded, the discount and its sources were often obscured. This was compounded by the accounting requirement to consolidate, in Gencor's statements, the results of all operating companies in which it held an interest of more than 50 per cent. The solution to this problem was intimately linked to the creation of a new role for

Genbel which, having functioned merely as an investment trust for Gencor's portfolio investments, was about to become the fourth operating division of the corporation.

In consultation with Anton Botha, who moved from managing the investment trust to managing director of Genbel, Keys identified the two components of Genbel's new role. Firstly, it would continue to manage Gencor's portfolio of discretionary investments with the objective of earning more than could have been earned on cash instead. Keys's approval would only be required for sales in excess of R100 million. Secondly, Genbel was to become Gencor's investment partner with respect to its current and future strategic investments (namely, its operating divisions). This involved being Keys's proverbial 'eyes and ears' to the market, advising him how the market would react to any planned actions pertaining to the strategic investments. In addition, Genbel would manage Gencor's investor relations as well as the funding of all rights issues for the group. Most importantly, Genbel would have to participate with Gencor in all present and future strategic investments and development projects.

It was this latter role that enabled Keys to overcome the problem associated with the consolidation of subsidiary results and thus to highlight the NAV discount. Following considerable lobbying with the tax authorities, and going against standard accounting practice, a moratorium on stamp duties was introduced, which allowed Gencor to transfer partial ownership of all its operating subsidiaries to Genbel. In this way, Gencor's direct interests in these subsidiaries were reduced to below 50 per cent, which enabled it to equity-account these holdings. On paper, Gencor did not have control over Genbel (although it did through Sanlam's direct interest), but Genbel had no discretion over its interests in Gencor's strategic investments. The effect of this manoeuvre was that the interests of Gencor in the underlying companies could now be shown directly and compared to their market values.

Corporate strategy and the role of the centre

Various actions during Keys's first months at Gencor had an important impact on corporate strategy. These included the takeover of Malbak, the elevation of Sappi to divisional level, the redefinition of the role of Genbel, the restructuring of corporate governance mechanisms, and the strong focus on the interests of shareholders. In addition, on the mining side, a clear signal was given that Gencor would return to its entrepreneurial roots of finding and developing new mines. In the 1986 Annual Report, mention had already been made of a considerable increase in exploration expenditure and the corporation's long-term desire for growth.

However, before starting to identify Gencor's mission and setting a new strategic direction, Keys first destroyed the bloated centre which, in 1986, had a staff of more than 2 000. Staff departments included large technical departments (such as engineering, minerals technology and minerals resources), and human resources and public relations, corporate finance, treasury, and corporate services departments. These departments existed and had to be funded, in the typical mining-house tradition, through management-fee contracts with the operating units. What irritated executives was that their units were obliged to make use of and pay for these services. Both Thomas and Van As remarked: "We were willing to pay them double in return for not having to make use of their services!" Keys responded to these sentiments. He had a particular distaste for large corporate head-offices and was very sceptical about their ability to add value to the operating units, resolving that the importance of staff positions be downgraded and the corporate centre kept out of the way of operating executives. Thus he hived off to the operating divisions most of the traditional corporate staff functions, demonstrating to the executives running these divisions that they were running their own businesses. By early 1987, the Gencor centre consisted of a mere 30 people, mainly responsible for corporate finance, the treasury and group insurance.

Naturally, these actions highlighted the need to identify what the remaining Gencor centre was actually supposed to do. Two ideas were crystallising in Keys's mind. Firstly, Gencor's administrative role *vis-à-vis* the operating divisions was to be one of an 'interested shareholder'. He likened Gencor to a Jewish grandmother – a loving yet critical audience. It was the task of the divisional executives to get him to applaud their actions. Secondly, Gencor had an entrepreneurial role in furthering institutional growth. Peter Cook put it as follows: "Keys saw Gencor as a giant venture capitalist rather than an operating company. Its role was to identify opportunities, provide funds to make those opportunities happen, and then to get out of the way of the divisions". Thus, the 1987 Annual Report identified Gencor's main objective as "to act as an entrepreneur in the development of large new projects", and several such projects were announced.[7]

However, it took 18 months for the two concepts, which had been evolving in an informal way, to be identified and stated explicitly. Keys had previously rejected the idea of a mission for Gencor, saying: "Well, this group has a very simple mission: let's stop screwing up!" Nevertheless, he changed his ideas when he befriended a young management consultant with a Harvard MBA. He realised the potential benefits from having a unifying statement, and he and his executive directors spent a period of five months developing the Gencor mission (see Exhibit 6) which centred around a commitment to real growth.

Exhibit 6. The Gencor mission

Aim	Real growth
Business	Starting or acquiring major business ventures. Accelerating the development of our existing businesses.
Goals	To achieve: • The esteem of the communities in which we operate • An identity of interest with our employees • The admiration of our customers and suppliers • A higher than average return for our shareholders.
Style	We encourage the creation and development of independent, entrepreneurial and participative managements to whom we delegate responsibility for their share of our mission.

Source: Gencor Annual Report (1988)

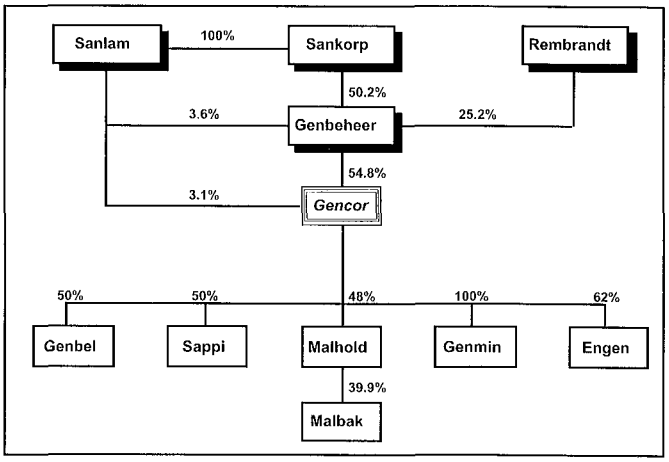
6 As some of the executive directors commented: "Keys didn't say his morning prayers before he found out what the share price was doing"; "He always asked: who in Gencor sits every morning and thinks what is the best for our shareholders?"; "He converted Gencor into becoming very sensitive to the market place. In this way he opened up and changed the culture of the company completely"; "He always had stockbrokers and analysts for lunch. This was all new to us".

7 These included the development of the Oryx gold mine, the Karee platinum project, the torbanite project in association with the government's Central Energy Fund for the production of synthetic crude oil, and the right to participate in oil and gas prospecting activities with Soekor.

Real growth entailed much more than simply the differential between growth and the rate of inflation. Real growth was meant in a much wider sense – in every dimension of human activity.[8] In addition, two corporate roles were identified, closely mirroring the informal roles alluded to earlier. In its first role, the centre had to provide the *impetus* to start or acquire major business ventures. This included starting a new division where the nature of an opportunity did not fit the operations of existing divisions. In its second role, the centre had to *accelerate* the development of the existing businesses. Keys commented: "We had to take note of the fact that every business connected with us had the strong opinion that what the Gencor centre actually did was to hinder their development ... I have now accepted the discipline that unless the consequence of the relationship between a connected Gencor business and myself is that that business's healthy development is accelerated, there is something wrong in the role that I am playing". Keys elaborated on the idea of autonomy in the 1988 Annual Report:

> Due in major part to the capable people I have around me, this group has been characterised by a marked measure of delegation for the past two years...At the centre we do not run anything. What we do attempt is to set challenging targets together with the different operating managements and, in the process, to provide such guidance as we are able. For this a small staff is quite adequate...Everything else falls under the control of one or other operating management and it is to these baronies that the obligation to grow in real terms is delegated.

Exhibit 7. Simplified Gencor control/group structure, 1990



Examples of real growth through impetus and accelerated development were (i) the creation of a fifth division in 1988, the energy division, which was significantly expanded in 1989 with the acquisition of Mobil SA to form Engen, (ii) the acquisition by Sappi of Saiccor (in 1988) and five fine paper mills in the United Kingdom (in 1990) to form Sappi Europe and (iii) taking effective control of the only South African aluminium producer, Alusaf and obtaining an enlarged interest in Samancor (both in 1989). From a situation in which Gencor's supply of capital had exceeded the ability of management to identify new projects, the new emphasis on real growth

Exhibit 8. Gencor company data, 1986–1990

	1986	1987	1988[a]	1989	1990
Scale:					
Totlal assets[1] (Rm)	7 320	6 684	4 644	7 508	8 391
Total assets[2] (Rm)	12 517	11 501	8 900	15 162	17 017
Income before tax[3] (Rm)	539	908	482[b]	1 278	1 492
Attributable income[4] (Rm)	592	655	720	1 051	1 479
Attributable income[5] (Rm)	338	655	713	1 319	1 494
Profitability:					
Return on total assets[6] (%)	7.4	13.6	10.4	17.0	17.8
Return on equity[7] (%)	12.3	20.3	18.9	20.6	20.1
Asset leverage:					
Total debt/equity[8] (%)	93.4	92.5	34.5	55.5	49.4
Growth rates:					
Attributable income[4] (%)		10.6	9.9	46.0	40.7
Total assets[2] (%)		-8.1	-22.6	70.4	12.2
Income before tax (%)		68.5	-46.9	165.2	16.7

Sources: Gencor Annual Reports and BFANET

[1] Fixed assets, current assets and loans, plus investments at book value
[2] Total assets[1] plus total valuation surplus on investments
[3] Including equity accounted income and extraordinary items
[4] Income attributable to Gencor shareholders, before extraordinary items
[5] Income attributable to Gencor shareholders, after extraordinary items
[6] Income before tax[3] divided by total assets[1]
[7] Attributable income after extraordinary items divided by shareholders' interest
[8] Total long-term debt plus total current liabilities divided by total shareholders's interest

[a] Eight-month period. *Pro forma* results are shown
[b] Not available on a *pro forma* basis

Note: Various changes during this period in year ends and accounting policy – for example accounting for subsidiaries and associated companies – complicate comparisons between years.

Exhibit 9. Gencor stock data, 1986–1990

	1986	1987	1988[a]	1989	1990
Earnings per share[1] (cents)	60.7	66.9	73.5	105.5	125.8
Earnings per share growth (%)		10.2	9.9	43.5	19.2
Share price[2] (cent)	595	495	543	1 020	1 075
Earnings yield[3] (%)	10.2	13.5	13.5	10.3	11.7
Price/earnings ratio[4]	9.8	7.4	7.4	9.7	8.6
Dividend yield[5] (%)	3.9	5.0	5.0	3.3	3.7
Dividend payout ratio[6] (%)	37.9	37.4	36.7	32.2	31.8
Net assets at valuation (Rm)	8 420	7 763	8 027	14 236	16 176
Market capitalisation (Rm)	5 774	4 860	5 307	11 936	12 642
Net asset value per share (cents)	862	793	819	1 211	1 375
Net asset value discount discount[7] (%)	31.4	37.4	33.9	15.7	21.8

Sources: Gencor Annual Reports and BFANET

[1] Earnings per share before extraordinary items
[2] Per ordinary share at year end
[3] Earnings per share didided by share price at close
[4] Share price at close divided by earnings per share
[5] Dividend per share divided by share price at close
[6] Dividend per share divided by earnings per share
[7] Net assets at valuation minus market capitalisation, divided by net assets at valuation

[a] Eight-month period. *Pro forma* results are shown

caused the group to start to become 'capital hungry'. As Daling stated: "Keys transformed the bureaucracy into an entrepreneurial organisation".

In 1989, the last building block in the divisional structure of Gencor was put in place with the creation of the unlisted Genmin, providing the mining division with an autonomous board and corporate identity (see Exhibit 7). This was preceded in 1988 with the outside appointment of the 44-year-old Brian Gilbertson, who joined Gencor from the rival mining house JCI. Seen from the start as Keys's 'crown prince', he was immediately appointed to the Gencor board and became the co-deputy chairman of Genmin. Keys referred to Gilbertson's appointment as follows: "About halfway through that process [of developing the mission], I realised that if we were going to make progress, we needed a different calibre of management at the head of the mining division...and I said to Bernard Smith, find me the best guy in mining between 40 and 45. And he found Brian, who had been a protégé of his at JCI...and you cannot tell the story from then on without taking into account what he did".[9]

Finally, the Gencor mission also focused on increased attention that needed to be given to the development of a changed social and political environment within the country. Having been 'public enemy number one' of the labour unions for many years, Keys turned to removing discriminatory employment practices, sponsoring education and training, and the broadening of democracy in the workplace by, for example, encouraging worker participation in decision-making processes. What had previously been a weakness was now being turned into a strength.

8 Keys explained it as follows: "By real growth...we mean having two blades of grass growing where one grew before. We mean better management at the top, better management in the middle, better management at the working place. We mean more people in our workforce being able to read this year than there were people in our workforce able to read last year. We mean having done more admirable things this year than we managed to do last year ...[that is] real growth on every axis: on the human capability axis, on the organisational axis, on the community axis, on the national economy axis".

9 Originally trained as a physicist and thus less constrained by tradition, Gilbertson brought a new kind of objectivity to Genmin and, most importantly, a culture of excellence. As he remarked: "We wanted the best people and we wanted to be the best". With his hands-on, tough management style and attention to detail, he moved through the various Genmin business units like a tornado, turning first the ailing Trans-Natal around, followed by Gengold, Samancor and Impala. In the process, the top management team of Genmin underwent complete restructuring, with new, younger people (often sourced from the outside) replacing the old stalwarts. Gilbertson explains: "We deliberately chose people who could stand internationally against their competitors".

Shareholder value addition

During the period 1986–1990, total return to Gencor shareholders exceeded 35 per cent per annum, compared to 25 per cent to investors on the Johannesburg Stock Exchange mining index. In absolute terms, the Gencor share price doubled between 1986 and 1990, and its discount to NAV, although still high, was reduced to 22 per cent (from 44 per cent in 1985). Similarly, earnings per share and net assets doubled during this period, while income before tax increased by 177 per cent and the firm's market capitalisation by 117 per cent (see Exhibits 8 and 9).

Under Keys, Gencor had undergone a remarkable transformation. "At present mining and industrial group Gencor is one of SA's investment darlings...The group's metamorphosis must rate as one of the most spectacular in SA corporate history" (*Finance Week*, 27 April 1989).

SBL Centre for Applied Research

Working paper

Sexual harassment *

Riansa van der Westhuizen

Harassment is equated in South African law with unfair discrimination. This paper investigates the various statutory prescriptions on what constitutes harassment and how the labour market should deal with it. Examples from international and local case law are used to define harassment in the South African context with reference to economic market discrimination. The statutory requirements are taken from the South African Constitution (Act no. 108 of 1996) and the Employment Equity Act (Act no. 55 of 1998) together with the Code of Good Practice on the Handling of Cases of Sexual Harassment, Schedule to the Labour Relations Act (Act no. 66 of 1995). Sexual harassment is investigated in depth with reference to South African cases and comparison with international practice. The author discusses the contemporary treatment of the law of evidence in similar cases as well as the degree of fault required. The reader's attention is drawn especially to the burden of proof principles that the courts apply in cases of harassment and the inherent dangers that employers face as a result thereof. Employers could incur liability without any knowledge or involvement on their part. It is concluded that employers should take proactive measures to educate the workforce on issues of sexual harassment and follow the procedure and guidelines specified in the Code of Good Practice on the Handling of Cases of Sexual Harassment.

Introduction

The attorney representing Michael Douglas in the film *Disclosure* made the following statement in the case in which Demi Moore was accused of sexual harassment: "Harassment is not about sex; it is about power". Even though Hollywood has done its bit to highlight the implications of this silent crime, the interpretation of what constitutes harassment is currently still unclear to many employers and employees. One thing, however, stood out in the study undertaken on the subject – in most cases, harassment takes place in situations in which there is an imbalance of power between the perpetrator and the victim and where A (the powerholder) thus has the ability to alter circumstances impacting on B. The manager–subordinate relationship best characterises the unequal power relationship in which position power gives the supervisor the capacity to reward and coerce. Co-workers have power by threatening to withhold information needed to achieve goals, while subordinates can attempt to gain some power by devaluing superiors through highlighting stereotypes such as 'helplessness', for example, where females are concerned.

The obligation of an employer to deal with harassment arises out of common law, statutes and the residual unfair labour practice. The Employment Equity Act prohibits any unfair act or omission that arises between employer and employee involving unfair discrimination or unfair conduct by the employer relating to promotion, demotion or training. Failure to take reasonable steps to limit or address harassment would thus constitute an unfair labour practice. Any form of harassment, including sexual harassment, is by definition regarded as unfair discrimination in terms of the Employment Equity Act. In this contribution, the terms 'harassment' and 'sexual harassment' are used interchangeably, although, strictly speaking, 'sexual harassment' is a sub-category of the generic term 'harassment'.

Defining sexual harassment

The general guidelines concerning sexual harassment were formalised with the recent publication of the Code of Good Practice on the Handling of Cases of Sexual Harassment in the *Government Gazette*. The code defines sexual harassment as "unwanted conduct of a sexual nature that must be distinguished from behaviour that is welcome and mutual". The code clarifies that sexual attention becomes harassment if:

- The behaviour is persisted in (although a single incident of harassment can constitute sexual harassment)

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- The recipient has made it clear that the behaviour is considered offensive
- The perpetrator should have known that the behaviour is regarded as unacceptable.

The Code of Good Practice distinguishes between various forms of sexual harassment and provides an open list of examples, which is given here for the purposes of clarification:

- Physical conduct of a sexual nature includes all unwanted physical contact, ranging from touching to sexual assault and rape, and includes a strip search by or in the presence of the opposite sex.
- Verbal forms of sexual harassment include unwelcome innuendoes, suggestions and hints, sexual advances, comments with sexual undertones, sex-related jokes or insults, unwelcome graphic comments about a person's body made in their presence or to them, unwelcome and inappropriate enquiries about a person's sex life and unwelcome whistling at a person or group of persons.
- Non-verbal forms of sexual harassment include unwelcome gestures, indecent exposure and the unwelcome display of sexually explicit pictures and objects.
- *Quid pro quo* harassment occurs where an owner, employer, supervisor, member of management or co-employee undertakes, or attempts to influence, or influences the process of employment, promotion, training, discipline, dismissal, salary increments or other benefits of an employee in exchange for sexual favours. Sexual favouritism exists where a person who is in a position of authority rewards only those who respond to his or her sexual advances while other deserving employees who do not submit to sexual advances are denied promotions, merit ratings or salary increases.

It is important that employers exercise extreme caution when confronted by allegations of sexual harassment, as the Code specifies the procedures and guidelines that should be followed.

Overview of the theory

The employer has two common law obligations relating to harassment. The employer is obliged to:

- Develop a climate in the workplace that is free from hostility and conducive to work effort
- Show respect towards employees.

The employer who fails in these obligations is exposed to claims of unfair discrimination, as well as claims of constructive dismissals in cases where an employee resigns to escape harassment of which the employer was aware (*Labour Legislation Service* 1998: 2, 8, 9).

Two statutes in South African law lay down the framework within which harassment would be dealt with in local courts. The provisions of both statutes are dealt with briefly below. It should be noted that it is the Employment Equity Act that specifically states that harassment constitutes unfair discrimination (s. 6 (3)).

Section 9 of the South African Constitution states that:

> No person shall be unfairly discriminated against, directly or indirectly and without derogating from the generality of this provision on one or more of the following grounds in particular: race, gender, sex, ethnic or social origin, colour, sexual orientation, age, disability, religion, conscience, belief, culture or language ...

Section 1 of the Employment Equity Act states as its main purpose the achievement of equality in the workplace by promoting equal opportunity and fair treatment in employment through the elimination of unfair discrimination.

The Employment Equity Act added the following grounds for discrimination to those specified in the Constitution: pregnancy, marital status and family responsibility. Section 7 further prohibits testing an employee for any medical conditions unless legislation permits or requires the testing or it is justifiable to do so in the light of medical facts, employment conditions, social policy, the fair distribution of employee benefits or the inherent requirement of the job. Testing of an employee to determine the employee's HIV status is prohibited unless such testing is determined to be justifiable by the Labour Court (s. 50 (4)).

The use of pre-employment psychscreen testing, consisting of questions that invade the job applicant's private thoughts and feelings to establish such matters as their religion or sexual preference, is also dealt with. Even though the job applicant may consent to testing, the consent would normally be obtained under less than ideal conditions, which constitutes a common element in harassment cases (French 1995). The Act specifically prohibits the use of psychological tests unless the test or assessment being used:

- Has been scientifically shown to be valid and reliable
- Can be applied to all employees
- Is not biased against any employee or group.

Employers should give special consideration to sanitising the working environment of discriminatory language, advertising material and other types of behaviour that might offend employees to such an extent that harassment of persons of certain gender or sexual orientation takes place. This is an obligation in American law and would probably, in the context of freedom of speech, be adapted in South African courts of law (Andrew Levy & Associates 1994).

Women often face hostile working-environment harassment where they are subjected to pornographic advertising material in a traditionally male environment. In case law, this type of harassment is referred to as sexual harassment (*Robinson* v. *Jacksonville Shipyard*).

With regard to the physical harassment of gay people, it is the opinion of the author that harassment of such a nature would be classified as sexual harassment and that the same principles would therefore apply.

Labour market discrimination exists if individuals who have identical productive characteristics are treated differently because of the demographic groups to which they belong (Ehrenberg & Smith 1994). This definition is rooted in the concept that wages are a function of productive characteristics and of the price each characteristic brings into the labour market. Discrimination would take place if this function were brought into disequilibrium because of characteristics other than economic worth. Such characteristics are given in legislation as grounds for discrimination.

The notion to regard harassment as a form of unfair discrimination is internationally accepted. In the USA, the Supreme Court interpreted the wording of the civil rights charter to prohibit sexual harassment (*Merito Savings Bank* v. *Vinson* 1986). Another example from American case law emphasises the fact that sexual harassment is essentially an act

of discrimination (*Robinson* v. *Jacksonville Shipyard*). In this case, a female welder sued her employer for sexual harassment on the grounds that she was repeatedly subjected to pornography in the workplace (Andrew Levy & Associates 1994).

Harassment can also take place without discrimination being the underlying reason. An employee could be harassed simply because of a personal dislike or unreasonableness on the part of the employer. Harassment would take place under these circumstances if the employer's expectations were constantly unreasonable, thereby making it unpleasant or impossible for the employee to function properly. The employee, because of the power imbalance, is usually too scared to say anything and may resign as a result thereof. Such an employee would be able to claim for constructive dismissal and to seek compensation in the Labour Court.

The provisions of both Acts, together with the common law principles discussed, are applied in the next section.

Application of the theory: South African and international case law

The following definition of sexual harassment was given in the case of *J.* v. *M.* (1989):

> In the employment relationship, sexual harassment has a slightly different connotation and is, very broadly, unwanted sexual attention in the employment environment ... In its wider view, it is, however, any unwanted sexual behaviour or comment which has a negative effect on the recipient ... and ranges from innuendo, inappropriate gestures, suggestion, hints or fondling without consent or by force, to its worst form, namely, rape ...

In *Pick 'n Pay Stores Ltd & Individual* (1994), the following elements were identified as falling under the ambit of sexual harassment:

- Unwanted conduct signifying a subjective test in the eyes of the person being harassed
- Conduct of a sexual nature (or where the employee's gender is treated as more important than his or her work or status as employee)
- Such conduct can be physical, verbal or non-verbal
- Such conduct affects the dignity of the harassed person at work or creates a negative or hostile environment for that person
- Implicit in such conduct is an element of coercion or abuse of power by the harasser.

The above conduct would be relevant in the working environment when:

- Submission to sexual favours becomes a condition for employment
- Submission to or rejection of such favours affects decisions of employment, for example, promotion, demotion or salary increases
- The conduct affects the individual's ability to perform or creates an offensive environment.

What is of special interest in the above case is that fault on the part of the harasser is not included as one of the elements, regardless of the fact that it is a general principle in South African law that there should be no liability without fault.

The measures of fault in South African law

The measure of fault in South African law could be a subjective one of 'malicious intent' or an objective 'reasonable man' test for negligence.

Malicious intent *(dolus eventualis)*

Dolus eventualis as a measure of fault required in South African criminal law is defined as follows in case law:

> It should not matter in respect of *dolus eventualis* whether the agent foresees subjectively the possibility as strong or faint, as probable or improbable ... provided his state of mind in regard to that possibility is consenting, reconciling or taking into the bargain. However, the likelihood in the eyes of the agent of the possibility eventuating must obviously have a bearing on the question whether he did consent to that possibility (*S.* v. *Ngubane* 1985).

It is sufficient if the accused subjectively foresaw the possibility of his act causing death and was reckless of such a result (*S.* v. *Sigwahla* 1967).

If *dolus eventualis* is thus required as the degree of fault that should be present in cases of sexual harassment, it would have to be applied as a subjective test through the eyes of the perpetrator. Did he foresee that his actions would constitute sexual harassment and did he consent to such a result? From the positive law on sexual harassment, it appears, however, that the courts use the subjective test but not through the eyes of the perpetrator. The question appears to be whether the victim perceived the actions to be harassment (*Pick 'n Pay Stores Ltd & Individual* 1994). The writer therefore investigated negligence as a measure of fault, as it is a general principle in South African law that there can be no liability without some degree of fault.

Negligence (the 'reasonable man' test)

The test for negligence in South African criminal law consists of three elements:

- Whether the reasonable man in the same circumstances would have foreseen the possibility of the given outcome
- Whether the reasonable man would have applied caution in similar circumstances
- Whether the reasonable man would have acted differently from the accused in a similar set of circumstances.

These elements of what constitutes the 'reasonable man' have been elaborated on in various cases, a few of which are quoted for the purposes of clarification:

> One does not expect of a reasonable man any extremes such as Solomonic wisdom, prophetic foresight, chameleonic caution, headlong haste, nervous timidity or the trained reflexes of a racing driver ... In short, a *diligens paterfamilias* [reasonable man] treads life's pathway with moderation and prudent common sense (*S.* v. *Burger* 1975).

If this objective test of negligence is applied in cases of sexual harassment, the court would be able to use the reasonable man as a benchmark as to whether the perpetrator objectively should have foreseen that his actions would be regarded as sexual harassment by the complainant and whether he went ahead without caution regardless of whether his action might be perceived as harassment.

It is therefore suggested that negligence measured against the reasonable man test should be the measure of fault in such cases. The actions of the alleged perpetrator could then be measured by the court against the reasonable man test, as opposed to establishing intent, which would be very difficult to prove since it is a subjective test in which the perpetrator needed to consent to the outcome. The 'perception of the victim test' could be unfair as some victims are overly sensitive and leave the alleged perpetrator without any real defence.

The US courts went further in *Rodney Jackson* v. *S.*, followed by the South African courts in *S.* v. *J.* (1998), and rejected the cautionary rule in respect of sexual harassment. This rule relies on the notion that women are intrinsically inclined to lie about incidents of sexual harassment and rape and that their evidence should therefore be treated with caution. The rule required that the court should exercise caution when relying on the uncorroborated evidence of the complainant unless there was some other factor reducing the risk of a wrong conviction, because the bringing of a charge may have been motivated by spite, sexual frustration or other unpredictable emotional causes. The constitutional court unsurprisingly rejected this rule in *S.* v. *J.* The court ruled that this rule was based on irrational and outdated notions and that there were no empirical data to show that complainants in sexual cases (mostly women) were more untruthful than complainants in other cases.

What is evident in cases of sexual harassment is that the courts now require no fault as a condition for liability, and the cautionary rule in respect of women in sexual cases has been demolished. This point of view of the courts, together with the subjective measure of how the complainant perceived the act, may operate in an extremely harsh manner against people accused of sexual harassment. It would place them under an almost impossible obligation to be careful when engaging in conduct that could be perceived as unwelcome and offensive in the eyes of the recipient and they would suffer the consequences if they failed in this obligation.

The intrinsic danger in applying these standards is *mala fide* accusation, which could destroy an innocent victim of such *mala fides*. With the principles that the court now applies, it is quite possible for a woman under any given set of circumstances to allege sexual harassment and to get a conviction whether she is very sensitive or not. Special note should therefore be taken of the manner in which the parties involved act after the fact, even though such observations would still be based on opinion, which is subjective and poses the inherent danger of being biased towards victims that maintain their composure better than more timid ones.

Another possible solution could be to treat harassment as similar to the delictual liability in so-called 'egg skull' cases. Egg skull cases arise where the plaintiff suffers more serious injury as a result of the perpetrator's wrongdoing because of some or other physical or psychological weakness. The general principle that is applied in such cases is that perpetrators must take their victims as they find them. Perpetrators thus cannot defend themselves and escape liability by claiming that the victim possessed unexpected attributes which could not be foreseen. The applicability of this principle lies in the fact that victims' perceptions of what constitutes harassment could differ according to their own personal life experiences. Perpetrators must therefore take their victims as they find them and not complain after the event that their victim was of timid or paranoid nature. It is important, however, in the law of delict that even in 'thin skull' cases, some form of fault (either *dolus* or *culpa*) is still required (although the foreseeability of the degree of harm suffered by the victim is not taken into account), whereas the trend in sexual harassment cases seems to be no-fault liability.

Measure of fault in international law on sexual harassment

Harris v. *Forklift Systems Inc.* (1993), a leading American case on hostile working-environment harassment, illustrates the broad approach to sexual harassment. Not only did the court prohibit discrimination and emphasise the importance of equality, but it also stated the intention that the employer should not incur liability solely on the basis of the complainant's subjective feelings and perceptions. In this case, the court required that the conduct should not only be offensive to the plaintiff but also that it should have been severe and pervasive enough to create an objectively hostile environment.

The American Guidelines on Discrimination because of Sex contains the following principles, which may find application in the South African context (Lindemann & Grosman 1995):

- In determining whether alleged conduct constitutes sexual harassment, the commission will look at the record as a whole and the totality of the circumstances, such as the nature of the sexual advances and the context in which the alleged incident occurred. The legality of a particular action will be determined from the facts on a case-by-case basis.
- With respect to conduct between fellow employees, an employer is responsible for acts of sexual harassment in the workplace if the employer or its agents knows or should have known of the conduct and fails to take immediate and precautionary measures.
- The guidelines thus provide a standard in sexual harassment where liability is measured objectively when deciding whether there was a duty to know that the conduct constitutes sexual harassment.

In *Bundy* v. *Jackson* (1975), the court dealt with the burden of proof in *quid pro quo* sexual harassment cases as follows:

- The employee must establish a *prima facie* case by proving that he or she was subjected to sexual harassment, and that he or she was denied a benefit for which he or she was eligible and of which he or she had a reasonable expectation.
- The burden then shifts to the employer to prove by clear and convincing evidence that its decision was based on legitimate non-discriminatory grounds.
- If the employer succeeds in meeting that stringent burden, the employee may then attempt to prove that the reasons of the employer are pretextual.

In *McDonnell Douglas Corporation* v. *Green*, the court stated that the elements outlined in the Bundy case would vary in order and allocation according to the facts of each case. This is because the three-stage process simply sets forth the proper method of analysis after the evidence is before the court, as the evidence relating to the *prima facie* case and the defendant's articulate reasons for non-discrimination are frequently presented to the court in no specific order during the course of the hearing.

In Europe, the emphasis when dealing with the burden of proof in sexual harassment cases focuses on the conduct, as experienced by the plaintiff. The European courts thus use a subjective test

through the eyes of the plaintiff. The European code of practice on measures to combat sexual harassment states that:

> The essential characteristics of sexual harassment are that it is unwanted by the recipient and that it is for each individual to determine what behaviour is acceptable and what is regarded as offensive. Sexual attention becomes sexual harassment if it is persisted in once it has been made clear that it is regarded by the recipient as offensive, although one incident of harassment may constitute sexual harassment if it is serious enough. It is the unwanted nature of the conduct which distinguishes sexual harassment from mutual friendly behaviour.

European writers on the subject suggest that the test that should apply should be one of negligence, where the perpetrator knew, or should have known, that his or her conduct was offensive to the victim (Andrew Levy & Associates 1994).

In *Harmony Furnishers (Pty) Ltd* v. *Prinsloo* (1993) the Labour Appeal Court upheld the Industrial Court's decision to award damages for *injuria*. The court found that the employee was insulted, humiliated and injured in his pride and suffered hardship as a result of his detention, which made him entitled to damages in common law. The court extended this compensation to be included where the conduct complained of constituted an unfair labour practice. The court went further and found that the employer should be held liable for the acts of its employees, even in the absence of any fault on its part, and that a lesser form of fault than is usually required is sufficient to incur liability for *injuria*.

It is therefore concluded that the test that would apply in cases of this nature would be one of subjectivity, which leaves the employer with the responsibility rather to take precautions against allegations of this nature than to fight charges in court.

Obligations of employers

The Code of Good Practice on the handling of sexual harassment suggests that employers should implement guiding principles to create and maintain a working environment in which the dignity of employees is respected. A climate should be created and maintained in which victims of sexual harassment will not feel that their grievances are ignored or trivialised. The applicable guiding principles are:

- Employers and employees are required to refrain from committing acts of sexual harassment.
- Employers should attempt to ensure that the employer or employees do not subject persons such as customers, suppliers, job applicants and others who have dealings with them to sexual harassment.
- Employers are required to take appropriate action in accordance with the code when instances of sexual harassment in the workplace are brought to their attention.
- Employers are advised to issue a policy statement concerning sexual harassment that is effectively communicated to all employees. The policy should state unconditionally that sexual harassment will be dealt with seriously, expeditiously, sensitively and confidentially without victims having to fear retaliation or victimisation (Code of Good Practice on the Handling of Cases of Sexual Harassment).

Conclusion

The Code of Good Practice and the case law discussed in this paper not only place a huge burden on employers to educate and to take responsibility for the misconduct of employees in matters of sexual harassment, but also pave the way to enabling victims to take the perpetrators to court. Studies in the USA claim that more than 60% of cases of sexual harassment go unreported (*People Dynamics* 1998), and there is no evidence to suggest that matters would be any better in South Africa. In fact, one can safely assume that more cases of sexual harassment go unreported in South Africa because of cultural differences and the submissiveness that is expected of women in some cultures. This might be one of the reasons for the rejection of the cautionary rule by the courts and the general acceptance of a subjective measure of fault, namely, as seen through the eyes of the victim.

However, it is of some concern that that no fault of any kind is required, since this may lead to unfairness towards the alleged perpetrator. It is suggested that the reasonable man test be applied. This measure of fault would at least provide some form of protection against *mala fide* accusations, in the sense that the court would be able to establish objectively whether the perpetrator's action would constitute harassment to the reasonable person. Handling cases in this way would not leave the perpetrator defenceless against a woman whose sensitivity on sexual matters deviates considerably from the norm in society. In delictual cases, the objective test has proved itself flexible enough to be adapted to changing circumstances. The question would be whether the reasonable man, living in present day South Africa, would have acted in the way in which the alleged perpetrator did. The alternative is that employees tread life in the office with the caution required by the principle of so-called 'egg skull' cases and refrain from all types of verbal and physical conduct that have any connotations to issues other than strictly business.

There is a huge burden on employers to ensure that they provide employees with adequate and clear guidelines to prevent harassment and discrimination in every foreseeable form. It is every employer's obligation to take proactive steps in this regard, and to create an environment where the dignity of employees is protected. Basically, an employer may be held vicariously liable for the harassing conduct of its employees, even if there is no fault on the part of the employer. Furthermore, any employer that does not discharge its duties to inform and train its workforce in respect of sexual harassment, as required by the Code of Good Practice, will find it very difficult to escape liability.

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Doctoral theses completed in 1999

Job-sharing in the South African labour market: Its potential, feasibility and impact on unemployment, productivity and quality of work life

H.C. Ngambi

A thesis submitted for the DBL degree to the University of South Africa, Pretoria

Supervisor: Professor P.J. Rall

Abstract

The primary aim of this survey is to:

- Explore whether there is the potential for job-sharing in the South African labour market
- Describe the characteristics of potential job-sharers
- Explain why job-sharing would be an appropriate and feasible solution to unemployment, massive retrenchments, poor quality of work life (QWL) and low worker productivity.

Job-sharing has been used in many developed countries to address a variety of problems at the individual, organisational and national levels. These include allowing workers to have a balance between their work and non-work life, increasing worker productivity and QWL and expanding employment opportunities.

The literature survey confirms that these problems are prevalent in Africa as a whole and in South Africa specifically. The survey results reveal that the environment in South is Africa is conducive to job-sharing and that slightly over one-third of workers and organisations and two-thirds of job-seekers are willing to job-share. The results of this study also reveal that QWL, productivity and unemployment influence willingness to job-share, and that approximately 80% of employees would rather job-share, work-share or opt for some alternative to retrenchments. Thus, by implication, job-sharing would address the problems relating to poor QWL, low worker productivity, fewer employment opportunities, as well as massive retrenchments in South Africa.

The study also explored possible reasons and obstacles to job-sharing and found that whether these are perceived as significantly important or not depends on whether one is an employer, employee or job-seeker. Job-seekers feel more strongly than others that there is no insurmountable obstacle preventing the introduction of job-sharing by means of which to avert their unemployed status. There are also differences in willingness to job-share among subgroups with regard to the industry, area of work, position held in the organisation and availability of job-sharing positions in the organisation. This thesis reports that there is the potential for job-sharing in the South African labour market to address a variety of problems pertaining to workers, organisations, job-seekers and, thus, the nation at large.

Political and economic events, 1988–1998: Their impact on the specifications of the nonlinear, multifactor asset pricing model described by the arbitrage pricing theory for the financial and industrial sector of the Johannesburg Stock Exchange

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A thesis submitted for the DBL degree to the University of South Africa, Pretoria

Supervisors: Professors M.J. Maritz and G.S. du Toit

Abstract

The impact of political and economic events on the asset pricing model described by the arbitrage pricing theory (APTM) was examined in order to establish if such events had caused any changes in its specification. It was concluded that the APTM is not stationary and that it must be continuously tested before it can be used, as political and economic events can change its specification. It was also found that political events have a more direct effect on the specification of the APTM, in that their effect is more immediate than economic events, which influence the APTM by first influencing the economic environment in which it operates.

The conventional approach – which evaluates important political and economic events, case by case, to determine whether they affect the linear factor model (LFM), and subsequently the APTM – could not be used since no correlation was found between the pricing of a risk factor in the LFM and its subsequent pricing in the APTM. A new approach was then followed, in

which a correlation with a political or economic event was sought whenever a change was detected in the specification of the APTM. This was achieved by first finding the best subset LFM, chosen for producing the highest adjusted R^2, month by month, over 87 periods from 20 October 1991 to 21 June 1998, using a combination of nine pre-specified risk factors (five of which were proxies for economic events and one for political events). Multivariate analysis techniques were then used to establish which risk factors were priced most often during the three equal subperiods into which the 87 periods were broken up.

Using this methodology, the researcher was able to conclude that political events changed the specification of the APTM in late 1991. After the national elections in April 1994, it was found that the acceptance of South Africa into the world economic community again changed the specification of the APTM, and the two most important factors were proxies for economic events.

The evolution of corporate advantage: A longitudinal study of the antecedents, process and consequences of Gencor's unbundling, 1986–1996

M. Anton Ferreira

A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy (Business Administration) to IESE, University of Navarra, Barcelona

Thesis director: Professor José Luis Alvarez

Abstract

Through a longitudinal analysis of the antecedents, process and consequences of the voluntary unbundling of a large, diversified South African corporation (covering the period 1986–1996), this thesis sets out to develop a partial theory of the evolution of corporate advantage, defined in terms of the value that the corporate centre adds to its operating units and, in turn, to its shareholders, in widely diversified conglomerate firms and within the context of the current corporate refocusing wave. The underlying premise, which comprises the research questions, is that successful voluntary corporate unbundling unfolds as a slow, evolutionary process of creating and sustaining corporate advantage.

An extensive literature survey shows that both substantive issues of interest to the thesis, corporate-centre value addition and corporate refocusing, require in-depth case-based research, in particular with regard to the following gaps in the literature: the reasons for voluntary corporate refocusing; the conditions under which this can be done effectively; how such refocusing is accomplished and the accompanying internal organisational and decision-making dynamics; and the *ex post* organisational and performance consequences of corporate refocusing. In addition, a clear need is identified to explore these gaps from a corporate-centre, value-addition point of view.

The selection of the evolution of Gencor as the subject for the thesis satisfies the conditions for single case study research and allows for the integration of substantive, processual and contextual (both horizontal and vertical) elements. Of special interest is the broader context within which Gencor's transformation took place – the democratisation of South Africa and its acceptance back into the international fold.

The thesis contributes to the fields of corporate-centre value addition and corporate refocusing in the following ways: firstly, the development of a coherent evolutionary model to explain the antecedents, process and consequences of corporate unbundling from the point of view of corporate centre value addition; secondly, the explicit identification of the role and function of, and the value added by, the corporate centre throughout the evolutionary process, and the resulting benefits for the underlying business units; thirdly, enhanced understanding of the complexities surrounding a corporate unbundling process and the internal dynamics of such deliberate strategic change at the corporate level; fourthly, the identification of the conditions under which a conglomerate can unbundle effectively and the factors that drive such a decision in a firm with strong governance; and, finally, understanding the *ex post* performance consequences of corporate unbundling and the time it takes for unbundling benefits to materialise.

In addition, the research sheds some light on the nature of strategy-making at the corporate level and the dynamics between corporate strategy and structure. In particular, it advances the notion of strategic opportunism, linked to turbulent external contexts, and makes a preliminary attempt at identifying its underlying sources. The research suggests that the response of an organisation to external discontinuities is a function of the 'corporate mind' prior to the discontinuity, which prepares and supports managers to operate under conditions of great uncertainty and ambiguity and allows them to behave opportunistically.

Events and announcements

Conference report

Fraud and the African Renaissance: A pan-African multidisciplinary encounter

A conference on 'Understanding and Fighting Fraud on the African Continent'was held at the Uganda Martyrs University in Nkozi from 8–10 April 1999. This Pan-African, multidisciplinary gathering was organised by the Rand Afrikaans University of South Africa and the Uganda Martyrs University and attended by 98 high-profile participants from 14 African countries.

The organisers of the conference were Professors Deon Rossouw and Coley Lamprecht and Ms Belinda Barkhuysen from the Rand Afrikaans University, as well as Professors Michel Lejeune and Deidre Carabine from the Uganda Martyrs University.

Pre-conference fraud awareness campaign

An extensive awareness campaign was conducted prior to the conference, in terms of which three newsletters were sent to 2 500 individuals and organisations in sub-Saharan Africa, covering a number of topics involving fraud. In addition, three press releases were sent to all newspaper editors in sub-Saharan Africa.

Conference sponsors

The conference was sponsored by the following organisations and institutions: the Rand Afrikaans University, the Uganda Martyr's University, Kagiso Trust, the Konrad Adenauer Foundation, the Institute for Democracy and Development, and DeLoitte and Touche.

Conference programme

The conference programme was divided into three sections:

- Understanding fraud
- Assessing the extent of fraud on the African continent
- Fighting fraud.

The opening address was delivered by the Honourable Miria R.K. Matembe, Minister for Ethics and Integrity of Uganda. She concluded her powerful speech with the following words: "We Africans will take our destiny in our own hands. An African Renaissance is not just words, but a needed reality. While we call for assistance from abroad, the main task lies with us. We have to redress the wrongs of the past and find solutions to our problems ... we have to be partners on the world scene". Her dynamic speech indeed reflected the commitment of all participants at the conference to address the problems caused by fraud on the African continent.

During the conference, 18 selected papers were read by experts on topics that included:

- Defining and understanding fraud
- Historical roots of fraud in Africa
- The role of the African media in the fight against fraud
- The role of the educational sector in the fight against fraud
- The role of the Church in the fight against fraud.

Mr Mark Pinington of DeLoitte and Touche in South Africa conducted an extensive survey on the extent of fraud in 17 African countries and reported the findings of the survey at the conference. His conclusions confirmed the alarming extent of fraud in all countries investigated and the consequent need for the conference.

A special session was also devoted to current efforts to combat fraud on the African continent. The fraud investigation units of Uganda, Ghana and South Africa were brought together and provided the conference respectively with East, West and Southern African perspectives on current efforts. This session also facilitated closer co-operation between the fraud detection units of the three countries.

On the last day of the conference, participants were asked to announce initiatives they volunteered to take in their own countries. The following initiatives were announced.

Education and research

Mrs Ellison Alberts of the Vaal Triangle Technikon in South Africa undertook to develop a curriculum for Business Ethics to be included in the Human Resource Management curriculum of all South African technikons. Professor Kanyandago of Uganda Martyrs University, who is director of the African Research and Documentation Centre, announced that new entries would be opened at his centre for the concepts of 'fraud' and 'corruption'. Professor Kanyandago also committed himself to research the role of traditional African values in the fight against fraud. Professor Ben Wambari and Dr Christine Gichure of Kenyatta University in Kenya announced that they would be commencing with new courses in Business Ethics and Professional Ethics in September 1999. Professor Phillip Iya of Fort Hare University in South Africa undertook to revise the curriculum at his university to include ethical values, professional ethics and social responsibility. Professor Iya further vowed to introduce fraud education through legal clinics and street law programmes.

Institutional

Professor Michel Lejeune, vice-chancellor of the Uganda Martyrs University, announced that within two months, the university would launch the Centre for the Detection, Study and Eradication of Fraud (CEDESEF). This centre would draw on academic expertise to assist the Ugandan government in its fight against fraud. Mrs Florence Oloo, director of the Centre of Professional Ethics in

Nairobi, announced that as a follow-up to the conference, the centre would present one-day seminars on Business Ethics to students and Business Ethics workshops to managers and would develop tailor-made courses for organisations.

Professor Ettienne de Villiers and Ms Mollie Painter-Morland of the Centre for Occupational Ethics at the University of Pretoria in South Africa announced that they would soon host a conference on the moral and legal challenges of the information era. They would also present an ethics workshop for managers. Furthermore, they intended to organise and host a summit on the moral reconstruction of the South African workplace.

Corporate

Mr Mark Pinington, Head of the Forensic Division of Deloitte and Touche in South Africa, who presented the outcome of a survey on fraud in Africa that he had conducted prior to the conference, vowed to do a follow-up survey and to maintain a database on fraud in Africa. Mr Efford Banda of the National Bank of Malawi announced that the Bank had just completed a comprehensive fraud policy and that he would be personally responsible for its implementation.

Mr Hein Jordaan and Mrs Christine Botha of Lynx Selection in South Africa committed themselves to further refine their integrity-assessment instruments through research. They would also promote the use of integrity assessment in South African companies as a tool to detect and prevent fraud.

Civil society

Eng Serafina Wani Swaka of Sudan, a member of MIGA (a Catholic group of professionals) announced the intention to campaign against fraud through a series of workshops and conferences. MIGA would also encourage the Church apostolate to speak out publicly on fraud. Advocate Nceba Gomomo of the Institute for Security Studies in South Africa announced that he would publish a paper entitled 'Corruption and the African Renaissance'. He would also launch a Youth Anti-corruption Forum on 16 June (Youth Day) to foster the prevention of fraud through civic education and the cultivation of the public awareness of fraud.

One of the most important initiatives announced was the formation of BEN-Africa – the Business Ethics Network of Africa.

BEN-Africa – the Business Ethics Network of Africa

Objectives

The Business Ethics Network of Africa was established with the following objectives:

- To strengthen the commitment of the private and public sectors to ethical business practices
- To stimulate research and teaching in the field of Business Ethics
- To stimulate interaction between academia and the private and public sectors with regard to Business Ethics.

Functions

BEN-Africa will take initiatives that will facilitate its objectives, such as:

- Encouraging and co-ordinating efforts by the public and private sectors to cultivate moral business practices
- Facilitating interaction between academics in the field of Business Ethics
- Editing and publishing a journal on Business Ethics in Africa
- Affiliating to the International Society for Business, Economics and Ethics
- Organising and co-ordinating conferences on Business Ethics
- Providing advice or course material to organisations and academics wishing to teach or train in the field of Business Ethics
- Compiling and maintaining a database of people with an active involvement in the field of Business Ethics.

Founding Steering Committee

The following Founding Steering Committee was elected for BEN-Africa:

President and vice-president (South Africa):
Professor Deon Rossouw (Rand Afrikaans University, South Africa)

Vice-president (West Africa):
Bishop Charles Palmer-Buckle (Bishop of Koforidua, Ghana)

Vice-president (East Africa):
Professor Ben Wambari (Kenyatta University, Kenya)

Vice-president (Central Africa):
Eng Serafino Wani Swaka (MAGI, Sudan)

Each vice-president will set up regional structures in their respective regions before the end of September 1999, preferably comprising members representing each of the following stakeholders:

- Public sector
- Private sector
- Media
- Academia
- Organised religion
- Institutes for business and professional ethics
- Education and training.

They will also appoint a national chairperson for each country in their respective regions. A founding convention of BEN-Africa will be organised before the end of December 2000.

Conclusion

The conference was rated 'dynamic and highly successful' for some of the following reasons:

- The conference was organised by Africans, for Africans, in Africa.
- The multidisciplinary approach followed during the conference afforded participants from very diverse backgrounds an opportunity to network with and learn from one another.
- The conference took place at the Martyrs University and not at an impersonal five-star venue.
- The rural atmosphere on campus created an island-like ambience within which participants felt free to communicate.

The conference was not concluded in the customary 'talk-show' mode, with the usual conference resolutions, but culminated in the announcement of pragmatic initiatives, among which was the initiative to establish BEN-Africa.

FORTHCOMING CONFERENCE

Liberating the Organisation's Soul: Creating a Competitive Edge in the New Millennium

A conference is to be held from 25–26 October 1999 at Spier Estate, Stellenbosch, on perspectives on organisational development. The topics to be covered include:

- The impact of new technology
- Reengineering and innovation
- Globalisation
- Organisational structure and culture
- Management and individual development
- Managing diversity
- The learning organisation
- Action research
- Ethics
- Employment equity.

The scheduled speakers include: Messrs Clem Sunter, Saki Macozoma, Ivan Lätti, Raymond Ackerman, Barry Venter, Conrad Brand and Danie Maritz; Drs Kobus Neethling, Franklin Sonn, Steve Bluen, David Molapo, Elty Links, Linda Glasser and Willem Barnard; Professors Nicky Morgan, Lovemore Mbigi and Laurie Mullins; Ms Izanne Beukes and Ms Thelma Mgcobo; and the Reverend Vukile Mehana.

For more information, contact the conference organiser, Riaan Malherbe. Tel. (011) 726-5161 or (011) 726-1819. E-mail riaanm@stws.adcorp.co.za.