

**CHALLENGES IN STARTING AN ENGINEERING CONSULTING /
TEST AND CERTIFICATION FACILITY IN THE EXPLOSION
PREVENTION FIELD IN SOUTH AFRICA**

by

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ABSTRACT

Three test and certification bodies in the explosion prevention field currently exist in South Africa. One of these bodies was started in 2003 and faced a significant number of challenges in competition with the two other well-established bodies / institutions.

This dissertation covers some of the internal and external challenges especially with respect to strategic marketing in a small and specialized industrial market, but also in the global market. The dissertation is based on the basic requirements, analysis and implementation of a marketing strategy and marketing plan, covering both the theoretical aspects and the specific challenges as experienced by the body in the case study.

Market research, market segmentation, industry analysis, competitive analysis, aspects of industrial marketing and SWOT Analysis are topics included in the development of the strategic and marketing plan for the business in the case study.

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ABBREVIATIONS

Ex	=	Explosion prevention
SAFA	=	South African Flameproof Association
DME	=	Department of Minerals and Energy
DOL	=	Department of labour
MIE	=	Master installation electrician

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INTRODUCTION

Explosion Prevention (Ex) applies to all equipment used in hazardous locations. Hazardous locations refer to locations being hazardous as a result of the possible ignition of flammable substances in air, eg. vapours, gases, dusts and fibers. Explosives are not considered in this dissertation. Many protection techniques for explosion prevention exist, including limitation of energy in electronic circuits (e.g. transmitters), containment of explosions in flameproof boxes (e.g. switchgear in mines), specialized construction to prevent arcs and sparks and hot surfaces (e.g. luminaires), etc.

The Explosion Prevention Industry (Explosion Protection) in South Africa, hereafter referred to as the “Ex industry” is very specialized as it is globally. The field covers numerous disciplines from reliability in electronics to mechanical, e.g. enclosures containing explosions and even includes principles in chemistry. Therefore, personnel doing test and certification work are required to have a well-balanced knowledge to apply the standards. The standards consists of two basic suites of standards, one for gases and vapours and the other for dusts. The number of standards in the first suite covers more than twenty five standards, of which South Africa adopts most of the international (IEC) standards).

The Ex industry is a highly regulated industry. All equipment utilized in hazardous areas must be certified by a test laboratory and manufacturing of the equipment must include either re-evaluation of the end product by a test laboratory, or the manufacturing company must obtain a mark scheme

(quality assurance listing) from one of the test laboratories / certification bodies.

Only three test laboratories currently exist in South Africa. The first one is a state institution, now commercialized and has existed for more than 50 years. The second one was started in 1996 as a private company. The third one was started in 2003, also as a private company.

The three bodies / institutions will be referred to further in the text as the

- Commercialized body: Body C1
- First private company: Body P1
- Second private company: Body P2



BACKGROUND / LITERARY OVERVIEW

The Ex field in South Africa faces numerous challenges today including

- Fast changing international standards with which test laboratories and industry need to keep up and
- The globalization of the Ex field, in which peer review is conducted on all work done in South Africa by means of reports and certificates utilized in the global arena.

This document focuses on the challenges that faced (and still are facing) Body P2 from startup in 2003 to present, considering the existing South African and global markets. The aspects that are specifically addressed are

- Strategic Analysis
- Marketing research
- The strategic marketing plan

The above aspects include commercial viability for the company, obtaining a market share and become established as a recognized test and certification body.

This document utilizes an integrated case study methodology. Therefore, the case study and literature are intertwined throughout the text. The principle approach taken is to follow the structure and analysis as by CF Van Veijeren [1] throughout the text and applying it to the case study.

The literature reference at the back of this document should be seen as a bibliography, as not all sources utilized have been referenced in the text.

The analysis will focus on the perspective of the body being in the engineering consultancy business / technology business, with which this type of body / test laboratory compares well. Where appropriate additional literature references will be introduced.

PROBLEM STATEMENT

The primary challenges that face Body P2 may be considered as follows:

- Attaining commercial viability
- Attaining industry acceptance
- Obtaining a market share
- Fierce competition

Therefore, Body 2 which quickly attained recognition by the regulators, with the appropriate accreditation, has to attain acceptance in industry to build a proper market share to become sustainable. The market is typically slow in reacting to changes and this has a lingering effect with respect to commercial viability for the company. Also the change of industry perception with respect to the acceptability of Body 2 in the legal framework is a challenge.

RESEARCH METHODOLOGY / OBJECTIVE

The dissertation is based on a specific case study with which the author is directly involved. Therefore, no specific further research was required for this dissertation, as a significant amount of information was available over the last four years and as the case study is defined.

Information was obtained from several different sources including:

Numerous consultations / interviews with role players in industry, including regulators, clients, end-users, overseas test laboratory personnel, Body P2 personnel etc.

Internal documentation from Body P2, including financial statements, project files, client analysis documentation, personnel performance documentation, client feedback forms, complaints register.

Minutes and attendance of association meetings, TC65 (National Ex standards committee) meetings, standard writing working group meetings etc.

According to Cooper D.R, and Emory C.W [21], the use of case studies is acceptable as a research methodology:

“Case studies place more emphasis on a full contextual analysis of fewer events or conditions and their interrelations. Although hypotheses are often used, the reliance on qualitative data makes support or rejection more difficult. An emphasis on detail provides valuable insight for problem

solving, evaluation and strategy. This detail is secured from multiple sources of information. It allows evidence to be varied and avoids missing data.

Although case studies have been maligned as “scientifically worthless” because they do not meet minimal design requirements for comparison, they nonetheless have a scientific role. It has been observed that “important scientific propositions have the form of universals, and a universal can be falsified by a single counter-intense”. Thus, a single, well-designed case study can provide a major challenge to a theory and provide a source of new hypothesis and constructs simultaneously.”

The objective of this dissertation is to analyze the position of Body P2 (as the case study) in the market from a strategic marketing perspective and to identify possible improvements in the approach taken by the body.

SUMMARY

The Ex industry is a very specialized and a relative small part of industry. From a legal perspective it is not difficult to start a test laboratory in this industry. However, to gain acceptance in industry with a related market share and commercial viability for the laboratory is a substantially more difficult challenge.

CHAPTER 1

Stakeholders in the Ex industry

1.1 Introduction

It is important to understand who the stakeholders are in the Ex field / industry in South Africa. This is especially important to enable understanding of the context in which Body P2 had to establish itself and need to continue working in. The stakeholders play a critical role in the strategic marketing analysis and subsequent marketing plan for body P2 and are briefly discussed in the ensuing sectors.

1.2 The government bodies: (DME and DOL)

The Ex field in South Africa is regulated by two different regulators. The mining industry, including surface mining and oilrigs, is regulated by the Department of Minerals and Energy (DME) and the Department of Labour (DOL) regulates surface industry, including factories and refineries.

1.2.1 The Department of Minerals and Energy (DME)

The DME is actively involved in the Ex field, especially by specific people at high level. They are active in the association (SAFA), working group meetings for standards etc. The responsibility for writing regulations in the Ex field for the mining sector also lies with the DME.

The DME inspectors are responsible for the correct application and the policing of Ex equipment and installations / usage in the field. This is important as it influences the integrity of the Ex application / equipment by the end-user. If policing is not effective it results in manufacturers / users taking short cuts to remain commercially viable or to undercut each other, which may jeopardize safety.

If compared with the situation of test laboratories, the aspect of “price war” / undercutting between test laboratories must be prevented when it may have an effect on the application of the standards / safety of equipment.

1.2.2 The Department of Labour (DOL)

The DOL involvement in association meetings and standard writing working groups is limited. The DOL also has inspectors as indicated for the DME above. In support of the work done by the DOL inspectors, the master installation electricians (MIE's) and some very strict users in the larger companies play a significant role in maintaining an industry standard.

1.3 Master Installation Electrician (MIE)

It is a legal requirement in South Africa that all installations in hazardous locations (surface industry / DOL) must be signed of by a MIE. The MIE's write a national exam based on the relevant codes of practice. It has been identified by MIE's, as well as the relevant associations that the written exam does not sufficiently cover practical experience. Therefore, MIE's not working in the field often are concerned about their own knowledge in the practical application of the Ex techniques, although they have passed the theoretical exam on mostly the legislative requirements in the Ex field.

MIE's who have attained practical experience do invaluable work in the industry.

1.4 South African Flameproof Association (SAFA)

SAFA is the South African national association, made up of approximately hundred and sixty five members, from test laboratories, government bodies, manufacturers and end users. The association prides themselves in the combination of the knowledgeable people involved in the association. Unfortunately the association has no legal standing (which is common to this type of association) although it has a high regard in industry.

1.5 Manufacturers / End Users



The clients in the Ex field can be subdivided according to their interests or the requirements with which they have to comply.

1.5.1 Manufacturers

Manufacturers of Ex equipment have to comply with the constructional safety standards for the Ex equipment / systems they manufacture. They are mostly the direct clients of test laboratories / certification bodies.

1.5.2 End-users

End users have to legally ensure that they have identified the applicable hazardous locations in their plant / facility / mine. Then they have to ensure that they have a safe installation by using certified Ex equipment / systems. The installations in surface industry must be signed of by an MIE.

Especially some of the larger refineries and mine houses take interest in the work done by test laboratories, to ensure that they buy correctly certified equipment.

In addition the services of test laboratories are quite often used to provide training, on-site inspections, consultation, area classifications etc.

1.6 Test laboratories / Certification bodies

There are currently three test laboratories and certification bodies¹ in South Africa. The three bodies were described in the introduction to this dissertation.

A further analysis of the test laboratories and certification bodies follows after this section on the stakeholders.

International test laboratories / certification bodies also influence the context in which Body P2 needs to function, as testing and certification for products

¹ A test laboratory in the South African context is responsible for testing, assessment and issuing a type certificate for equipment complying with the specification(s). The certification body is responsible for issuing a “mark” to the manufacturer for producing equipment according to the type certificate. It is a legal

into the international market has become an important part of Body P2's work.

A total of less than fifteen technical people are currently employed by the combination of the three test laboratories in South Africa. The fact that these personnel between the three different laboratories are required to do work including training, testing, assessment, inspections, type certification, pre-permit and post permit work for the mark scheme, is a concern to industry and the DME.

The concern is especially prevalent if this is compared with three of the test laboratories in the UK where at least 18 technical people are involved per laboratory in the activities mentioned above, neglecting contractors that are used for their mark schemes / product certification bodies. It may be argued that the UK is a first world country and South Africa a third world country. However, England has effectively no mines left, while South Africa supports significant mining activities, which should validate the argument for the personnel comparisons. In addition the personnel in the UK laboratories tend to specialize while the personnel in the South African laboratories run various activities simultaneously. In addition the total technical personnel complement of test laboratories in the UK is estimated at more than 80 personnel vs. South Africa's less than fifteen.

A specific reason(s) identified for the limited personnel in the test laboratories was as follows:

- The historical Ex industry in South Africa was one where work was done in a short time period at low cost against old standards. The new

requirement that manufacturers either manufacture products under a mark scheme or do batch testing on production batches with a test laboratory.

standards are extensive and a proper evaluation requires often lengthy tests and significant assessment. This drives the cost upward. Because industry is used to low costs the work is often given to the lowest bidder and therefore the laboratories work with very low profit margins. Employing more people, especially skilled people is costly and since training still takes approximately twelve months before the person can become fully productive the employment of people is often balanced against the survival of the laboratory. This must ultimately have an influence on the quality of work as well.

1.7 Conclusion

The stakeholders in the Ex industry play a significant role with respect to the strategic marketing of a test laboratory. The test laboratory has to work within the legal framework, while servicing a client base of manufacturers and end users and supplying a wide range of services. Personnel shortages are prevalent in the test laboratories measured against the wide range of activities and responsibilities expected from them. The low cost structures and competition between the laboratories maintain the status quo on the count of personnel within laboratories with minimal fluctuations.

CHAPTER 2

STRATEGIC PLANNING AND MARKETING

2.1 Introduction

Before a detailed discussion is attempted in the next chapters of the aspects of marketing, marketing research and the strategic marketing plan, something must be said about strategic planning / analysis. Strategic analysis and marketing cannot and should not be separated.

Gaynor [5] indicates that “Strategy is the way the organization attempts to outperform its competitors”

Cronje, Du Toit Motlatla [9], talks about marketing as “warfare”, using the marketing tools as “weapons”. “Marketing is merely a civilized form of warfare in which most battles are won with words, ideas and disciplined thinking”

2.2 Further background on Body P2 influencing strategic analysis and industrial marketing

The personnel starting Body P2 have largely been working in semi-state organizations. Starting a business purely in the private sector has indicated some unexpected challenges.

2.2.1 Obtaining market share

The personnel in body P2 expected a much more open market but found themselves confronted with challenges in obtaining market acceptance, as already partly discussed in chapter 1. Some of the specific challenges included getting onto vendor lists with big companies, which took up to a year. In addition the support they expected from clients which they thought would support them was not always forthcoming. However, being in a position where the facts were on the table gave them a better opportunity to do an accurate strategic analysis, although an in-depth analysis at the start-up of the company would have been valuable.

2.2.2 Human factors within the company

According to Gaynor [5], culture is the most difficult organizational asset to evaluate. It is the “way we do things around here”. “Culture can either work for or against competitive advantage”.

Going into partnership without a proper contract and written expectations between the members of the company, as well as having a well laid out plan for at least the first year proved to be a challenge. This was evident from the difference in work ethics between the members as well as the differences between the members with respect to the management approach and risks that should be taken within the company to get it a viable entity.

2.2.3 The organization pricing structure

Gaynor [5] indicates price as one of the reasons why customers choose a service. However, quality, availability, service and attractiveness is also important. Body P2 does add quality by providing acceptable certificates and the service is also good in comparison with other laboratories. Attractiveness is specific to especially clients who want to export their equipment into the international market.

Low cost and competition have been discussed in chapter 1. To expand on this the internal financial analysis conducted by body P2 is briefly discussed.

- A significant issue is the lack of income per person / perceived low productivity. (The hourly rate is typically an industry standard between the different laboratories and does not seem to change too much, following also the high level of competition.) When analyzing the average income per person and the hourly rate, it was found that on average the income generating personnel charge only approximately 3.5 to 4.5 productive hours a day. What made this even more surprising is that these people have to work at night to achieve this income / productivity rate. Many aspects were identified that play a role in this lack of financial productivity and are under continuous investigation by Body P2, including:
 - Incorrect quotations. It was found that quotations were driven, not by actual cost, but by the existing average cost per job in industry to maintain a competitive edge.

- Underestimating the time it takes to do work. Especially the writing of reports, communication with the client and project management.
- The diversity of work, resulting in more time spent to get updated on the standards.
- Involvement in committees (non-income generating)
- Constant changes in standards, which takes more assessment time and requires additional testing.

Fontaine [8], provides a model based on estimations of price vs. quantity of sales. He then calculates different costs and profit levels at the different quantity-price levels. This may work fine for sales of products. However, in the Ex test and certification industry the amount of projects may be limited and price. Although in the South African industry regarded especially high, the quantity of projects will not increase linearly / predictably with price changes. It was found that the number of projects may even be increased with higher prices, but making the client more aware. What Fontaine [8] says which is definitely true is that the cost of delivering a service must be known.

2.3 Marketing vs. Strategic planning

In his book [1], CF Van Veijeren correctly indicates that the processes of separating the interfaces between industrial marketing and competitive strategic planning should not be separated, to obtain a competitive advantage for the company. However, he also warns that the objective of combining the two is not as simple as it may seem. He then indicates the process to be

strategic marketing planning systems; therefore, including both marketing and strategy. Some of the concepts developed by him will be elaborated on, with Body P2 as a case study. (He does include industrial services as a subject to which his philosophy can be applied). Some additional important points that he makes are:

- Companies quite often separate marketing and strategic planning.
- Strategic planning / marketing is an ongoing process and evolves.
- Companies quite often neglect the proper implementation of the marketing plan. He focuses on giving guidance on institutionalizing strategic marketing planning as an ongoing system in an organization.

2.3.1 Planning

Cronje, Du Toit Motlatla [9], explain that strategic marketing planning comes from top management level. Two basic decisions need to be taken:

- Competitive decision, based on three basic options; Differentiation, Focus and low cost strategy. (Further analysis is conducted in chapter 5)
- Investment decision, centering around four options:
 - Growth of business and product. This should consider existing markets, product development, market development or diversification.
 - Status quo: Not growing any further.
 - Harvesting: No further resources are allocated on the service / product.

- **Divesting:** When losses are incurred, the business unit is sold or the product discontinued.

Analyzing the above briefly for the case study, it is clear that the business is in a phase where growth should be considered, especially from the point where critical mass has not yet been reached. E.g. fixed monthly costs are carried by too little income generating people.

In body P2 it was found that little time is available for planning because of the varied involvement of the personnel, which was also the management, for body P2. However, the lack of time may be directly related to the lack of planning and the lack of analysis of the actual situation. The advantages of planning have been set out in numerous sources, including

- Planning gives clarity, direction, commitment and control.
- It can help in pro-actively responding to a changing environment.

Some dangers of planning have also been indicated:

- Focusing on a plan may allow some other opportunities to be missed.
- Effective planning is subject to the quality of the facts, but also on the objectivity on which they are based.

Body P2 has achieved success during the start-up phase, by means of every member working on his / her strong points to set up the business as a mirror / direct competitor of the other two test laboratories. This was based on previous experience and limited planning. Because the integrity of the people involved in Body P2 is high, as perceived by clients, this led to success. However, the direction beyond mirroring the other laboratories was

not clear. Body P2 is now reasonably well established. However, direction is required especially with respect to solving the challenges of low measurable productivity (discussed under pricing above) and overworked personnel (long hours). It was also found that service delivery was not as good anymore for a number of reasons:

- Personnel being involved with too many projects.
- Clients not being used to the ever increasing higher standards set by the international standards, requiring more documentation in prescribed formats and then leading to delays. (This aspect was already identified as a strategic focus point for Body P2 to try and accommodate clients more during the process)
- Pricing for projects again not allowing enough manpower to be allocated to completion of projects.
- Low morale within the body as a result of large amounts of work with low returns.
- Low level of management because the management is technically involved.

Planning must be formalized and written down. The reasons for this include:

- The activities of mirroring the business (against existing laboratories) have been completed. Therefore, Body P2 will have to venture into new territory. This will require much more market research, planning, goals, milestones etc. and this should create a sense of direction in the organization.

- The current income generating activities of the business take up a significant amount of time. If plans are not clear, the marketing project tends to disappear between the cracks. Therefore, some type of commitment must be established for the successful execution of a marketing / strategic plan. Of utmost importance, delegation can be more effectively achieved if the plan is well structured, leaving some additional time for the higher-level personnel / members. Time saving is also achieved by delegating, even to other members, by considering their strong points.
- From effective planning, it may also be determined whether a project is viable or even desirable in a small set-up like Body P2 with its limited resources.
- The existing situation of low income, long working hours etc. need to be included and an effective strategy / plan need to be developed.

Some possibilities for expansion of higher income generating work for Body P2 have been identified and now need to be effectively planned. (More on these possibilities in the following chapters).

An interesting aspect for the strategic marketing plan will be the breakdown of the plan. For instance, Body P2 markets itself as a service provider covering all aspects of Ex related client requirements. This falls well within the strengths of Body P2. A single overall marketing plan, covering the holistic approach of Body P2 may be drafted and supporting this, some additional marketing for specific services may be conducted. Supporting this approach is that the larger clients (e.g. refineries) have different departments requiring different services. In addition, targeting smaller

clients in the same way may be as effective, although the client's organization is not as diversified.

The marketing should also include focus on specific clients, including their specific requirements. The decision to focus on the logical activities within the market, mirrored by Body P2 activities, allows for a marketing focus on specific clients. This follows the approach that client's organizations tend to be set up around these activities. For instance, manufacturers require consultation, test and type certification, training and product certification, while end-users require consultation, training and inspections. All these services are delivered by body P2.

The breakdown of the marketing plan may therefore be drafted as shown in figure 2.1:

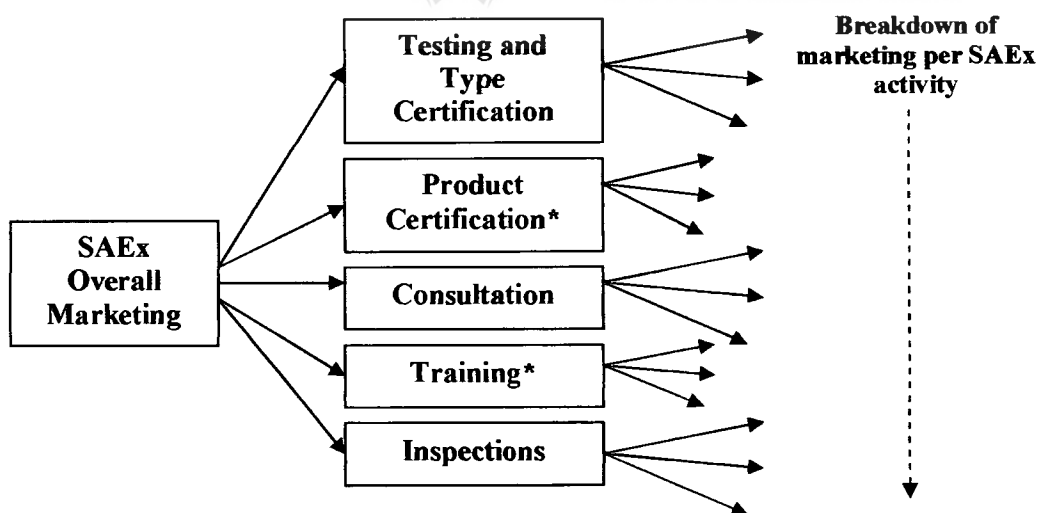


Fig. 2.1: The marketing plan

It is important that strategic business units be identified within an organization to serve the client best. For instance, clients prefer a single

entry point into the organization, achieving the complete service to the client. In the Ex industry this is of critical importance, especially considering that clients may require a wide variety of services, as indicated above. In Body P2, different members have been made responsible for specific activities, requiring a separate support system. These are indicated with an * in figure 2.1. All members are fully up to date on activities handled by other members and therefore are capable of supplying the single entry point. It is required on a technical basis that work is diverted to another member, preferably internally, without the client required to approach the other person. Alternatively, the member covering the “other service” makes contact with the client directly from the laboratory side. The financial side, e.g. quotations, is handled similarly. This type of approach may provide some competitive advantage for Body P2, especially considering that other test laboratories have separate entities looking after the different services e.g. type certification and product certification / mark scheme are in separate businesses.

Some detailed analysis of the market is lacking in Body P2. Body P2 has depended on gut feel, experience of the members and feedback from clients to give direction to the business. It must be acknowledged that these sources are invaluable and has led to success for the business in the short term. However, for the running of a business that is making further progress and that is creating a professional image and service and is positioning itself properly in the market (getting significant market share), some actual facts are to be obtained with regards the actual market, the position of Body P2 in the market, the perception of clients of Body P2, the pricing structure, the requirements of clients etc.

2.4 Conclusion

Lack of planning leads to ineffective or at least inefficient activities in an organization. Planning gives direction and measurable results. Strategic planning and marketing go hand in hand.



CHAPTER 3

ASPECTS OF INDUSTRIAL MARKETING AFFECTING THE STRATEGIC MARKETING PLAN

3.1 Introduction

The essence of marketing (what works and what not) must be considered by any marketing person, as well as in a strategic marketing plan. This chapter focuses on some important aspects of marketing, elaborated on from the theoretical aspects and some applications in the industrial case study.

3.2 Industrial marketing

According to CF Van Veijeren [1], Industrial Marketing (business-to-business marketing) has some important features:

- The product or service is between organizations.
- The use of these products or services is for the production process or in the services sector.

Body P2 provides a service for the production of Ex equipment, but also for the installation, inspection and maintenance of Ex equipment. Body P2's service even goes as wide as consulting for the regulators with regards the promulgation of regulations in the Ex field. Therefore, Body P2's services cover the requirements of manufacturers, users, trade unions and the regulators of Ex equipment. This creates quite a challenge with regards effective marketing. For instance:

- The DME gave recognition to Body P2 right from inception of the business. This followed effective communication with the DME and the fact that the DME knew the people who started body P2.

The best marketing tool with the regulators is to maintain a high level of competence. No specific further marketing, except gestures of courtesy and support when required, is considered with the regulators. However, because of the high emphasis on competence, it is important to inform regulators of achievements. For instance, when body P2 signs recognition agreements with other international laboratories.

Gaynor [5] indicates that strategic partnerships are deemed an asset to the company. In addition it helps the organization focus on its core business.

- To begin a discussion around effective marketing with regards manufacturers, the following need to be considered:

- Two basic approaches to test and certification exist in the South African market.

- Clients that seem to be only interested in obtaining the report and certificate with the minimum cost and / or effort. Body P2 spends a considerable amount of time in educating and keeping their client up to date with respect to requirements for test and certification. This approach has been reasonably successful in obtaining, but also maintaining clients. However, most clients still have a high expectation of low cost and quick turnaround times. This is a commercial reality and needs to be managed.
- Clients that have a high regard for safety and compliance of the product / installation, as well as the long-term implications of ineffective certification. Many of these

clients are larger organizations and quite often provide services / products in the international arena. It is most probably the international involvement that forced them to have different expectations of certification. In addition, the international test laboratories and market tend to quickly identify inferior testing / certification and / or products.

It has become part of the scope of Body P2 and contributes to the competitive edge of Body P2 that many international mutual recognition agreements with international laboratories have been reached. Approximately 40% of work done by Body P2 is for the international market, while it is deemed that its competitors do significantly less work for the international market.

- A discussion around manufacturers will be incomplete without considering the following aspect:

According to Gaynor [5], clients rate the “stability of long term relationships” high.

Because such a limited amount of technical personnel do work in this field and the projects are very often based around discussions and effective communication, personalities come into play, which result in technical personnel servicing specific clients. This is a tendency world wide, with many advantages and disadvantages (not discussed). However, it is these relationships that often cause the client to come back (or that lose the client for the company). Many clients basically refuse to work with any other person than the one they usually work with. From a

marketing perspective, the excellence of service to these clients needs to be maintained and it has been found that they will remain committed to the company. Lower costs, cold calling, lunches etc. by opposition cannot in general change this commitment by clients. That is of course, as long as the client is happy. It is therefore of utmost importance that the person working with the client is aware of the signals that may indicate unhappiness. Body P2 accepts that clients do not just remain content, but every technical person has to take responsibility in maintaining excellence of service.

- Because of the close working relationship between individuals, questionnaires were quite often found to be ineffective, as the client will not indicate if he is unhappy.

○ Marketing to end users;

The core business of the laboratories is to do certification and testing for manufacturers. A limited amount of assemblies / systems of certified products are sent to the laboratories for final inspection and certification, although this is part and parcel of certification. This may be a result of the lack of knowledge (or ignorance) from the client / end-user, additional cost and turnaround time.

The inspection of installations is conducted by the MIE as is legally required; however test laboratories are sometimes used. Other services involve area classifications, to determine the type and extent of the hazardous locations. Test laboratories do

tend to get involved in this aspect at a higher frequency although body P2 has a low market share in this activity.

Body P2 is not as much involved with inspections of installations. The reason for this was identified as the low involvement of body P2 in the field / installations and inspections and therefore low contact with the end-user.

This is not a concern to Body P2, because the core business is the test and certification of equipment. However, a spin-off result of involvement with the end-user has been identified. The person / body who does the area classification becomes familiar to the end-user, to such an extent that the end-user may require the supplier to have his equipment certified with the specific laboratory. Therefore, a considerable amount of work falling within the core business of Body P2 is lost by means of not being actively involved in the support service to industry. It is also acknowledged that the entry into this type of service is difficult, because of the one-on-one relationship established between the client and technical personnel of competitors.

3.3 Aspects of Industrial Marketing

Some specific aspects of industrial marketing were taken from CF Van Veijeren [1] and applied to the case study as follows:

3.3.1 Industrial clients are limited

This statement is clear from the fact that BODY C1, who is very long established, has had a basically constant number of mark holders in this field for many years now and new customers to the opposition are quite often people moving over because of complaints of service or unfair restrictions with regards the acceptance of other laboratories work.

Body P2 is going out of its way to obtain new entries to the market; for instance international clients. However, this is an expensive and lengthy process, needing much more strategic consideration.

3.3.2 The demand of an industrial product / service is a derived demand

This statement is very clear in the Ex field. The derivation is obtained from the fact that it is a legal requirement to have equipment tested and certified for use in hazardous locations. An independent third party test laboratory, suitably accredited by SANAS (South African National Accreditation System) must do the testing and certification of equipment.

3.3.3 Buying of industrial goods / services occur on a rational, objective and economic basis

CF Van Veijeren acknowledges that this is a debatable issue. As already discussed above, personalities and even emotions do play a role. Emotional issues include loyalty to the test laboratory, because of personal relationships. This is an important aspect, because once such a relationship is destroyed, it is difficult if not impossible to rectify and once a client has moved over to another laboratory it is very difficult to convince the client to return. This may be more so in the Ex industry than for the general case of

customers in for instance the retail or other services industries (e.g. banking), where it is acknowledged that it is much easier / cost effective to retain a customer than to get him back.

3.3.4 Recognition of key personnel influencing the buying decision

This fact was recognized above in the discussion of the end-users / larger organizations. Of course it is not only applicable to larger organizations. In the Ex industry, this person can usually be identified by knowing the influence the different personnel have in the company, their individual knowledge of the Ex industry and requirements for the product, their specific perceptions of the importance of certification etc. For instance, numerous clients see test and certification as an additional expense and barrier to trade. It is important for the laboratory to add value further than the test and certification process; for instance by advising what type of certification the client may strive to, to be more competitive or to cater for additional requirements which the client did not foresee or to identify possible obstacles early in the process.

3.3.5 The industrial buyer is a professional buyer for whom information is essential

From the discussions above of the basic approaches of clients to certification, this statement from CF Van Veijeren [1] is only true for the organizations with integrity and which forms the largest part of the client base for Body P2.

3.3.6 The buying process often extends over a long period

Fontaine [8], indicates that “When potential areas of activity are identified, management should assess the potential growth rates of the activities, the ability of the company to establish adequate market share and the cash flows for each alternative activity for various states of nature”. The cash flows do suffer as a result of the quoting approach, project creep and the amount of long term projects. The quoting approach and project creep are discussed elsewhere.

For Body P2 the buying process often extends over a long period.

An exception is where batch testing is done on production units, already type certified. The batch is then scrutinized for compliance to the original type certification and the client wants it back as quickly as possible to achieve sales. Body P2 entered the market with a quick turnaround time in this regard. The turnaround in this instance was identified as the primary consideration for most clients and a very close second was the price for evaluating the equipment. Many clients are now demanding a report in twenty-four hours, which in most instances can be met. The marketing philosophy behind the batch testing is as follows:

- Many clients do not realize that a unit may be type tested at one laboratory and then batch tested at another laboratory. It takes a considerable amount of effort to explain to the client that batch testing is not a report to the standard, but to the original type certification.
- Body P2 had to change the wording on their reports to reflect the fact that batch testing is only to the original type test certificate. This was also essential from the fact that in some instances Body P2 does not agree

with the approaches taken by other laboratories in the original type test reports.

- Considering the above two points, it was a pure commercial decision and not a technical decision to focus on batch testing.
- Batch testing improves cash flow, because of the quick turnaround time. A 2.5% discount is given to clients paying within fourteen days.
- Especially with type testing the buying process becomes lengthy. This may start off with a quotation and initial discussions during the project conceptualization phase. Quite often, the process does not even continue and Body P2 has lost income and time. Following the approach from some overseas laboratories, up to two free hours are given for initial discussion / consultation. This is purely done as a marketing exercise and the costs are recuperated during the actual project. The number of projects not realized after time had been spent was found to be acceptably low. The fact that the client does not need to spend money for the initial contact session, adds to Body P2 making contact with more and more clients, building a relationship with the client. In addition the number of clients returning to do the actual project was found to be high, which most probably stems from the fact that they obtained their original guidance from Body P2 and incorporated it as such. Therefore, they do not want to go to another laboratory that may then take a different view. The important factor of relationship building and trust also starts off during the original contact session.
- Another identified aspect of lengthy projects is the following: Quite often the Ex characteristics have not been considered sufficiently in the design of the equipment and then physical limitations prevent the product from complying with the standard. In addition, the client takes all

possible actions in trying to get the equipment to comply. In many instances a way may be found, but this has led to project creep and even worse, a project can take up to a year to complete. This places a significant burden on the cash flow of Body P2 and many challenges exist to define the project beforehand and to try and achieve an accurate quotation. The clients are often not comfortable with a lengthy quotation and project definition which caters for project creep, interim invoices etc. Sometimes, they depend on the lack of formalization of the project to achieve R&D, or cheap certification, because historically laboratories allowed this to happen, especially when BODY C1 was the only laboratory and was not a commercial company.

3.3.7 Conservatism and resistance to change is apt in the industrial marketing sector

Even with Body P2's clients selling to the end-user, for instance a specific type of transmitter, many examples occur where the end-user wants a specific type and make of transmitter only. One must distinguish when it is conservatism and resistance to change; many valid reasons may exist why specific equipment is required, including experience, logistics, standardization etc.

- With Body P2 it is still found that BODY C1 may be nominated specifically by the end-user on tender documents to do the certification of the equipment, or the final inspection on the installation. The reason for this seems to be conservatism and resistance to change. This leaves Body P2 with a very interesting dilemma from a marketing perspective. If Body P2 should go out

and state the facts on where they stand in the market place, this may alienate the end-user even further because it may seem as slander towards the opposition.

A very important challenge for Body P2, forming part of the conservative approach and the resistance to change by the client / end-user, is the matter of cost. When one starts talking about cost, this of course goes way beyond a conservatism or a resistance to change, but also incorporates the realities of commercial activities and business. However, the aspect of cost has been identified as probably the biggest stumbling block for Body P2 and the Ex testing and certification environment as a whole in South Africa. Cost is one of the most important realities that must be considered when an effective strategy and marketing plan is developed for Body P2:

In 1996 projects on intrinsic safety cost less than R1000 at P2. A project may have taken up to a week (full time) to complete. At the same time, flameproof equipment, which is more defined in testing and takes one day for the tests and another for the report, was charged between R1800 to R2500. Now, some projects (admittedly large ones) on intrinsic safety can go up to R100 000. However, the industry average for intrinsic safety is still between R3000 to R6000 per type certification project. What is interesting is that flameproof has remained very constant and a typical flameproof certification project, considering all laboratories, is charged between R3000 and R6000 each.

The first comment is on the flameproof. Considering the increase of prices for test gas, equipment for testing, maintenance, accommodation, labour etc. the change in price may have been seen to follow accepted increases.

However, the time to do the required testing, assessment and report can now increase to a week, considering the latest standards. Therefore, the pricing is significantly below international levels, especially considering that Australian test laboratories charge 12000Aus dollars for the simplest of flameproof projects.

A very good comparison can be made for intrinsic safety. This follows from some market research done by the author. Australia charges the client, just to assess the work and report done by Body P2 (the report is fully written in their required format) 5000Australian dollars. (Consider that their hourly rate is similar to South African Test laboratory rates when converting between currencies).

When researching the price structure of one of the UK laboratories, it was found that they charge on average for a project on intrinsic safety, approximately 8000 pounds sterling. In this case it is unrealistic to compare costs directly. One common denominator is time. On average, laboratories should be spending approximately the same time to assess an intrinsically safe circuit. Therefore, at £120 per hour and £8000 per project an average of 67 hours per project may be allocated for the UK laboratory. The average amount of time was deemed to be realistic. However, if the South African laboratories are deemed to be more productive, 75% of the UK Laboratory time may be considered. This gives 50 hours to do an average project. At the current rate of R750 per hour an average of R37500 per project should be charged. At the current average of approximately of R6000 to R8000, South African Laboratories are charging a maximum of 20% of what they should be charging.

At the current average, a test officer in the South African laboratory cannot spend effectively more than one to two days on an intrinsically safe project. This has been found by experience and by international comparison to be totally unacceptable and unrealistic to achieve acceptable quality of work.

A test officer in intrinsic safety in one of the opposition laboratories has openly in a committee complained about aspects relating to the above. However he indicated that he was overruled by management after a complaint by the client of the costing for the project. (He left the Ex field now after working in it for more than five years)

The consequences of the above basic pricing problem may be severe and include:

Certifications / tests of equipment may not be properly conducted.

The lack of competent personnel in this field may be a direct result of low costs / inadequate time allowed to do the job.

The entry level into the market is extremely low. “Low level clients” flood the industry. Larger, more sophisticated clients / organizations cannot compete where the equipment is of low quality and easily certified.

Because of low level certification and “low level clients”, the end-user may not be educated, by means of a “filter through effect” from the laboratories / certification to him.

Ultimately, equipment and installations may be unsafe for use in hazardous locations.

Laboratories / personnel who want to influence the situation positively get frustrated and ultimately change their occupation, leave the Ex field or join the current state of affairs.

Acceptability of South African Laboratory reports and certificates may not be recognized in the international certification arena.

South African certificates may not facilitate national manufacturers wanting to export equipment.

3.3.8 Importance of “word of mouth” marketing, based on credibility of marketer

None of the Laboratories mentioned in this report have specific marketers going out in industry, doing the relevant marketing. However, as already acknowledged, the fact that some laboratories have more people doing work in the field (on site) helps significantly in obtaining more work for the laboratory. A reason that no specific marketers exist is the fact that laboratories are so small and that the type of business is very specialized.

The “word of mouth” type of marketing, or even rumors is a very important type of marketing tool. For instance, clients do make comments like “if you want it quickly, then go to ...”. Except for the positive comments, this type of marketing may also be inefficient for Body P2. The word of mouth often includes comments with respect to. “being expensive”, or “being difficult”. These type of comments may also filter through for Body P2’s clients, having to do business in an environment against significantly reduced tests and certification pricing for their competitors and quite often lesser requirements for their competitors equipment.

As stated by CF Van Veijeren [1]

Bear in mind that at the end of the day one is selling or marketing to individuals in organisations and not to the inanimate organisations themselves.

3.3.9 Product and service characteristics need to adapt to the precise needs of the client

The Ex industry is driven by the fact that it is a legal obligation to have hazardous areas classified, equipment certified etc. Therefore, the influencing drive for the test and certification service can only be partly attributed to the client's requirements. However, as a result of the competition between the laboratories the client has more power to affect the outcome of test and certification. For instance, the service may be adapted to suite the client's requirement instead of following the intent of the standard.

The client's needs usually include mostly cost, turnaround time and work to be done on site (where applicable).

It seems that the basic approach to Ex test and certification did not change substantially in the last twenty years on an international basis. Specific factors cannot be taken out of the equation, for instance that most projects are unique and cannot be handled in a fixed pre-defined manner. Therefore, contact between the designer and test officer is essentially, submission of equipment and design drawings etc. One may strive to deliver better service, by streamlining not only the main activities as far as possible, but

also by making use of technology, for instance e-mail for projects where the client is far away.

An example of where Body P2 was forced to obtain additional work outside the borders of South Africa, is where companies based in the UK and Australia submit for local testing and submits the report at the relevant certification body overseas. This is all achieved by means of e-mail, digital photographs, postage of samples etc.

The whole drive from global clients is to get the equipment tested once and to obtain a (or more) certificate for worldwide use.

A big concern to clients is the extensive cost for obtaining international (e.g. European) product certification; i.e. auditing of the manufacturing facilities. Body P2 is strategically positioned to do all audits for a UK and Australian laboratory in South Africa, as part of their strategic positioning.

3.3.10 As a result of technical complexity in the industrial field, specialized service is important

The whole context of this dissertation inherently revolves around the specialization in the Ex field. However, as positive as this is for Body P2, who pride them in their competence, it may also be seen as a negative influence in generating income in a specialized field, as described in many instances above.

3.3.11 Industrial markets show much more segmentation than consumer markets

From CF Van Veijeren [1], market fragmentation occurs in Southern Africa, as a result of the limited market for many products. The Ex field and market is now so specialized that it can easily be seen as fragmented. This should be clear from much of the discussions above, including market entry, competing in the market, exclusive conduction of Ex business etc.

3.3.12 The service / product may still be unspecified and may need development

Because of the legal requirements, the service / certification is specified. However, most of the time it is applied to new products and plants, often still in the conceptual phase. Therefore, Body P2 works with new developments, but the service tends to remain constant, because of the strict requirements in specifications and acts. However, this does not mean that Body P2 do not accept projects, where standards do not exist and then apply experience and knowledge to give results to the client on the possible acceptability of his equipment.

3.3.13 Industrial activities are geographically concentrated

From CF Van Veijeren [1] it was found that In South Africa 75% of industrial production occurs in less than 3% of the geographical area. It is important to note that all three test laboratories are within 20km of each other between Midrand and Pretoria. The location of the laboratories is a

result of the historical fact that most personnel live in Pretoria and originally worked for Body C1. A better position would've probably been closer to Johannesburg, covering entry from the Eaststrand and Kempton Park where many of the companies are located. This also depends on the actual amount of contact between higher-level personnel of the companies, or whether equipment is submitted and collected by the driver. The importance of the location has not been properly investigated and may need some additional market research. An important consideration may be that if the laboratory is too close, people may pop around just for a chat, wasting time of laboratory personnel. However, this may be managed to the advantage of the laboratory. In addition, traveling to and from the client should be considered, although strategically it may not have the same impact than opening a laboratory / branch next to your major clients.

Branches in Cape town and Durban also need to be considered, as there are no presence of laboratories in these areas. However, the personnel and training issue again comes into play.

3.3.14 80:20 principle for the profitability in an industrial sector

For Ex testing and certification the 80:20 percent of profitability may be attributed as follows:

- Coal mining results in 80% plus of the income from test and certification of clients' products for use underground. Therefore, this principle is also applicable to equipment suppliers in this industry sector.

- For surface industry, the refineries (e.g. SASOL) are indirectly responsible for approximately 80% of the profits of the test laboratories and suppliers in South Africa.

3.3.15 The principle of reciprocity

According to CF Van Veijeren [1], industrial companies tend to support each other, except when equipment may be obtained for the laboratory or when enquiries for specific products are made at Body P2, Body P2 is not really in a position to support industrial companies. Therefore, this principle does not effectively fit in the Ex type of industry, except for referrals. Body P2 will definitely refer enquiries on Ex equipment to clients doing test and certification with them.

3.4 Conclusion

The above analysis clearly indicates important factors for Body P2 to consider in developing a strategy and marketing plan and forms the basis for further discussions / formal development and analysis. It also described how the individual marketing factors may be applied to Body P2 and the industry, as well as identified some of the current opportunities, challenges and limitations of the Ex industry in South Africa.

CHAPTER 4

MARKETING RESEARCH AS A BASIS TO DEVELOP THE STRATEGIC MARKETING PLAN

4.1 Introduction

According to CF Van Veijeren [1] marketing research is the gathering and analysis of data on marketing situations by means of scientific methods, with the objective that the information is used in the rational development of marketing plans.

The higher the competition becomes in a specific marketing sector, the more important the marketing research becomes. This may ultimately give the business / organisation the strategic edge in competing in the market, by having the most accurate or relevant information available.

As a result of the limited scope of the dissertation, marketing research will only be discussed in brief.

4.2 Sources of marketing research

According to CF Van Veijeren [1], the techniques for doing marketing research may be subdivided into two major categories according to the sources of the research:

- **Secondary sources:** Typically, information / data already published, or are already available in some form or the other, but not directly useable.
 - External: E.g. statistics and information in publications from official or semi-official bodies, technical publications etc.

- Internal: E.g. sales etc. but in a form that may be easily processed.
- **Primary source:** These sources provide “new” information and invariably cost more. It is recommended that these sources be utilized if the secondary sources do not provide sufficient information.

An analysis of Body P2 and the type of marketing research that may be valuable include the following as seen in table 4.1:

Table 4.1: Body P2 Marketing Research Sources

Body P2 Marketing Research Sources		
Secondary Sources		Primary Sources
External	Internal	“New” sources
DME Newsletter: Information is given with respect to. the types and amounts of accidents. Association meetings cover latest developments in the industry and provide good indications of opportunities.	Body P2 job book. This book is invaluable with respect to. the amount of information it holds electronically. The client name, type of project, date(s), invoiced amount, technical person involved etc. is available in electronic format. Many tendencies may be easily obtained from this document.	By using the Body P2 address book, many of the clients not supporting Body P2 may be contacted, e.g. telephone calls, from which specific questions may be answered, covering the scope of the research. Alternatively, specific questions may be electronically sent to the clients, but reaction may be doubtful in many instances. In addition, if the caller (telephonic) is skillful, much more information may be obtained from the way answers are given, than from the actual answers.

<p>DME database of mines: Although mines are not always active clients of laboratories, the amount of mines vs. active mine clients may be observed.</p>	<p>The Body P2 address book. This book holds all the contact details of all known role-players in the field, including clients not supporting Body P2 at this stage. This book is kept up to date as far as possible.</p>	<p>DME database of mines: Opportunity to contact the mines and find out what services they may require with respect to. the Ex field, e.g. training, inspections, certification of mine machines, auditing of repairers etc.</p>
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The activities of personnel in the field and informal discussion with clients, quite often lead to good information or leads. However, being a small and exclusive industry, one must distinguish between fact and rumor. In addition the handing down of information from one source to another is not always very accurate and must be confirmed via another source. Under estimating the implications can be quite detrimental to the company, for instance ignoring a comment that a laboratory is setting up a training program with many mines can lead to the company falling behind. (Mostly it is the first movers (strategically) in this field that obtains the prize). Over estimating the implications / possibilities of obtained information and then charging in the wrong direction may waist very scarce resources.

4.3 Features of industrial marketing

According to CF Van Veijeren [1], important and distinctive features of industrial marketing research include consideration of:

4.3.1 Derived demand

Test and certification services, per definition are a derived demand. For instance, the only time testing and certification is effectively required, is when new products are developed or when modifications to existing products take place. Therefore, it is dually derived.

- When the end-user requires new installations and / or products.
- Then the manufacturer will supply the new products and ONLY when he does not have products that are already certified, then he will require test and certification from a test laboratory.

From the above, the following tendency has been found to be a bit surprising at first, but actually quite simplistic. When the market is booming, the development of new products in the Ex field may not be significant. This follows the scenario that businesses need not spend time on these developments, because they are profiting from producing the run of the mill products. The test laboratories tend to have less work during this period. However, when the economy boom subsides, manufacturers are often forced to turn to new developments, requiring more services from the test laboratories.

4.3.2 Useful life of the service

This aspect was one of the more problematic features for test laboratories. It has now been addressed by the regulators. The problem and solution are as follows:

- Before 2005, the useful life of a certificate in South Africa was deemed endless. For instance, equipment certified in the 1950's are still being manufactured and sold with no restrictions. In contrast a company wanting to enter the market against such a manufacturer needs to comply with the latest standards, with much stricter requirements.
- Numerous manufacturers do not comply with the mark scheme (product certification) requirements or do not do batch testing on production units. To modify equipment numerous times and still use the original certificate some manufacturers also foresee no problem with. End-users are not always in a position to know about such modifications.
- The latest approach from the regulators is to allow a validity of ten years for a certificate. Thereafter, the product (if still manufactured) needs to be re-evaluated against the latest standards.

4.3.3 Market concentrations

CF Van Veijeren [1] describes the differences between the different market concentrations. Applied to the case study, the concentrations are as follows:

For the test laboratories, the market concentration is taking the form of industrial concentration. This follows from the manufacturers, who have an industrial concentration for their products, which are mostly focused on the mines or refineries.

Second to the industrial concentration a geographical concentration of clients may be found. The manufacturers are located mainly in the big business centers, especially close to the activities of the mines and refineries (Businesses centered in Gauteng, mainly Johannesburg and the East Rand may be focused around the availability of resources, rather than being close to the actual client.). Other large centers include Durban and Cape Town.

Purchasing concentration for the manufacturers also revolve around the mines and refineries and therefore purchasing concentrations exist for the test laboratories around these manufacturers supplying the mines and refineries.

4.3.4 Market segmentation and client analysis

Being “all things to all people” does not result in success for business. Therefore, market segmentation is important. Five steps may be proposed as obtained from the sources consulted. See table 4.2.

Table.4.2: Market segmentation and market share for Body P2

Step	Description	Evaluation of Body P2 / Ex market.	
		Surface industry	Underground
1	Identification of all possible and relevant market segments.	<ul style="list-style-type: none"> Importers of Ex equipment (40%) [Body P2 2%] 	<ul style="list-style-type: none"> Importers of Ex equipment. (20%) [Body P2 5%]

2	<p>Quantification: Gathering of market and segment sizes. (Expressed as a percentage of the total market for test laboratories)</p>	<ul style="list-style-type: none"> • Manufacturers (Local) (35%) [Body P2 8%] • Manufacturers (Global) (5%) [Body P2 4%] • End users (20%) [Body P2 4%] 	<ul style="list-style-type: none"> • Manufacturers (Local) (60%) [Body P2 10%] • Manufacturers (Global) (5%) [Body P2 4%] • End users (15%) [Body P2 3%] 		
3	<p>Qualification: Determining the qualitative buying characteristics of buyers in the various market segments.</p>	<p>Because of the extent of this section, an abbreviated description is given here for surface industry (Manufacturers (local)):</p> <ul style="list-style-type: none"> • Most manufacturers are Body C1 mark holders and therefore default to Body C1 Test laboratory². (Order losing criteria)³ • Cost an important issue. Opposition costs are quite low.⁴ (Order qualifying criteria) • Some end-users still require BODY C1 certified products. (order losing criteria) • Turnaround time / ease of getting the product certified. (Order winning criteria). Some manufacturers will let this criteria take precedence even if they are BODY C1 mark holders. • Lack of knowledge of most buyers in the Ex field, with regards the specification, certification and current regulatory structure. This effects the manufacturers' requirements with regard test laboratories. (Order losing criteria) 			
4	<p>Selection of the most appropriate marketing segment</p>	<p>The most appropriate marketing sectors are as follows:</p> <table border="1" data-bbox="528 1327 1361 1391"> <tr> <td data-bbox="528 1327 945 1391">Surface industry</td> <td data-bbox="945 1327 1361 1391">Underground</td> </tr> </table>		Surface industry	Underground
Surface industry	Underground				

² BODY C1 product certification is not accepting other test reports. This may be based as a method to protect their market.

³ Criteria are categorized in order winning, order losing and order qualifying criteria. This is deemed from the Body P2 perspective.

⁴ Opposition test laboratories to body P2 is deemed to maintain significantly lower costs to clients. The hourly rates between the three laboratories are comparable, which when analyzed means that less time is spent by opposition bodies on similar projects. In comparison with international trends, Body P2 spends less time on similar projects than international laboratories. These tendencies need to be further investigated by body P2.

		<ul style="list-style-type: none"> • Importers of Ex equipment NO(Note 6) • Manufacturers (Local) Yes (Note 7) • Manufacturers (Global) Yes (Note 8) • End users YES (Note 9) 	<ul style="list-style-type: none"> • Importers of Ex equipment. No (Note 10) • Manufacturers (Local) Yes (Note 7) • Manufacturers (Global) Yes (Note 8) • End users Yes (Note 9)
5	Segmentation entry strategies (Abbreviated)	<ul style="list-style-type: none"> • Manufacturers (Local) Yes (Note 11) • Manufacturers (Global) Yes (Note 12) • End users YES (Note 13) 	<ul style="list-style-type: none"> • Manufacturers (Local) Yes (Note 11) • Manufacturers (Global) Yes (Note 12) • End users Yes (Note 13)

The estimated market share that Body P2 has with regards the market segments are indicated in square brackets.

Notes:

- 1) The extremely low market share that Body P2 has with regards the surface industry importers is typical to all test laboratories. This is a result of most test laboratories' certificates abroad are accepted directly for use on surface industry in South Africa.
- 2) It is clear to see that Body P2 has a very high market share on globalized / international work, but limited work for the local market. Many reasons for this have already been raised in previous chapters, but it does remain a concern.
- 3) It seems like more "order losing criteria" exist from the analysis above for the specific marketing segment chosen. This is the context within which Body P2 has to market. It was found that this does describe the current tendency, in which the quality of work, service

etc, plays a lesser role than the prescribed, conservative approach by end-users with a high resistance to change.

- 4) Body P2 has a significant market share with regards globalized companies, because of its international links. This is one of the strengths of Body P2.
- 5) The percentages above cannot directly be correlated to monetary terms. The reason is that international projects generate much more income than local projects, although it might represent a lower percentage of the actual market. Therefore the market share / percentage has been based on the number of projects available in the market and not on the income generated by each.
- 6) The regulations allowing overseas certificates are not going to change in the near future. Therefore, this market is not deemed profitable at this stage.
- 7) Obtaining a market share will mean that willing clients are to be identified for basically moving their mark scheme across to Body P2. This is normally a significant strategic decision that clients are hesitant to make. However, some clients have been obtained from this source, especially clients that are unhappy with the other laboratories. If an effective relationship can be established, these clients often become long-term clients.
- 8) It seems like this market is totally occupied by Body P2. This may be true for the local market for which the percentages are an indication. However, because of the international links, markets in the Ex fields in other continents may be more profitable. For instance if 0.1% of the Ex market in Europe can be obtained, Body P2 may triple their manpower and associated income.

- 9) It was explained elsewhere in this dissertation of the spin-off effect into the core business of test laboratories from this market segment. It is therefore important for Body P2 to get involved in becoming more visible in this market segment. The mining sector may be more influenced by active marketing than some of the refineries. However, formal marketing (e.g. glossy brochures etc.) with mining personnel does not always reap the required results.
- 10) The current regulations force importers of Ex equipment for the mines to obtain a local certificate. In the rush of laboratories to make money and to obtain the client, a historical tendency is continuing: The laboratories basically endorse the international certificate and allow sales of the product for 12 to 18 months, without batch testing or a mark scheme. This is believed to be unfair towards the local manufacturers, but is one of many issues on the table at this point. The actual income from issuing such certificates is low and therefore does not warrant actively marketing in this marketing sector directly.
- 11) As discussed, many of the local manufacturers are already set in their ways with BODY C1, and are often forced by the end user to have BODY C1 certification. The BODY C1 name also gives their product more clout. Manufacturers are not easily moved to another service provider. If manufacturers want to have product tested at other laboratories, they are restricted by the BODY C1 mark scheme under their rules. This market segment is not seen to move quickly and in most instances not at all. It is the responsibility of Body P2 to remain visible and deliver good service to clients who do move. Another consideration is to maintain a high level of competence in the eyes of the client by strategically sending out newsletters via its database. The individuals

who may be willing to move may be identified by means of cold calling or more effective, considering the resources available, by telephonic contact, followed up by e-mails and additional calls over an extended period.

- 12) The global manufacturer is seen as a very promising market for Body P2. The entry of this market segment will however take very careful strategic planning and marketing. The biggest concern with entering the market is the costs involved to set-up the business to be competitive on an international basis. To be able to compete and have more acceptability of the Body P2 certificate, Body P2 must become a member of the IECEx scheme. This is an international scheme in the Ex field to allow a single certificate, issued by an approved certification body, based on results from an approved test laboratory, to be accepted world wide. In the context of Body P2 and South Africa in the Ex field it will create huge opportunities. It has been identified by a questionnaire to industry, while the author was still with BODY C1, that only a small number of local companies would make use of such a scheme. These companies now already make use of Body P2 for the certification of their products into other markets. The IECEx scheme is therefore strategically only seen as a means for the attraction of certification for foreign manufacturers. An estimate of approximately two to three years is considered for the scheme to break even in a SA laboratory. For Body P2 as a young and small company, bearing costs of R150 000 to R200 000 for the first year, including peer assessment / audit by the scheme and then approximately R80 000 per year is a significant burden at this stage. However, this is seen as a long-term solution for the problems that

Body P2 have in breaking new ground in the current South African market, with its unique challenges.

A second method employed already by Body P2 is by making use of its agreements abroad. However, this is to some extent restrictive in entering these markets, because no test laboratory would like to see a national client going abroad to obtain test work for submission to him for national certification. This may still work with regard Europe, or American manufacturers wanting to enter Europe, where many laboratories exist in the different countries part of the European Union. If a client from Switzerland is obtained and test results are submitted to the laboratory in the UK, this should not be seen as direct competition.

Extending subcontracting work for European laboratories that have too much work is also considered by Body P2.

- 13) Some of the Body P2 clients have identified the lack of visibility of Body P2 at the end-users and have suggested that they may help in giving some guidelines on who the decision makers are within large companies. The decision makers / buyers will need to be identified especially with the refineries (e.g. SASOL) and the mines. Meetings may need to be organized with these people, based on preliminary discussions with regards the concerns / reasons these people may have in using (or not) Body P2. Well-structured facts need to be presented during these meetings and follow up work will be essential in closing the deal.

As part of step 4 above, the strengths and weaknesses of Body P2 with regards the different marketing segments should be identified. (A brief discussion follows in table 4.3)

Table 4.3: Strengths and weaknesses of Body P2 with respect to. market segmentation

Market Segment	Strengths	Weaknesses
<ul style="list-style-type: none"> • Manufacturers (Local) and end users 	<ul style="list-style-type: none"> • High competence • Good service / turnaround • Up to date with national developments 	<ul style="list-style-type: none"> • Not willing to “bend” the rules • Established BODY C1 / Body P1 clientele. • Pricing structure too high for most national clients. • Limited resources to pursue the market properly. • Low visibility in the field
<ul style="list-style-type: none"> • Manufacturers (Global) 	<ul style="list-style-type: none"> • Experience in international projects. • Internationally comparable competence • Very good service / turnaround in comparison with international trends. • Up to date with national and international developments especially in Europe. • Mutual recognition agreements with overseas laboratories. • Good pricing in comparison with international prices. 	<ul style="list-style-type: none"> • Cannot issue the international certificate directly. • International laboratories still takes a long time in issuing the certificate, sometimes negating the reason for sending work first to Body P2. • Body P2 does not cover all the markets of interest to the client, e.g. Canada. • Clients based international. • Marketing not done effectively / Relationships with overseas laboratories must be handled carefully. • Client do not know Body P2.

From Step 4, the market segments worthwhile pursuing have been identified. The desirability of the segments in comparison with each other has not been identified. A GE-McKinsey matrix will now be used to compare the desirability of market segments in comparison with Body P2 strengths.

For the selective market segments used as a basis for the development of table 3 below, it is clear to see that Body P2 must focus on global manufacturers and local manufacturers. Until the regulations on acceptance

of international certification in SA changes, importers of Ex equipment into South Africa will not require much assistance from Body P2 and as already discussed, it is a low income market for test laboratories, with low repeat testing or ongoing income for the laboratory.

4.4 Conclusion

It is clear to see that by proper market research, including analyzing the market segmentation and an analysis of the prospects / client base in each market and then comparing it with the strengths of Body P2 that a significant amount of possible market share is possible for body P2. However, contrary to expectation it seems that most of the opportunities lie within the international market. The fact that the analysis has led to a result which is unexpected, but still makes sense, shows the strength of the tool(s) used to do the analysis.

Gaynor [5] indicates that strategic marketing has to answer two relatively difficult questions.

- Who will the company's customers be in the future?
- What will the customers in the future need?

In the handling of the case study the first question is addressed as a matter of priority for Body P2. As a result of the evaluation it was found that international certification and more associated work to test and certification must be considered by the organization.

Table 4.4: GE-McKinsey matrix with respect to. Body P2.

		Attractiveness of a particular market segment		
		HIGH		LOW
Company's strength	HIGH	MANUFACTURERS (GLOBAL)	---	**IMPORTERS OF EX EQUIPMENT
		Most desirable segment	Attractive segment	Only acceptable under special circumstances
		Action: Build / develop	Action: Build / develop	Build selectively (If applicable)
	LOW	MANUFACTURERS (LOCAL) END USERS	---	---
		Attractive segment	Only acceptable under special circumstances	Undesirable
		Action: Build / develop	Build selectively (If applicable)	Divest or do not enter
	LOW	---	---	---
		Only acceptable if strength can be improved	Undesirable	Most undesirable segment
		Either improve, or do not pursue	Divest or do not enter	Divest or do not enter

** The strengths and weaknesses for this market segment have not been developed above.

CHAPTER 5

THE STRATEGIC MARKETING PLAN

5.1 Introduction

The preparation work has been conducted in the preceding chapters, with respect to. a discussion on stakeholders, proper planning, aspects of industrial marketing and market research to set up a strategic marketing plan.

According to CF Van Veijeren [1], the four major phases in the strategy planning process may be indicated as indicated in figure 5.2.

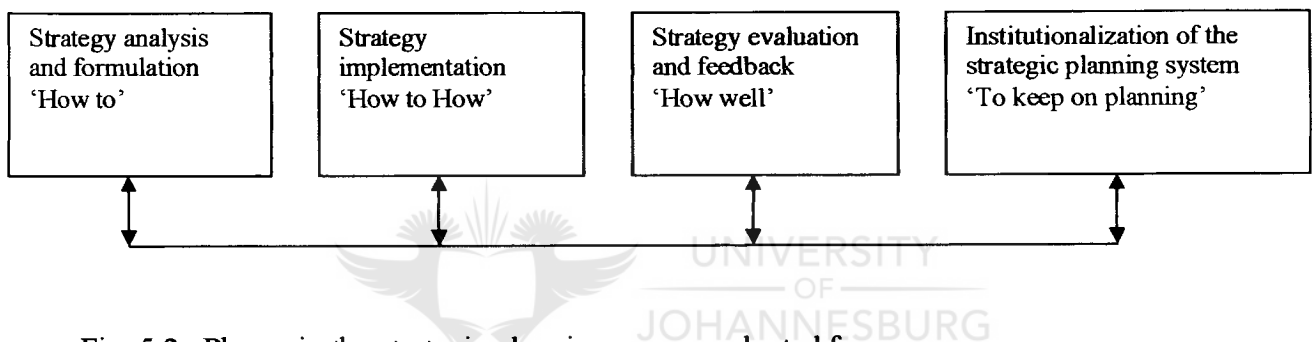


Fig. 5.2: Phases in the strategic planning process adapted from

Gaynor [5] indicates that an effective strategy is hard to formulate and even harder to implement. Strategy is “embedded within the organizational fabric” and is therefore not easy to change rapidly.

Because of the limited scope of this dissertation and the detailed background and aspects discussed in previous chapters, above steps in the development of a strategic marketing plan will be discussed very briefly in this chapter.

5.2 The strategic marketing planning model

Cronje, Du Toit Motlatla [9] give different phases to the integrated marketing strategy. They consider products of the organization, but a similar approach may be considered for a service. The applicable phases considered are, introductory phase, growth phase and the maturity phase. In the introductory phase a demand is created with clients who are more “adventurous”. They feel that the price may be high in this instance, as the product has a prestige value. Not much more is going to be said about price, as the service is “identical “ to those of the competitors, unless some additional value can be added, e.g. better service, wider acceptability of the report / certificate etc. Body P2 may consider creating a higher demand for their product by actively marketing and making the client aware of the added value they provide. As Body P2 is also now relatively well established, it is not only the “adventurous” clients who should be targeted, as indicated in the growth phase.



The strategic marketing planning model may be indicated as in the flow diagram below. However, according to CF Van Veijeren [1] some important characteristics must be emphasized:

- The process is not a neat and ordered process. Information may be required at different stages for decision making, although the process for obtaining / defining the information is indicated elsewhere in the diagram.
- The process is iterative and requires reconsideration of previous decisions / information, as the process continuous.
- Garbage in is garbage out. The marketing plan will be as good as the information it is based on.

With regards the model and the application for Body P2, the following have been addressed in the text above, although not necessarily explicitly indicated / summarized as such:

- Market segmentation
- Analysis of the current situation
- Marketing research
- Industry analysis
- Marketing / business value system philosophy and personal preferences.
- External environmental assessment / opportunities and threats
- Internal appraisal / Strengths and weaknesses
- Competitive positioning

With regards the model and the application for Body P2, the following have not yet been addressed in the text above. Some of these will be addressed below:

- Marketing objectives: Objectives must be set with the following aspects in mind, considering that if one is neglected it might lead to the overall diminishing of the performance of the firm:
 - Market standing
 - Innovation
 - Productivity
 - Physical and financial resources
 - Profitability
 - Manager performance and development
 - Worker performance and attitudes

- Public responsibilities

It is curious to note that Body P2 does not have a significant challenge in any one of the aspects mentioned. Objectives with regards each one of these are therefore important.

- Mission and a Vision (No further development in this text)
- Quad chart (SWOT ANALYSIS)

A full SWOT Analysis is not conducted and many of the important aspects for this analysis have been discussed in previous chapters. However, in achieving the environmental assessment (opportunities and threats) one may consider analyzing the industry by means of the five competitive forces model (fig. 5.3) of industry analysis and competition

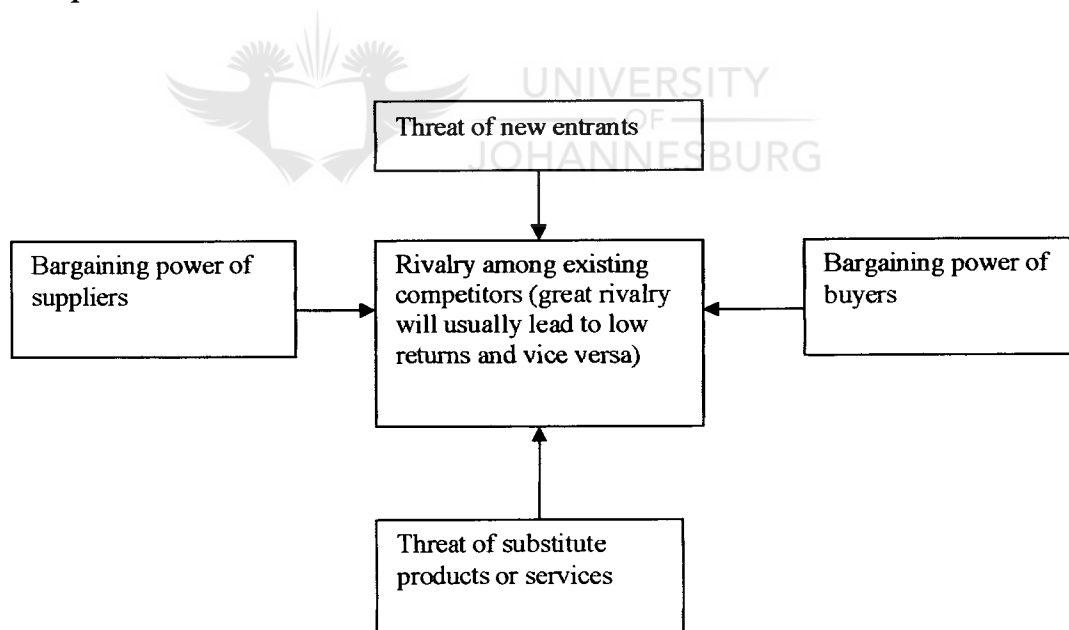


Fig. 5.3: Five competitive forces model

For Body P2, the following is important with respect to the SWOT analysis, also following previous discussions:

- The field of test and certification is extremely specialized and has relative high entry requirements. New entrants are not foreseen in the short term.
- The rivalry amongst existing competitors is relatively high for reasons including maintaining client relationships, rather than external market forces. Therefore, projects may be accepted at extreme low cost to maintain clients rather than doing high quality work at applicable rates.
- The threat of substitute products or services is not significant. As a matter of fact, the possible markets have not been properly tapped yet.
- Bargaining power: If the test laboratories stop their infighting / excessive competitiveness, their bargaining power will increase in the market place vs. the high perceived bargaining power of the client.
- “Follow the leader” strategy has worked well in the set-up phases of Body P2. However, the associated problems, inherently in the historical dispensation are also taking its toll and Body P2 must now become the leader and set up a new strategy.

A competitive advantage is the basis for profitability in the long term. I.e. a strategy is developed to create and maintain the competitive advantage. Competitive analysis is based on identifying the sources of comparative advantage. Body P2 has significant comparative advantages in its competence, international acceptance, etc. but comparative disadvantages with respect to. the recognition of its name, etc.

Cronje, Du Toit Motlatla [9], referring to their marketing “war”, give different “attack alternatives” including: Frontal attack, when the organization is threatened on all fronts, including their strong points. A flanking attack is when focusing on the oppositions weak points. Encirclement is when focusing on many different fronts of the opposition.. For Body P2, encirclement strategy has been used up to this stage. However, more focus is required on the actual marketing as analyzed in the rest of the text.

From the SWOT analysis, different types of strategies may be considered (See fig 5.4):

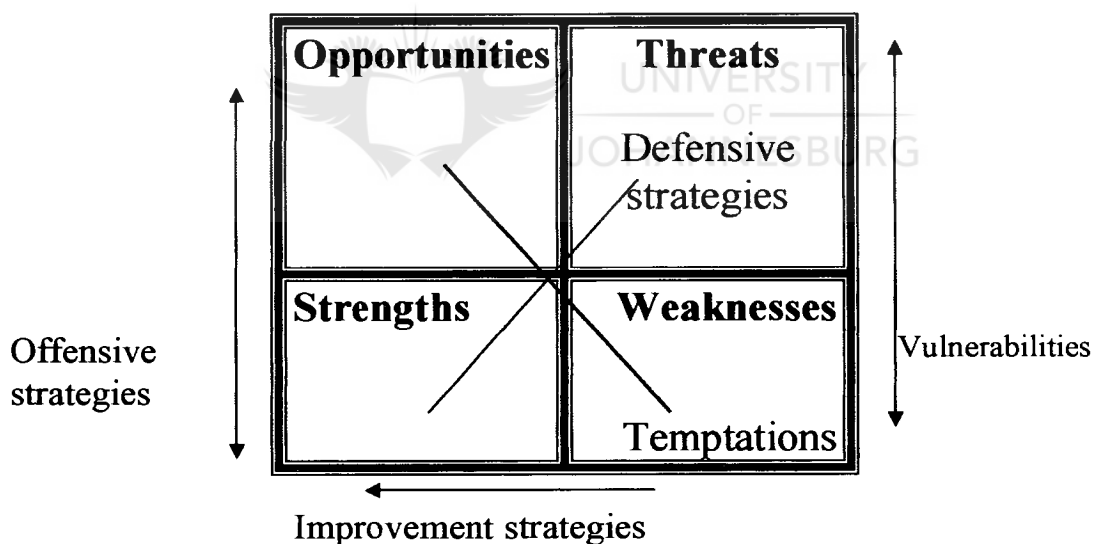


Fig. 5.4: Strategies, based on the SWOT analysis.

- **Offensive strategy:** Body P2 will for instance combine their competence and international acceptance with obtaining more work in the lucrative international markets.

- **Defensive strategy:** Body P2 will spend the least amount of effort on this strategy to prevent a threat becoming a liability. For instance to ensure that BODY C1 as a perceived national regulator do not get formal preference in national documentation, for instance in standards.
- **Temptations:** A weakness, combined with an opportunity will be problematic, for instance chasing a contract where Body P2 does not have enough personnel to fulfill its obligations.
- **Vulnerabilities:** Body P2 may not have enough personnel to cope with all areas it should be involved in. Therefore Body P2 needs to obtain more personnel (competent) and defend the threats.
- **Improvement strategies:** As mentioned above, personnel (competent) may be improved. Also, financial progress should be made to be able to get additional personnel to achieve critical mass, as well as to obtain international accreditations which will open the international markets for Body P2. The weaknesses will then not have such an influence on the strengths (e.g. good competence in Body P2 is influenced by low income and lack of sufficient personnel), which will allow Body P2 to pursue their offensive strategy.

Fontaine [8], indicates strategies as follows: Cost leadership, differentiation and focus. From the analysis of the case study, cost leadership is clearly not an alternative, while differentiation and focus may be deemed as a combined approach. The differentiation may be that higher level / export test and certification work is done for export customers, which may then be charged at a higher cost. However, the number of clients in South Africa who wants to export are limited.

- Marketing mix, competitive advantages (covered in text above) and action plans (no further development in this text).
- Implementation of marketing plan. For the implementation, an organizational framework should be considered, consisting of two aspects:
 - Formal structures:
 - The organizational structure follows the strategy. For instance, as previously mentioned, it is important to create a one stop shop for the client. Therefore, Body P2 has been set up that one technical person is allowed and empowered to deliver all services as far as possible to a single client.
 - Resource allocation: Body P2 still has some significant problems with regards resources as discussed above. Currently an additional administration person has been employed to allow the existing person to have some free time to help technical personnel. This will allow less time to be spent by technical personnel on unnecessary activities and spend more time on projects.
 - Planning and control systems and budgets: Body P2 has not set up a specific budget to support their strategy / marketing plan. This is deemed a shortcoming and is currently being addressed. The freeing of the admin person will also allow more management in the organization to take place, especially in allowing control of activities, e.g. income per person, turnaround time on projects, project management of the projects etc.

- Choice, evaluation and reward of key personnel: Body P2 prides itself in the choice of personnel they have. The process of evaluation of achieving objectives by personnel is currently developed and performance based salaries / bonuses will follow:
- Dynamic processes: The leadership style of the two senior members in the organization differs substantially. However, the two members acknowledge this and allocate different projects (phases) according to what leadership style is required. The personnel also acknowledge the differences and cope well with the different roles of the members in the company. The culture is one of active work and development within the company, in which people are allowed to have an opinion and make decisions, with excellent results. The personnel see their responsibilities as a challenge and are proud of their work.
- Institutionalization.

The momentum of the marketing / strategy must be maintained. Different aspects may be mentioned on how the momentum may be influenced. For brevity, it is not discussed:

 - Training of management in planning etc.
 - How much scope is allowed for creativity / changes in the plan.
 - Strategic planning should be reviewed regularly.
 - Rewards for performance.
 - Strategy / marketing should be handled as a serious aspect of the organizations activities.

- Communication of the plan should occur continuously.

According to Fontaine [8], the budget is a financial plan for implementing the various decisions made by management. As this dissertation follows a qualitative approach, not much has been said about the cost of strategic marketing, but it may not be neglected as part of the implementation of the strategic marketing plan.

From the above it should be clear that the process of strategy / marketing is a formal process and should be handled as such.

5.3 The strategic marketing process

The strategic marketing process may be summarized as in figure 5.5.

5.4 Conclusion



The development of the strategic marketing plan involves inter alia the use of SWOT analysis and appropriate strategies based on this analysis. The effective implementation is based on the institutionalization of the plan with the appropriate dynamics to react to market changes, but also with the appropriate commitment for the effective execution of the plan.

Body P2 is actually positioned quite well within the market place to serve a niche market within the South African context as well as an international market and based on the implementation of correct strategies may succeed as a company.

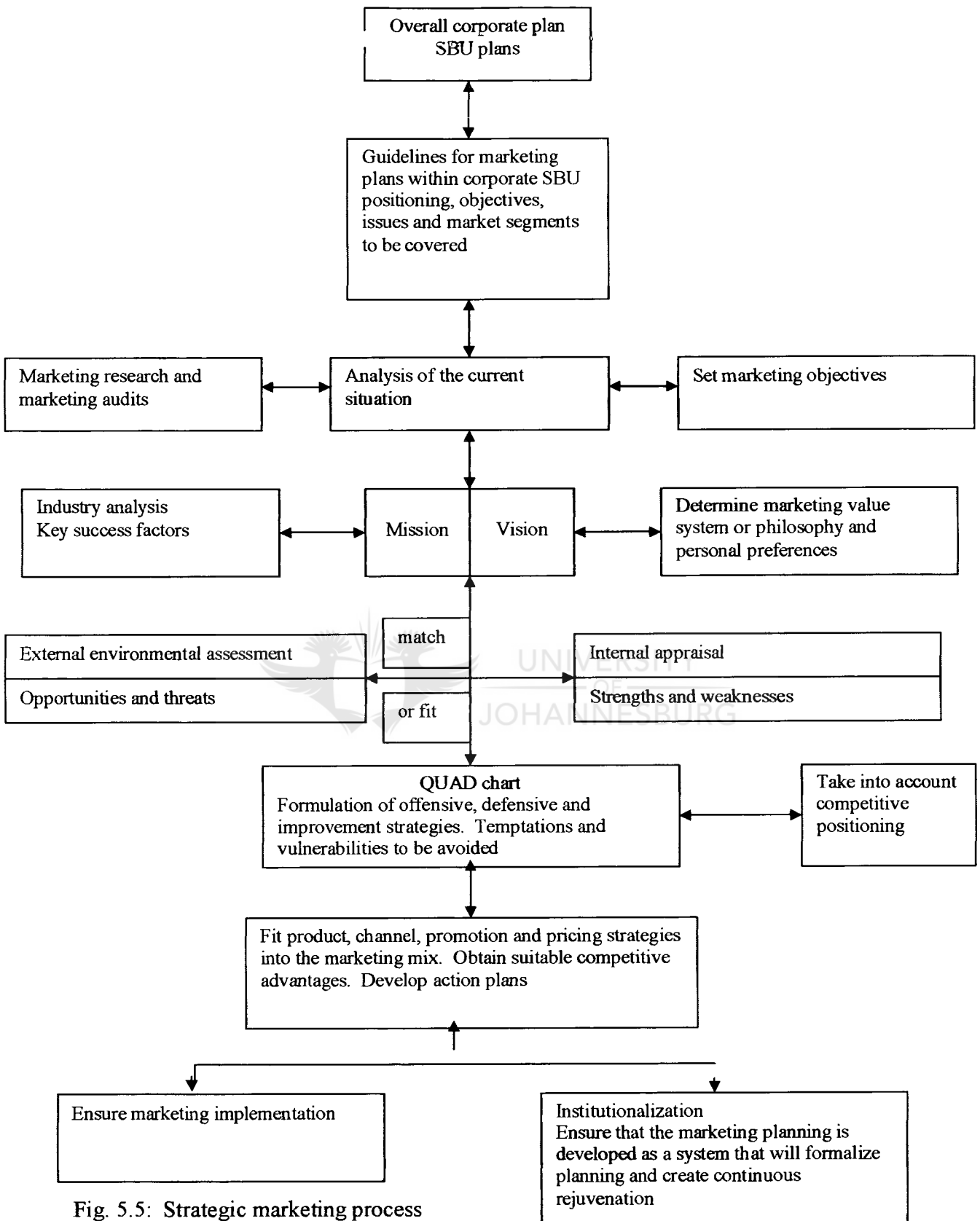


Fig. 5.5: Strategic marketing process

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

The Ex industry is a very specialized and a relative small part of industry in South Africa. As a start up business it was not difficult to comply to the legal requirements. However, the challenges for the organization were (and still are) to gain acceptance in industry with a related market share and commercial viability.

Personnel in the test laboratory have to work within a legal framework, while servicing a client base of manufacturers and end users and supplying a wide range of services. Finding skilled personnel with the correct experience is a challenge, especially considering the low cost competitive structure currently in South African Ex test and certification.

From the analysis conducted in chapters 1 to 6, it should be clear that strategy and marketing should not be separated. This aspect was discussed by considering many different aspects and challenges faced by the start-up company Body P2 in the case study.

Body P2 should do a full market analysis, typically as described in the text, identifying how the individual marketing factors may be applied to the organization. From the work done in this document some specific areas of focus have already been identified, e.g. global markets and marketing the unique value that Body P2 provides. The analysis should include, as was done in this document, the opportunities, challenges and limitations of the Ex industry in South Africa vs. the strengths of the organization.

It is clear to see that by proper market research, including analyzing the market segmentation and an analysis of the prospects / client base in each market and then comparing it with the strengths of Body P2 that a significant amount of possible market share is possible for body P2. It was also clear from the analysis that by using a step by step approach in the analysis, results may be obtained that although unexpected, makes sense and may give some direction to the company, even in how the company should be structured.

The development of the strategic marketing plan involves the use of SWOT analysis and appropriate strategies based on this analysis. The effective implementation is based on the institutionalization of the plan with the appropriate dynamics to react to market changes, but also with the appropriate commitment for the effective execution of the plan.

Body P2 is actually positioned quite well within the market place to serve a niche market within the South African context as well as an international market and based on the implementation of correct strategies may succeed as a company.

Also deducted from these discussions, marketing and strategy are not an exact science and the baseline may change in time, requiring constant review.

To summarize:

Body P2 is functioning in an exclusive / specialized industry with its own problems, historic approaches and competition. It is the responsibility and challenge for Body P2 to take a stance beyond all of this and look at a fresh strategy on which their marketing as well as business structure is based. Their marketing is not just based on obtaining new work, but based on the strategy, which requires the company to achieve critical mass in personnel with respect to. the specialized Ex field, before significant progress can be made.

Although the members of the company have a good idea of where the company should be heading, the current problems and challenges will not be overcome, unless proper formal general planning and a strategy and marketing plan are formulated according to the guidelines set out in this dissertation.

The most important part is that the Strategic marketing plan should be implemented by Body P2.

Recommendations for future research may include:

- The interaction, expectations, perceptions and effect that the different stakeholders may have on the test laboratories may be analyzed, as well as the effect of the test laboratories on industry as a whole.
- South African test laboratories (e.g. Ex laboratories) in the global market may be investigated. E.g. acceptability, barriers to trade,

pricing strategies, technical competence, perceptions of the international markets with respect to. South African reports and certificates.

- The effect of constantly changing standards on the South African industry, including laboratory competence, re-certification, awareness of industry, awareness of regulators etc. In conjunction with this an analysis / comparison of the different regulatory systems in the Ex industry may be conducted, e.g. South African regulatory framework vs. the ATEX directive in Europe, the ANZ Ex scheme in Australia / New Zealand and the IECEx international scheme.



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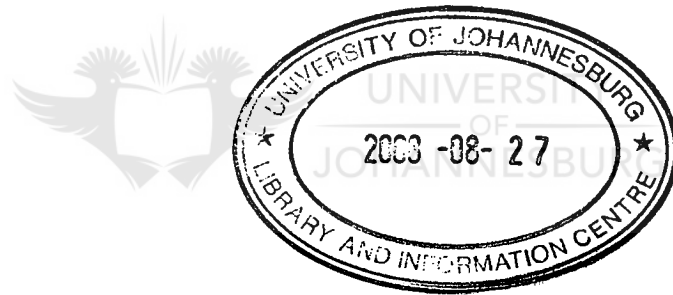
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