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Search engine optimisation elements effect on website visibility : the Western Cape real estate SMME sector

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SEARCH ENGINE OPTIMISATION ELEMENTS' EFFECT ON WEBSITE VISIBILITY: THE WESTERN CAPE REAL ESTATE SMME SECTOR

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DECLARATION

I, the undersigned, hereby declare that the work done towards this qualification has been my own work and that it has not been submitted to any other educational facility for assessment. In addition, all sources that have been used or quoted are indicated and acknowledged by means of complete references. Opinions expressed are my own and not necessarily those of the Cape Peninsula University of Technology.

Signature: _____ Date: _____

EB Visser

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DEDICATION

In Honour of God

“I can do everything through Him who gives me strength.” (Phil 4:13)

“It is not reason which makes faith hard, but life.”

- Jean Inglow

ABSTRACT

SEARCH ENGINE OPTIMISATION ELEMENTS' EFFECT ON WEBSITE VISIBILITY: THE WESTERN CAPE REAL ESTATE SMME SECTOR

The primary objective of this research project was to determine whether search engine optimisation elements as specified in the Chambers model, affect real estate website visibility. In South Africa, real estate companies predominantly function as SMMEs and are therefore as vulnerable to failure as any other SMME in the country. In order for SMMEs to reduce the possibility of failure, they need to re-evaluate their use of the Internet, as it could assist in their survival. The traditional company structure is no longer sufficient to ensure market reward. The reality is that users are rapidly adapting to the technology available. The Internet is fast becoming a communication, commerce and marketing medium that is changing business globally.

Real estate SMMEs are unable to adapt to e-commerce in its purest form, however, they can make effective use of e-marketing. Static websites are used for that specific purpose. A marketing strategy is imperative to the survival of a company, whereby the firm is able to create and maintain a competitive advantage in a cluttered marketplace. Regrettably, hosting a website on the Internet is not enough. Searchers tend not to view search results beyond the second page - 30 results at the most. It becomes evident that companies should ensure that their own website ranks as high as possible on the search engine result page. This in turn should sufficiently market the company. Search engine optimisation involves designing or modifying websites in order to improve search engine result page ranking. The elements as specified in the Chambers model are extensively elaborated on in the literature analysis.

The methodology consisted of two stages - a questionnaire and empirical experiments. A quantitative research approach was adopted for both of these components. The primary objective of the questionnaire was to obtain search phrases from the public when searching for real estate online. The search phrases were then used in the experiments, testing the visibility of predetermined websites, which were based on a pre- post- test control group design methodology. In this instance, the before group consisted of five different websites from five different real estate companies which have been hosted on the Internet for a duration of no less than three months. The Chambers model was used in the development of five new optimised websites, one for each company. The new websites were hosted on the Internet for 27 days, in order to give search engines the opportunity to index them. The results documented were then compared in order to draw a conclusion.

A total of 121 key search phrases were obtained. The results from the old and new websites were applied to a process which produced a combination of results known as the 'quality factor'. The quality factor indicated either a visibility improvement or visibility deterioration with regard to the old and new company's website. In addition to this, this author compared

the optimised website which obtained the best visibility improvement with the website that obtained the highest deterioration in visibility. As a result, the elements specified in the Chambers model were re-evaluated whereby new elements that had not been specified in the original model were identified. Based on the new findings, this author developed a new search engine optimisation model as a secondary objective in this thesis.

RESEARCH OUTPUTS

The author has produced the following research outputs.

Output Type	Authors	Title	Institution / Event	Status
Journal Article	Weideman, M., Visser, EB.	Searching success for Ananzi users: the effect of demographic features and the choice of keywords.	Journal of electronic commerce research	In December 2006
Book	Weideman, M., Kritzinger, W., Visser, EB. (Editors)	ICT Research Forum No.2-2006	CPUT, Cape Town, South Africa.	Published: August 2006, ISSN: 1814-9812
Conference Paper	Visser, EB., Kritzinger, W., Weideman, M.	An empirical study on the implementation of the Chambers model: search engine optimisation elements and their effect on website visibility.	8th Annual Conference on World Wide Web Applications	Published in Proceedings of WWW 2006 (http://www.zaw3.co.za)
Poster	Visser, EB., Weideman, M., Strümpfer, C.	An empirical study on the effect demographic features and the choice of keywords have on searching success for Ananzi users	South African Institute of Computer Scientists and Information Technologists (SAICSIT): Enablement Through Technology & 7th Annual Conference on World Wide Web Applications	Abstract published in Proceedings of SAICSIT 2005 (ISSN: 1-59593-258-5 p.287) & Abstract published in Proceedings of WWW 2005 (http://www.zaw3.co.za)

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CHAPTER 1
BACKGROUND AND RESEARCH PROBLEM

1.1 INTRODUCTION

A great deal of research has been done with regard to the Internet as a source of information, as well as in respect of search engines, websites and indexing by search engines. Chambers (2005:128) created a Search Engine Optimisation (SEO) model in order to improve the indexing of websites by search engines, which aims to improve website ranking. Chambers also suggested that research could be conducted by applying this model to websites whereby the researcher would be able to monitor the ranking of websites on search engines.

The aim of this research project was to extend the research of Chambers (2005) by applying the SEO model as well as elements identified in the literature review and analysis to the real estate Small, Medium and Micro Enterprise (SMME) sector of the Western Cape. The research indicated the extent to which real estate website visibility was affected.

In order to provide a holistic view of the approach adopted by the author with regard to this research project, three separate aspects were identified and elaborated on:

- **The importance of SMMEs in South Africa**

South Africa's disappointing economic and social development since the 1980s may have been due to the politicians underestimating the significance of SMMEs in South Africa. According to South Africa's National Treasury (2006:23), close to 60% of South Africa's workforce is employed by SMMEs. According to the Department of Trade and Industry (2001), as cited by Baard and Van den Berg (2004), 98% of South Africa's business population fall within the small businesses category.

- **Strategic real estate marketing**

Real estate companies predominantly function as SMMEs in South Africa. They are information based and therefore sell a service as opposed to a product by introducing a willing buyer to a willing seller of a property (Rowley 2005:217). Both the service of the company, as well as the property for sale, is marketed by the real estate company.

Many different ways to market real estate exist, one of which is to make use of the Internet. Strategic real estate marketing is done by using the potential Internet marketing options to increase business exposure, which in turn should increase revenue (Van Steenderen 2001).

- **Website visibility**

The correct use of search engines should assist users in identifying and assessing relevant information in the shortest time possible. For this process to be successful, the search query must be formulated correctly. This involves the selection of keywords, perceived by the user to be the most accurate in describing the information need (Debowski 2001:371). Furthermore, the way in which the website has been designed plays an important role. It should contain most of the SEO relevant HyperText Markup Language (HTML) tags which are available. This is not only to ensure that the website is indexed by search engines, but also to ensure that the website is ranked highly during a search (Constantinides 2002). The difficulty is that website designers do not know the detail of operation of search engine algorithms, or the searcher's choice of keywords. Therefore the designer needs to make effective use of programming tools to achieve the objective of creating visible websites (Constantinides 2002).

Website visibility may also be affected by the intervention of intermediaries which 'harvest' information from the Internet and then re-publish it. It is for this reason that website visibility is important to real estate SMMEs, in order to ensure that potential and current customers visit their company websites. Potential customers should not be sent away to other sources of information.

1.2 STATEMENT OF RESEARCH PROBLEM

No empirical evidence could be found which confirms or rejects the value of website visibility optimisation in the real estate industry of South Africa. Weideman and Chambers (2005) suggest that website developers tend to spend too little or no time on optimising websites. Thus, real estate SMMEs may be at a marketing disadvantage, losing potential local and international customers, which in turn diminishes revenue if they do not optimise their websites. In addition, not many estate agencies have adopted the use of the Internet fully and therefore may not fully appreciate SEO as yet.

1.3 BACKGROUND TO RESEARCH PROBLEM

No other innovation has impacted communication between business and people the way the Internet has during the past decade. Integrating business and the Internet is a less expensive method to create an interactive environment by breaking traditional barriers and building strong international business relationships. At the same time, SMMEs aim to create a competitive advantage in the global marketplace competing with businesses of different sizes (Smith 2002). The business will thereby overcome geographical and cost barriers to new markets and will improve customer services, relationships, communication and sharing of important information (Simpande & Jakovljevic 2003). Owing to these reasons, SMMEs should integrate business and the Internet as soon as possible, to share information inside and outside the organisation (Simpande & Jakovljevic 2003).

1.3.1 Real estate SMMEs and their strategic marketing

The key role of real estate marketing is to publish details of properties available on the market (Rowley 2005:217). This objective can be met by advertising in magazines and newspapers, through pamphlets and window displays, on the Internet, etc. Most real estate agencies focus on their immediate area by advertising a property via their traditional window displays without excessive additional advertising costs. The disadvantage is that people living outside the area will not be exposed to the marketing of the property. According to Dermisi (2004:155), real estate companies have been using static brochure websites since the mid-1990s to increase business exposure.

Real estate companies using the Internet to market their properties have found the following to be advantages and disadvantages (Rowley 2005:219):

Advantages:

- Exposure of their business and properties to global, national and regional areas to match properties to customers. For instance, potential international buyers looking for holiday properties can view and purchase on the Internet before they arrive in the country.
- Customers can view a wide range of properties available on the market within a particular price range.

Disadvantages:

- Purchasing property is a major expense and customers might prefer to work with agents who are knowledgeable and experienced.
- The general public is reluctant to provide credit cards or banking information over the Internet owing to large amounts being required to purchase a property, bad service quality and lack of security (Lee & Johnson 2002:150).

The obvious analogy can be drawn that real estate companies who do not invest in a website are at a marketing disadvantage. On the other hand, real estate companies investing in a website are not necessarily at a marketing advantage, especially if that website is not visible to search engines.

1.3.2 Search engines

The Internet is a data repository of human knowledge. The Internet therefore provides electronic content via connectivity (Green 2000:130). During the early stages of Internet development, webpages were indexed manually and displayed on text-only browsers. In time, Web searching evolved, whereby search engines were designed with the intent to find websites currently available on the Internet by making use of automatic indexing of webpages. Web directories are similar to search engines with the difference that their indexes contain pre-determined websites, compiled by human editors and categorised according to topic (Green 2000:125).

Search engines are programs which run on servers and they perform four basic operations (Green 2000:126; Wells 2005).

- **Search engine spiders:** These are automated programmes sent out by search engines all over the Web to search for webpages, keywords and links on those pages. The 'spiders' then match the indexed words to the Uniform Resource Locator (URL). These spiders are also referred to as bots (robots), crawlers or worms (De Wet 2002).
- **Indexing of websites/webpages:** Once the keywords have been acquired from webpages, they need to be formatted and placed into the search engine database which makes up the search engine's index.
- **Interrogation processing:** When search engine queries are made, the search engine scrutinises its index to match the query made to keywords already indexed. The lists of results displayed are URLs from the index, pointing to the location of the webpage.
- **Ranking search results:** Most search engines apply an algorithm to results obtained from the search engine's index to calculate which results are the most relevant to the query. The results are then displayed in descending order of relevancy.

There are two types of webpages, namely, 'static' or visible and 'dynamic' or invisible. Static webpages do not change when accessed by users or indexed by crawlers. Change will only occur once the developer physically alters the webpage on the server. Dynamic pages, on the other hand, change depending on the user's input. For example, purchasing a book at Amazon.com will require that the customer provides and submits personal details along with the book details on a webpage. Such a webpage is dynamic, as it changes to the unique information provided by the customer. This is a major problem for search engine crawlers as indexing can not take place on a webpage that does not exist at the time when the crawler is indexing that website (Green 2000:124-125; Van der Westhuizen 2001).

1.3.3 Website visibility

Market communication is the process whereby a product or service is promoted by ensuring that the particular product or service is visible to the market (Rowley 2001b:203). Creating a website that adequately advertises the product or service is not enough. That website must be visible to the potential customer. According to Alimohammadi (2003:238), about 85% of users use search engines during their searching process. It is therefore important to design a website that should be easily indexed by search engines and is preferably displayed on the first search engine result page (Weideman & Chambers 2005).

One particular method of increasing website visibility is making use of metatags in webpages. This may give the developer a degree of control over how the webpage would be indexed (Alimohammadi 2003:238; Alimohammadi 2005:229). However, careful control must

be exercised when using metatags, images and frames in the creation of websites as these elements could also obstruct website visibility (Weideman & Chambers 2005).

1.3.4 Summary

The author developed a preliminary conceptual model (See Figure 1.1) to follow during the literature review and analysis. The model represents a conceptual framework of the author's understanding which changed on completion of the literature review and analysis. The model should be interpreting by starting with the three elements (SMME, Internet and search engine) and following the lines through the model to the centre, which illustrates a core component of the research project.

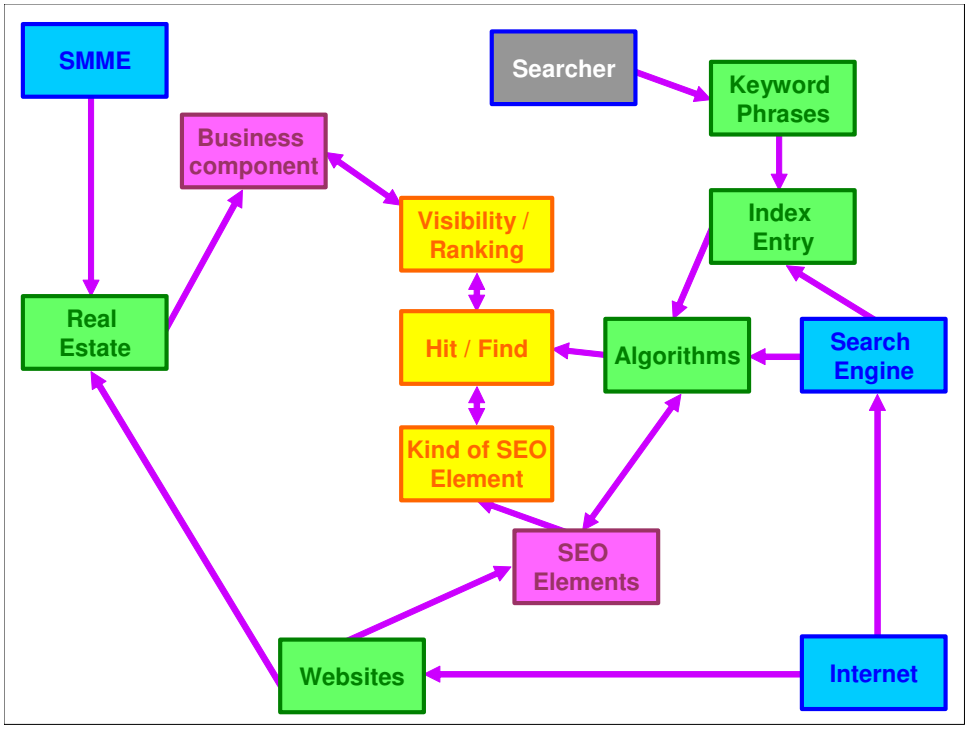


FIGURE 1.1: Preliminary conceptual model of the literature review and analysis (**Source:** Own source).

1.4 METHODOLOGY

A questionnaire was designed and hosted by a local search engine (Ananzi) in order to obtain data on the following areas:

- Keywords from predominantly the South African community, to be used when searching on search engines and web directories for a certain kind of website.
- Determining whether or not the community has made use and/or will make future use of the Internet when doing real estate business.
- Obtaining the community's perception of SEO.
- Furthermore, the author intended to create a profile of a typical online real estate user, based on the questionnaire results.

In addition, the author intended to co-operate with five real estate companies in the Western Cape, all with their own websites. Five subsequent websites were developed using the framework as specified in the Chambers model (refer to Table 3.1, Chapter 3, Paragraph 3.1), each one representing one of the five real estate companies. By means of specialised software, which would identify the necessary search engines, the keywords were used to search for all five companies (both old and new websites). The results were used to derive statistics, whereby the research questions, as reflected in Table 1.1, were answered.

TABLE 1.1: Research problem and questions (**Source:** Own source).

Research Problem	No empirical evidence could be found which confirms or rejects the value of website visibility optimisation in the real estate industry of South Africa.	
Research Question	Will search engine optimisation elements improve the visibility of real estate SMME websites?	
Research sub-question	**Research method(s)**	**Objectives**
Is strategic real estate e-marketing necessary?	Literature analysis	To investigate real estate marketing strategies, the importance thereof and the shift towards e-marketing
What search engine optimisation elements exist?	Literature analysis	To confirm that the Chambers (2005) search engine optimisation model includes the most important elements.
What types of search engines exist and how do they operate?	Literature analysis and software	To identify the search engines to be used in the methodology.
How do search engine optimisation elements affect website ranking?	Literature analysis	To investigate the search engines' indexing and ranking methods.
What is the general perception of the community regarding the use of keywords when searching for real estate companies?	Host a questionnaire on a high-traffic South African website in order to acquire the perception from a sample of the community.	To determine which keywords should be used when applying the methodology.

Does the identified search engine optimisation model apply to the real estate industry?	This will be determined by making use of a before and after test of five current real estate websites.	To determine if search engine optimisation elements improve website visibility significantly, minimally or not at all.

1.5 RESULTS AND CONCLUSION

The questionnaire results returned 121 keyword phrases which could be used in the experiments. Furthermore, it also provided sufficient information to conclude that searchers have and will make use of the Internet when doing real estate business. This indicates from a participant's perspective, that strategic real estate marketing is necessary. In addition, most of the participants indicated that they do understand the concept of SEO.

With regard to the experiments, some interesting results were revealed. Some of the websites indicated zero to moderate visibility improvements, whereby others demonstrated large improvements. One website illustrated a negative visibility improvement, indicating that the new optimised website was less visible than the original website. This provided the author with the opportunity to identify new elements and re-evaluate the current Chambers model for optimisation purposes due to the unique structure of results. It was found that SEO can improve real estate website visibility.

1.6 DELINEATION OF THE RESEARCH

The research has the following limitations:

- The main focus of the research is on real estate e-business, web marketing and the visibility of their websites.
- To suitably delineate this study, only SMMEs from the southern sector of the Western Cape will be used. This sector includes the follwing areas: Bloubergrant, Bloubergstrand, Bloubergsands, Bloubergrise, Big Bay, Flamingo Vlei, Milnerton, Parklands, Sunset Beach, Sunridge, Sunningdale, Sunset Links, Tableview, West Beach, Westriding and Waves Edge.

1.7 CLOSURE

The general perception is that users are rapidly adapting to technology and that the Internet is fast becoming the communication, commerce and marketing medium that could possibly change business globally. For real estate SMMEs, this may be an opportunity to explore the possibility of marketing their business on the Internet to such an extent that it could increase revenue. Real estate SMMEs go to great lengths to ensure that their advertisements are correct and provide funding accordingly. Regrettably, the perception is that they own a

website only because their competitors own a website. In retrospect, real estate companies could enhance the situation to ensure that their website becomes more visible than their competitor's website. Very few real estate owners are aware of this and rely purely on the developer to make their website a success. Furthermore, developers are often incompetent when it comes to website visibility. From the results gleaned, the author was able to construct a new search engine optimisation framework, which could be used by real estate website developers to improve website visibility. In addition, real estate company owners can build their knowledge on the subject, identify poor development and address the problems before spending money on something that does not work.

CHAPTER 2
LITERATURE REVIEW AND ANALYSIS

2.1 INTRODUCTION

This literature review and analysis was based on journal articles, theses, conference papers, general media publications (newspapers, URLs, conference posters, interviews) and books in order to cover most of the literature available on the subject. SMMEs, the Internet and search engines are the three topics covered. The SMME aspect centres on business from an e-commerce and e-marketing perspective, with particular focus on the real estate industry. The Internet element is elaborated on in order to provide a fundamental understanding which evolves into the next element, namely search engines. Search engines as well as search engine optimisation elements are discussed in detail as this serves as the focus of the research project. The author will attempt to provide a clear understanding of not only how these three elements are juxtaposed, but also how search engine optimisation can potentially increase business revenue.

2.2 SMMEs

2.2.1 SMMEs and the economy

Man has always relied on trading of goods to satisfy some or other need. Today trading is essential for the survival of any economy in the world.

According to South Africa's National Treasury (2006:27), promoting SMMEs in South Africa has been an objective since the mid twentieth century. In the past, a framework was used in promoting large enterprises, feeding the higher end of the market and thus leaving the lower end to low volume productions. This resulted in inferior goods which in turn caused the inevitable closing down of many SMMEs.

South Africa's disappointing economic and social development in the 1980s may have been due to politicians underestimating the significance of SMMEs in South Africa. By the year 1990, entrepreneurship was presented as part of the business management curriculum in tertiary institutions. South Africa realised that entrepreneurs built small businesses which in turn created new job opportunities (Smit 2003:9). Generating new jobs had become a priority with the new government in order to solve the unemployment problem in South Africa. Nieman (2001:445) found that South Africa's unemployment figures were estimated at 32% in 2001. As a result, entrepreneurs should be educated in order to create and sustain small businesses that will assist in achieving economic growth in South Africa (Nieman 2001:446; Brink, Cant & Ligthelm 2003:2; Boter & Lundström 2005:244). Marx, Van Rooyen, Bosch and Reynders (1998:731) support the view of Nieman (2001), and add that SMMEs are also

important to the economy with regard to pricing. SMMEs tend to adapt a lot quicker to consumer needs and therefore keep larger enterprises competitive.

According to South Africa's National Treasury (2006:29), a successful economy requires the stability of macroeconomics and SMMEs. South Africa's Department of Trade and Industry (2001), as cited by Baard and Van den Berg (2004), found that 98% of South Africa's business population fall within the small businesses category. This is confirmed by South Africa's National Treasury (2006:23-38), which estimates that 906 700 firms operate in South Africa, of which only 0.7% (6 000) are large enterprises. Furthermore, it was found that 60% of the South African workforce is employed by SMMEs. These estimates enforce the argument regarding the importance of SMMEs in the country's economy.

Even though SMMEs are important to the economy, they often do not survive. More than 50% of SMMEs fail within three to five years of opening their doors. Research has shown that SMMEs have a 70% to 80% failure rate (Brink *et al.* 2003:1; Baard & Van den Berg 2004). There are many different reasons why small enterprises fail, however, according to Brink *et al.* (2003:1), the main causes are environmental, financial and managerial issues. Marx *et al*. (1998:733) support the view of Brink *et al.* (2003), and add that economic factors, lack of action, fraud and strategic factors could all contribute to the failure of small enterprises.

TABLE 2.1: Reasons for enterprise failure (**Source:** Marx *et al.* 1998:733).

Cause	Percentage of failures
Economic factors	45.0%
Financial factors	37.2%
Management experience	10.5%
Lack of action	3.1%
Disaster	1.6%
Fraud	1.4%
Strategic factors	1.2%
	100%

Baard and Van den Berg (2004) suggest that small businesses largely fail due to internal factors. These internal factors are referred to as bad management and/or lack of experience, as small businesses are often operated by a single owner/manager (Fillis, Johannson & Wagner 2004:180). As reflected in Table 2.1, external factors cannot be excluded as SMMEs are more vulnerable than large enterprises to price instability, interest rate fluctuations and foreign-exchange uncertainties. Business failures could also be the result of a combination of factors or could result from a third party. An example is the recent difficulties experienced by Eskom regarding the supply of power in the Western Cape which started mid February 2006.

As a result, most South Africans in the Western Cape experienced random power cuts. Consequently, SMMEs suffered and restaurants lost stock estimated to the value of R2 500 each time their power was shut down (Fourie 2006:1). The *Cape Argus* estimated a total average loss during this period of R279 000 per company. Multiplying this figure by 20 000 registered companies, an estimate of approximately R5.9 billion was lost due to power interruptions (Quintal & Du Plessis 2006:1). This estimated figure gives a good indication of damages experienced by companies in the Western Cape. Owing to Eskom's poor management, lack of action and the lack of forward thinking and planning, the affected SMMEs suffered the consequences and will not be compensated for their losses. As a result, these SMMEs may close down as their income is relevant to their turnover and their turnover had been negatively affected (Fourie 2006:1).

SMMEs are a fundamental building block of the economy and therefore every effort should be made to ensure their survival and development. Even though strategic factors appear to be insignificant as reflected in Table 2.1, they still play an important role as small businesses need to become more strategic when promoting their enterprises for survival and development purposes. According to Van Steenderen (2001), increasing business exposure should boost direct and indirect revenue which consequently should assist in the survival of SMMEs.

2.2.2 SMMEs and their strategies

Strategic management of an enterprise is typically very broad as it entails the decision-making process with regard to the survival of the entire business (Marx *et al.* 1998:351). Channels are one particular part of strategic management which refers to how the enterprise connects to the customer. Should a channel disappear, the business would close down as there would be no way to reach or sell to the customer (Friedman 2002:22).

In the ever-changing world we live in, new opportunities appear, assisting in business growth. On the other hand, various traditional channels may become eroded, depending on the business (Wind 2005:866). Traditional channels include direct sales, indirect sales, fax orders and telephone sales (Friedman 2002:134, 157). Regrettably, the traditional company structure is no longer enough to ensure market reward. Businesses will find greater profitability when adapting their business processes in order to include e-commerce (Berman & McClellan 2002:32). In spite of this fact, the study of Motjolopane (2005:101) as well as Cloete (2002) revealed that the complete adoption of e-commerce in South African SMMEs is not occurring rapidly.

E-commerce is defined by South Africa's Department of Communications (2000:16) as the following:

> The use of electronic networks to exchange information, products, services and payment for commercial and communication purposes between individuals (consumers) and business, between business themselves, between individuals themselves, within government or between the public and government and, last, between business and government.

Customers are rapidly adapting to the technology available. The Internet is used to access relevant information anywhere and at any time, regardless of geographical location. Therefore it should be assumed that the Internet could influence customer buying decisions regarding products and retailers. As a result, the Internet is becoming a global shopping environment for super shoppers (Gagnon & Chu 2005:17).

TABLE 2.2: Online population and behaviour in Europe, Q2 2003
(**Source:** Gagnon & Chu 2005:18).

Country	Population online	Research online	Shopping online
Sweden	73%	93%	48%
The Netherlands	71%	94%	40%
Germany	55%	90%	55%
UK	57%	89%	62%
Italy	45%	76%	17%
France	40%	82%	33%
Spain	28%	89%	16%
Europe	**49%**	**86%**	**42%**

Even through the percentages in Table 2.2 appear to be relatively high, Gagnon and Chu (2005:17) are of the opinion that over a billion people will be online globally in the year 2010. The Internet is fast becoming a communication, commerce and marketing medium that is changing business globally (Singh 2003). During the past decade, no other innovation has impacted communication between business and people the way the Internet has. Singh (2002) found that the Internet took only seven years to reach 25% of market share as opposed to the cell phone that took 13 years; personal computers took 15 years and the telephone took 35 years.

According to the Impact of E-business (2000) as cited by Singh (2002), there are three types of businesses: businesses that currently make use of the Internet, those that are thinking about making use of it and those that are most probably going out of business (Friedman 2002:168). Radebe (2000), as cited by Singh (2002), is of the opinion that any enterprise that does not adapt to e-commerce will close down within three years. This statement may be true for most businesses but not for the 'corner store' in a low income suburb. Most of the low income community cannot afford to buy computers let alone connect and make effective use of the Internet, as 45% of South Africa's population is illiterate (Singh 2002). In the second instance, certain products or services may be inherently poorly suited to the Internet

like, e.g., personal counselling, custom tailoring, tattoos and corporate legal services. Most of these require face-to-face interaction as it would be a waste of time for instance, to purchase a tattoo over the Internet and then drive to the tattoo company in order to get the tattoo. This defeats the purpose of using the Internet in order to make life easier. For this type of product and service, it would be suggested to not use the Internet as a sales channel, but rather use the medium as a marketing channel (Friedman 2002:51, 141).

SMMEs that realise the importance of a web presence are exposed to the benefits and the barriers when using the Web for commercial purposes. Integrating business and the Internet is a cheaper method to create an interactive environment by breaking traditional barriers and building strong international business relationships (Boyes & Irani 2004:191). At the same time SMMEs could create a competitive advantage in the global marketplace competing with businesses of different sizes (South Africa. Department of Communications, 2000:17; Smith 2002; Boyes & Irani 2004:192). The business will therefore overcome geographical and cost barriers to new markets and will be improving customer services, relationships, communication and sharing of important information (South Africa. Department of Communications, 2000:17; Simpande & Jakovljevic 2003; Singh 2003; Boyes & Irani 2004:192).

Singh (2002) found that new business opportunities are exposed when organisations make use of the Internet.

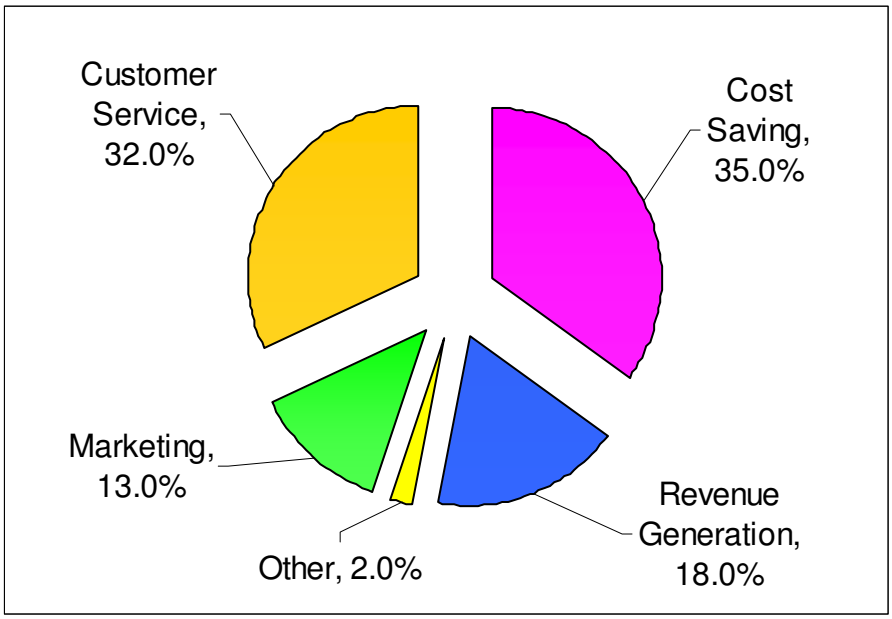


FIGURE 2.1: America's top 100 organisations generating value by making use of the Internet (**Source:** Singh 2002).

The driving force of most business owners is profit (Marx *et al.* 1998:701). In order to increase profit, the business must reduce overheads and increase sales. One particular method used to increase sales and reduce cost is by means of marketing the business

product or service. Figure 2.1 reflects that top American businesses made use of the Internet for that purpose. As a result, those companies reduced costs by not producing brochures and making use of traditional media advertising. Conversely, the generation of revenue as depicted in Figure 2.1 appears to be relatively low; however this could be due to obstacles that prevent the business from flourishing in e-commerce.

SMMEs could experience many different obstacles and barriers when adapting to e-commerce. Creating a reliable web infrastructure is essential in effectively exploiting the Web for commercial purposes. SMMEs are sometimes unable to do this due to limited finances, physical resources and lack of knowledge, experience and expertise (Boyes & Irani 2004:192).

In spite of the problems that could occur when SMMEs adapt to e-commerce in South Africa, businesses are flourishing as consumers spent R2.7 billion on Internet purchasing during 1999 (Singh 2002). According to the Gartner Group as cited by Friedman (2002:167), it was estimated that $433 billion was generated globally through e-commerce in 2000. The research predicted that United States (US) business over the Internet will grow from $43 billion in 1998 to $2.7 trillion in 2004. This was also predicted by Rao's (2002:249) research, which shows that business done over the Internet will nearly double annually. According to Singh (2002), it had been projected that the US would generate more than $6 trillion through on-line trading in 2005 alone.

Although South Africa's on-line trading is much lower in value than that of the US, it is clear that there is an increase in e-commerce worldwide. It is for this reason that SMMEs need to integrate business and the Internet as soon as possible in order to market their product or service and ensure business exposure to potential customers (Simpande & Jakovljevic 2003).

2.2.3 The evolution of marketing

Marketing is viewed differently by different people, but from a holistic perspective, marketing is seen as advertising and selling of a product or service (Perreault & McCarthy 2002:4). These authors express the view that marketing consists of two parts: macro- and micro-marketing. Macro-marketing is very broad and focuses on the welfare of society in the economy as it refers to the creation and delivery of a standard of living. The basis of micro-marketing is the selling and advertising of a product or service (Perreault & McCarthy 2002:8). Marx *et al.* (1998:517) are of the opinion that marketing is the process of identifying the wants and the needs of a target market and then satisfying them more efficiently than the competitor can (Scullin, Fjermestad & Romano 2004:412). Perreault and McCarthy (2002:9) support the view of Marx *et al.* (1998:517), and add that micro-marketing is much more than getting rid of the company's manufactured product via advertising. The company sells its product or service by not only identifying the customer's needs, but meeting those needs to

such an extent that the product will sell itself. Once this has been accomplished, persuading the customer to buy the product or service is a small part of the marketing process.

Defining a marketing strategy is crucial to the survival of a company as it assists the firm in creating and maintaining a competitive advantage in a cluttered marketplace (Dann & Dann 2004:22; Krishnamurthy 2006:51). Perreault and McCarthy (2002:46) are of the opinion that a marketing strategy consists of a target market and the marketing mix. The target market specifies the group of customers the company wishes to appeal to. The marketing mix is the controllable variables the company puts together in order to satisfy the target market. The way to put these two together is by viewing the target market (customers) as the centre of a circle. The marketing mix is the controllable variables that surround the customer (Perreault & McCarthy 2002:46). The variables that make up the marketing mix are Product, Place, Promotion and Price, which are known as the four P's (Marx *et al.* 1998:515; Constantinides 2002; Perreault & McCarthy 2002:48; Constantinides 2004:111; Dann & Dann 2004:20; Holm 2006:25).

- The function of the 'product' is to create the right product for the customer.
- The function of 'place' is the decision made to get the right product to the customer.
- 'Promotion' is concerned with informing the customer of the availability of the right product.
- 'Pricing' must be right by taking into account the product, place, promotion as well as competitors (Perreault & McCarthy 2002:48-50).

Perreault and McCarthy (2002:50) explain that all four P's are needed in a marketing mix and should function together as they are all equally important. Constantinides (2002) describes the situation slightly differently and points out that the four P's are focused on internal variables and therefore do not form a complete basis of marketing. Furthermore Constantinides suggests that the customer experiences the four P's individually depending on the situation, time and even place.

There are two types of marketing, namely, traditional marketing and Internet marketing. The four P's as described above reflect traditional marketing which can be differentiated from Internet marketing in three dimensions: access, competition and information (Song & Zahedi 2006:223). 'Access' refers to the location constraint traditional marketing experiences in terms of 'place' explained above as one of the four P's.

'Information' and 'competition' function as one, for the lack of 'competition' in traditional marketing could affect pricing and quality as competitors tend to set standards. With regard to 'information', costs are associated in obtaining 'information' on a product and price. The high cost of such a search regarding traditional marketing, reduces the number of competitors that consumers search for, as they attempt to keep the costs as low as possible (Song & Zahedi 2006:223-224).

Pollock (n.d.) is of the opinion that traditional marketing is dead because of democracy, as civilisations want their privacy, values and humanity respected. The author further explains that everything people do is by choice and the choice is currently that businesses must stop marketing to people and start connecting to customers.

The marketing approach may be changing due to the Internet, but stating that traditional marketing is dead may be extreme. Sterne (2001:1) explains how this change could be perceived. Consider water to be the broadcasting medium. Spraying a crowd with a big hose hoping some would enjoy getting wet could be interpreted as 'traditional marketing'. 'Narrowcasting' is using a smaller hose and spraying only at the people that show interest in getting wet. 'Cybercasting' (online marketing) is creating a pond of water in cyberspace, informing people and inviting them for a swim. The result is people can visit the pond anytime, stay as long as they want and dive as deep as they feel, depending on their personal interest.

Change in the marketing approach affects the marketing mix, which consists of the four P's. Unlike the physical world, the virtual marketing mix variables are not detached from each other and are jointly experienced by the customer. The four P variables remain the same as the traditional marketing mix variables (product, price, promotion and place) but are redefined in terms of the virtual marketing mix (Constantinides 2002). Smith and Chaffey (2002:26, 33, 37) support the view of Constantinides (2002), and add that there are three additional P's regarding Internet marketing namely, People, Processes and Physical evidence. 'People' refer to the individuals that are involved with the website; the 'processes' refer to things such as transactions and communication while 'physical evidence' is the cues and clues for reassurances the website can provide, e.g., guarantees and refund policies (Smith & Chaffey 2002:58-60). Constantinides (2004) broadly summarises these three additional P's into a fifth element, namely, 'web experience'.

- The 'Product' refers to the website as the primary online product. As a result customers need to be persuaded to look for the company website before looking for the product offering of the company (Constantinides 2002). For this very reason, company websites must become more visible to search engines in order to increase website traffic (Sen 2005:9). Other key marketing issues also play a role regarding website design, e.g., the website access must be fast, interesting and useful (Sterne 2001:2).
- The 'price' refers to the cost of the product the company intends to sell. However, customers consider other online cost elements such as connectivity, time and opportunity cost. Even though these costs may be much less than performing these activities physically, customers will compare online cost elements with other online competitors (Constantinides 2002).
- The medium used for 'promotion' is the website and its content, which should positively affect the customers' impression of their web experience. This should not

only retain current online customers but also attract new customers (Constantinides 2002).

- The 'place' refers to where the customer is, as the website should be accessible anywhere and at anytime depending on the customers and their connectivity. The website could contain all characteristics of a physical store, which include the counter (online transactions), helpdesk (support), delivery of digital products (music) and delivery of products through physical distributor (Constantinides 2002).

The four P's in traditional and Internet marketing are but a tool to influence customer behaviour. With regard to Internet marketing, the fifth element is referred to as the web experience and extends beyond the four P's. The web experience medium is represented by the website which forms the platform for interaction between the customer and the company (Constantinides 2002). The interaction could be online functionality, information, emotions, and products and/or services (Constantinides 2004:112). Companies constantly try to create new digital methods regarding interaction in order to increase revenue and/or productivity.

Adam, Mulye, Deans and Palihawadana (2002:244) cite five business functions (other than e-commerce) performed by people via the Internet, namely, acquiring company information, customer communication, supplier communication, marketing, and customer services. It is seemingly evident that Internet marketing is as important as electronic commerce.

Constantinides (2004:111) provides additional evidence and explains that the consumer's behaviour, regarding purchasing products, is divided into five phases. Phase one is problem identification as customers have a need that must be satisfied. Phase two is information searching. Internet marketing plays a big role in this phase as customers trust renowned brands (Strauss & Frost 2001:3). Phase three comprises alternative evaluations whereby customers may consider factors such as customer services or brands. Internet marketing is as important in this phase as emphasised in Phase two. Phase four is the purchasing decision with regard to the customer's choice of product. The final phase is the post-purchaser's behaviour which refers to whether or not the customer will return, based on the customer's web experience. In order to ensure this, the website must satisfy the customer in a way that no other media or channel could (Davis 2000:43).

When evaluating the consumer's behaviour phases, it becomes evident that the customer is most important. People are training themselves in order to find information, products and virtually anything at any time and at any place (Strauss & Frost 2001:36). This is what Pollock (n.d.) tried to convey when stating that traditional marketing is 'dead'. A power shift had occurred from sellers to buyer with regard to Internet marketing (Strauss & Frost 2001:4). The days of capturing a person's attention for 30 seconds on a television screen are coming to an end and being replaced by the 'click of a mouse'. This reinforces the argument regarding the importance of Internet marketing, as global competitors are but just a mouse click away (Strauss & Frost 2001:4,36). In addition to this, there are many advantages to

Internet marketing. The primary advantage is the reduction of cost and enhancement of reach (Wilson & Laskey 2003:79; Sheth & Sharma 2005:612). In addition, unlimited information can be provided to the customer, without human intervention, in a form easily processed and understood. Lastly, the Internet marketing environment can create interactions by customising information that meets specific requirements of a customer (Sheth & Sharma 2005:613; Wind 2005:868).

Internet marketing, and not only electronic commerce, is generating revenue. The study of Krishnamurthy (2006:52) revealed that Internet advertising revenue gained a staggering $2.2 billion in the first quarter of 2004. According to Interactive Advertising Bureau (IAB) (2006), Internet advertising revenue produced nine consecutive growth quarters ending in the first quarter of 2005, to a total of $2.8 billion. The president and CEO of IAB stated "[The] medium delivers results and is fast becoming accepted as part of the mainstream" (Interactive Advertising Bureau 2006). The evidence provided above exonerates any doubt that Internet marketing plays a very big role with regard to generating revenue in business.

2.2.4 Real estate SMME marketing

Real estate companies are predominantly SMMEs. International real estate companies sell master franchises to other countries who in turn sell smaller franchises to local business people (Alon & Bian 2005:226). Successful real estate agents eventually also start their own real estate SMMEs. Owing to information and communication aspects of the real estate industry it is evident that real estate SMMEs could make effective use of the Internet (Rowley 2005:217). The Internet has become a well-known medium for e-commerce; however, according to Dermisi (2004:155), the real estate industry did not adapt to it quickly. Real estate companies did, however, make use of static brochure websites by the mid-1990s for marketing purposes in order to increase business exposure. Marketing in terms of the real estate industry is to direct the flow of services and products from producer to consumer (Marx *et al.* 1998:513). The key role of real estate marketing is the visibility of properties which are available on the market (Rowley 2005:217).

Real estate companies are information based and therefore sell a service as opposed to a product by introducing a willing buyer to a willing seller of a property (Rowley 2005:217). Both the service of the company, as well as the property for sale, is marketed by the real estate company. This objective can be accomplished by advertising property via the traditional media. However, traditional methods reflect a linear approach following a one-to-many communication model, whereby single promotions are perceived by many recipients without the possibility of feedback. Making use of the Internet allows for a non-linear communication approach, allowing the possibility of a two-way communication structure and the free flow of information (Rowley 2004:26).

The study of Dermisi (2004:155) found that various real estate companies make use of online listing services, whereby the companies are able to update their databases regarding property descriptions, building statistics and photographs. The listings could then be made available to the public depending on the company's discretion. Not all properties given to an estate agency to sell are marketed in the same way. The reason for this is the potential loss of profit and/or customers. The author, in his interview with the manager of ERA Steer Blaauwberg (Visser 2006), found that there are three types of mandates in the real estate industry, namely sole, multi-listing and open mandates. A sole mandate is established when a document is signed by the seller, giving permission to that specific estate agency to market and sell that particular property. The multi-listing mandate is also represented by the signing of a document by the seller, giving permission to that particular estate agency to share the sale of the seller's property with another estate agency should they have a buyer. This mandate ensures that the estate agency with whom the seller signed the document, will receive a portion of the commission together with the estate agency that sells the property. Placing sole and multi-listing mandate properties on the Internet could only add value in a competitive market (Rowley 2005:220). Conversely, an open mandate is when the seller gives permission to several estate agencies to market and sell that particular property without making use of a signed document. The seller's perception of an open mandate is to ensure maximum exposure with no commitment to a particular estate agency. It is not in the best interest of the real estate company to market an open mandate on the Internet and thereby fully disclose the information of that particular property. The reason for this is to prevent other estate agencies from acquiring the property information for their own marketing purposes. This is important as the agent who sells an open mandate property acquires the full commission regardless of the agent's association to the seller.

Rowley (2005:220) found that there is an increase in house hunters making use of the Internet for purposes of obtaining property information. Rowley's research shows that 58% of the respondents had made use of the Internet for obtaining property information. Furthermore, 82% of buyers stated that they would use the Internet for obtaining property information the next time they moved. Although this seems promising to the real estate industry, Rowley (2005:220) is of the opinion that placing extensive property information on the Internet could be expensive and would remove contact with potential buyers. This brings to the fore that there are many advantages and disadvantages when real estate companies consider marketing or selling properties online (Rowley 2005:219).

Advantages:

- Exposure of their business and properties to global, national and regional areas to match properties and customers. For instance, potential international buyers looking for holiday properties can view and purchase on the Internet before they arrive in the country (Rowley 2001b:203; Rowley 2004:26).
- Customers can view on the website a wide range of properties available on the market within a particular price range.

- Elimination of additional costs in phone calls, advertisements and printed media.
- The potential exists for innovation regarding additional advertising on the website for an extra income and/or using new technology to create a virtual reality image of properties available (Rowley 2002:216).

Disadvantages:

- Purchasing property is a major expense and customers prefer to work with people who are knowledgeable and experienced.
- Customers are more than often willing to pay someone to manage the sale and contract negotiations opposed to doing it on the Internet.
- As stated before, purchasing property is a major commitment and as a result clients prefer to personally view the property before signing the contract.
- The general public is reluctant to provide credit cards or banking information over the Internet due to major funds required in order to purchase the property, bad service quality and lack of security (Lee & Johnson 2002:150).

In evaluating the above advantages and disadvantages, it is evident that real estate companies that do not invest in a website for marketing purposes could be at a marketing disadvantage. The real estate industry should realise the growing importance of Information and Communications Technology (ICT) and what impact it could have on their companies (Dixon 2005:481). On the other hand, real estate companies investing in a website are not necessarily at a marketing advantage, especially if that website is not visible to search engines. In conclusion, the analogy can be drawn that the real estate industry may not fully appreciate the importance of website visibility as the industry has not fully adopted the use of the Internet yet.

2.3 INTERNET

2.3.1 Defining the Internet

Over the past few years the terms ‘Internet’ or synonyms thereof, e.g., the Web, World Wide Web or even the Net have become topics of conversation. Most people have a general idea what this term means, as many have most likely made use of the Internet in some way or another. Green (2000:130) points out that the Internet consists of two parts namely ‘content’ and ‘connectivity’. Hofacker (2001:9) explains that the Internet was created using computer software and defines the Internet as follows: “[The] Internet is the sum total of devices interconnected using the Internet Protocol.” Hofacker’s definition of the Internet refers to the actual communication mechanism and standards which are used for ‘connecting’ computers all over the world. Laing and Powling (2002:8) describes the Internet ‘content’ as the collection of millions of webpages containing information of almost anything a person could think of. The Internet is an infrastructure of information whereby webpages are stored on web servers. These servers run specialised software, making it possible to transmit

information over the Internet. Remote computers, namely clients, are able to access websites using web browsing software (Morrison & Morrison 2003:2). Owing to this, the Internet is often referred to as having a client-server architecture (Hofacker 2001:9). Although the Internet entails a great deal more than what has been mentioned, Figure 2.2 illustrates the basic concept of the client (web browser) – server (webserver) on a global scale. The circles in Figure 2.2 indicate the web servers containing webpages. The squares indicate remote computers found in office buildings and residences that access those webpages. The lines indicate the Internet connections and flow of traffic.

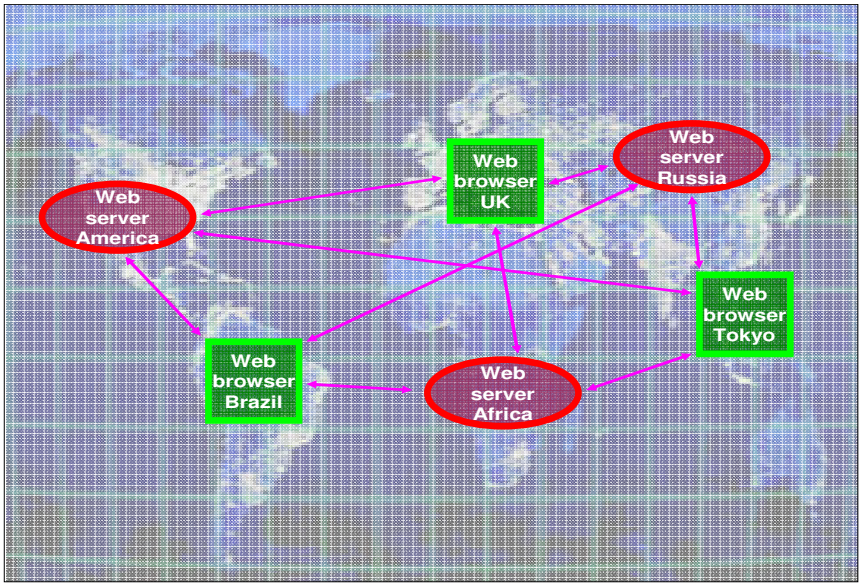


FIGURE 2.2: Global Internet traffic between Web servers and browsers (**Source:** Own source).

The Internet connections in Figure 2.2 appear to be straightforward. However, connecting to a particular server does not imply that the remote computer dials up directly to the server containing the webpages of interest. In fact the remote computer dials up to what is called an Internet Service Provider (ISP). The ISP server in turn forwards the remote computer's request through a hierarchy of servers until the destination has been reached. Each time the request passes through a server it is referred to as 'a hop'. Depending on the distance between the ISP and the destination, the number of hops could increase to more than 20 in order for the requests to reach their destination (Ivens 2003:4). Because of the high speed of the Internet, this usually occurs within a few seconds and is therefore represented by a single line in Figure 2.2. It is possible to view these hops on almost any computer connected to the Internet by making use of the 'trace route' utility as reflected in Figure 2.3. In this particular instance it took 15 hops to reach the Google destination. The aspects of the Internet disclosed here provide a basic conceptual view of what the Internet is. Furthermore, for the purpose of this study, the terms Internet and Web will be used interchangeably.

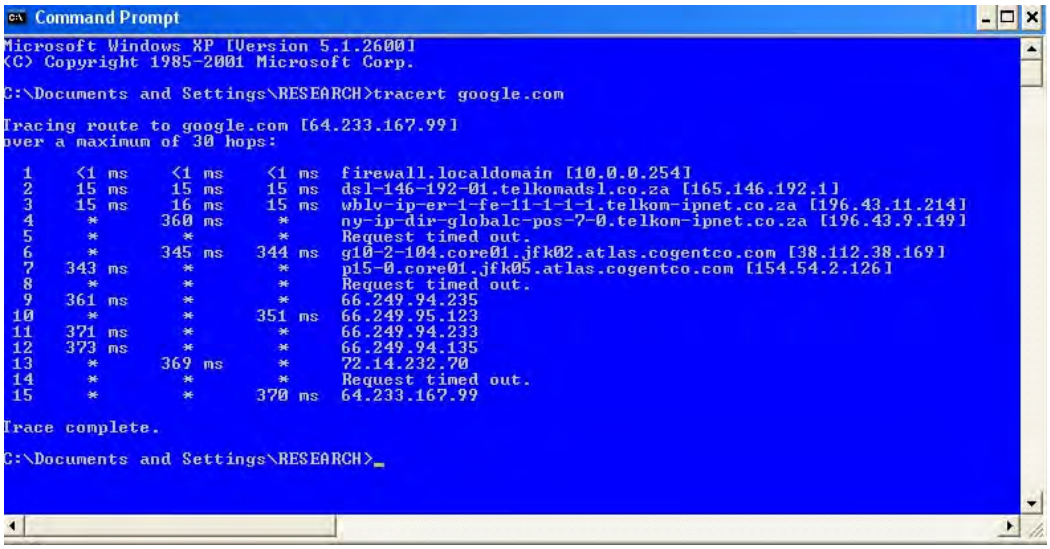


FIGURE 2.3: Trace route utility - Server hops between the remote computer and the destination www.Google.com (**Source:** Ivens 2003).

2.3.2 Background and history of the Internet

In 1836, William Cooke and Charles Wheatstone patented the telegraph. This was the first form of long distance communication known to man, which also introduced the idea of a binary language (Morse Code). In 1876, Alexander Graham Bell invented the telephone, a concept that is still used today, including the telephone exchanges which still provide the backbone of Internet connections (Dinnick 2000:10).

Germany invaded Poland without warning on September 1st 1939 as the first act of aggression signifying the start of World War II (Anon 2005b). After six years of battle, World War II came to an end with the Soviet Union entrenched in Eastern Europe. Their intent was to stay and establish a government in Eastern Europe which would pay allegiance to the Kremlin. The US embarked on a similar strategy, creating their own security zone in Western Europe. It was clear that both sides were attempting to secure their futures from the threat of yet another world war. This 'unofficial' war came to be known as the Cold War, which started when World War II ended in 1945. It lasted 46 years until the ultimate demise of the Soviet Union in 1991 (Anon 2003). During the Cold War in 1957, the Soviet Union launched the world's first artificial satellite, *Sputnik I*. Owing to this, the US had to re-evaluate their use of technology and established the Advanced Research Projects Agency (ARPA) within the Department of Defense (DoD) in 1958 (Dinnick 2000:11).

The US military's computer networks were centrally organised and controlled all US military systems from one single mainframe. This included the control of America's nuclear arsenal and issuing orders over the network in order to co-ordinate the country's defences. This was problematic when the US discovered that the Soviet Union was progressing rapidly in the development of nuclear Intercontinental Ballistic Missiles (ICBMs). One well-placed ICBM could effectively shut down the entire command structure and prevent US retaliation. A

further discovery was made regarding the detonation of nuclear weapons and electronic equipment. Once a nuclear weapon is detonated, a wave of radiation called Electromagnetic Pulse (EMP) is sent out in a radius of the explosion. The EMP will disable all devices using a microprocessor within the blast radius. This meant that if an ICBM missed the command post as a target, there was still a very high possibility that the EMP would destroy the mainframe. As a result, ARPA decided to de-centralise the command structure of the US military. There was no longer a central mainframe but instead a network of smaller computers. This ensured the security in the chain of command as the network meant that there was more than one route a message could be sent from one point to another. Therefore, if large-scale destruction did occur and destroy sections of the network, messages could still be sent through alternative routes. This concept was the actual stepping stone to the development of the Internet (Dinnick 2000:11).

In 1964 the US Air Force researched Packet-Switching (PS) whereby data sent over the network was split up into tiny packets enabling them to take different routes to the same destination. In 1969 ARPA developed a military network using PS technology which became known as ARPANET (Dinnick 2000:14; Hofacker 2001:11; Ivens 2003:4;). ARPANET was not only used by the military, but was also incorporated into some universities in order to research networking as well as PS systems (Laing & Powling 2002:8). In the years that followed, ARPA created the original standard for communication over the ARPANET namely Network Control Protocol (NCP). Not long after this, a new protocol came into being, namely Transmission Control Protocol / Internet Protocol (TCP/IP), which was developed by Robert E. Kahn and Vinton G. Cerf (Leiner, Cerf, Clark, Kahn, Kleinrock, Lynch, Postel, Roberts & Wolff 1997:104; Dinnick 2000:17). After 1977, the computer revolution started to take off and universities as well as the private sector had their own networks which enabled them to connect to ARPANET. By 1983 ARPANET broke away from the network in order to secure military computers and became known as MILNET (Dinnick 2000:17). What remained were the networks from the private sector and educational institutions which rapidly began to grow into becoming the Internet. Hofacker's (2001:11) research found that the Federal Government had moved their contribution from the Pentagon to the National Science Foundation (NSF) in the 1980s. In the early 1990s the NSF decided to give full control of the Internet to the private sector.

In the mid-1990s, Tim Berners-Lee invented the client-server architecture regarding the Internet which became known as the World Wide Web (WWW). Furthermore, Berners-Lee also created the Hypertext Transfer Language Protocol (HTTP), which specifies the communication standard between the client and server on the Internet. The Uniform Resource Locator (URL) was another Berners-Lee creation, which specified the address of the documents on the Internet. Finally, Berners-Lee invented the Hypertext Markup Language (HTML) which is used for creating webpages (Hofacker 2001:11). The WWW was built on a foundation of a set of standards laid down by the World Wide Web Consortium

(W3C), headed by Tim Berners-Lee. He also became known as the 'inventor' of the WWW (Hart & Rolletschek, 2003:11). From there on the Web developed at a remarkable pace.

In 1992, it was estimated that the Web consisted of more than one million hosts. By 2000, it was estimated that the Web consisted of more than one billion webpages, being viewed by more than 200 million Internet users (Dinnick 2000:21). More recent statistics on global Internet usage is reflected in Table 2.3.

TABLE 2.3: World Internet usage and population statistics (**Source:** Anon 2006a).

WORLD INTERNET USAGE AND POPULATION STATISTICS						
World Regions	**Population (2005 Est.)**	**Population % of World**	**Internet Usage Latest Data**	**Usage Growth 2000-2005**	**% Population Penetration**	**World Users %**
Africa	915,210,928	14.1%	**23,649,000**	423.9%	2.6%	2.3%
Asia	3,667,774,066	56.4%	**364,270,713**	218.7%	9.9%	35.6%
Europe	807,289,020	12.4%	**291,600,898**	177.5%	36.1%	28.5%
Middle East	190,084,161	2.9%	**18,203,500**	454.2%	9.6%	1.8%
North America	331,473,276	5.1%	**227,303,680**	110.3%	68.6%	22.2%
Latin America/ Caribbean	553,908,632	8.5%	**79,962,809**	342.5%	14.4%	7.8%
Oceania / Australia	33,956,977	0.5%	**17,872,707**	134.6%	52.6%	1.7%
WORLD TOTAL	**6,499,697,060**	**100.0%**	**1,022,863,307**	**183.40%**	**15.7%**	**100.0%**

2.4 SEARCH ENGINES

2.4.1 The evolution of search engines

For centuries, man has been involved in storing information. For approximately 4000 years, he has tried to organise stored information for later retrieval and usage (Baeza-Yates & Ribeiro-Neto 1999:6). Unfortunately man has almost always experienced problems when trying to retrieve relevant information effectively in the shortest time possible. One of the earliest forms of an information retrieval system was developed by the Sumerians in the beginning of the third millennium BC, when classifying written material into a library collection. All information was recorded on clay tablets which had a single label attached to them containing the opening words of the document (Weideman & Strümpfer 2004:58). The attached labels containing these words were the earliest forms of indexing, which is defined by Baeza-Yates and Ribeiro-Neto (1999:6) as follows: "[The] collection of selected words or concepts with which are associated pointers to the related information or document…" The individual looking for particular information would interpret the indexed labels in order to determine the relevancy of the document whereby the individual could easily access the document to which the label had been attached. In the Middle Ages, the paucity of manuscripts required only lists (in book form), arranged by format or alphabetically by

author. With the invention of printing in the 15th century, printed catalogues were sometimes interleaved with blank leaves for additions to be recorded. The first card catalogues appeared in the 19th century; the first recognised cataloguing codes also appeared in this era. The late 19th and early 20th century introduced journal indexes, while the end of the 20th century saw the development of the Online Public Access Catalogue (OPAC), and the concomitant Machine-readable Cataloguing (MARC) (Amin 2003; Wikipedia 2006). Before the Internet was born, information was generally obtained from published sources, i.e., books, journals and newspapers. Indexing the title, author, year and even categorising the source according to a particular set of standards or rules made the information in that particular source a lot easier to come by. Even today, some libraries may still make use of the categorical hierarchy in spite of their electronic systems, in order to classify their volumes (Baeza-Yates & Ribeiro-Neto 1999:6).

When the Internet was in the early stages of development, documents were indexed manually and displayed on text-only browsers. Users could then browse through all the links available until they found what they were looking for (Chun 1999:135). This was a plausible approach while the Internet remained relatively small. As the number of documents on the Internet increased, it became a necessity to better organise information on the Internet. Some attempts were made by the W3C to create master lists of page links arranged according to category. This type of data collection and indexing was still done manually. Owing to the increasing number of users and documents on the Internet it became apparent that intermediaries or utility programs were required to assist the user in finding what they were looking for. According to Chun (1999:135), Koster was the first to index the content of a webserver by means of Archie-Like Indexing of the WEB (ALIWEB) which was made available to the public in October 1993. ALIWEB was one of the earliest search engines combining manual (human) and automated (robot) indexing. This search engine allowed keyword searching of file names of a database which was accessible by means of a File Transfer Protocol (FTP). FTP is a language that governs file transfer over the Web (Poulter, 1997:132). Table 2.4 illustrates earlier searching technologies through time.

TABLE 2.4: Searching technologies through time (**Source:** Mbikiwa 2005:15).

Year	Search Service
1945	Vannevar Bush Proposes “MEMEX”
1965	Hypertext Coined by Ted Nelson
1972	Dialog – First Commercial Proprietary System
1986	OWL Guide Hypermedia Browser
1990	Archie & the Web
1991	Gopher
1993	ALIWEB, WWWWander, JumpStation, WWWWORM
1994	ELNet Galaxy, WebCrawler, Lycos, Yahoo!
1995	Infoseek, SavvySearch, AltaVista, MetaCrawler, Excite
1996	HotBot, LookSmart
1997	NorthernLight
1998	Google, InvisibleWeb.com
1999	FAST
2000+	Hundreds of search tools

Although we live in a high-powered computer era, measuring most aspects of the Internet is a difficult task due to its highly dynamic nature. It is estimated that the Internet consists of millions of webservers containing billions of webpages being viewed by billions of Internet users worldwide. At the rate at which websites are created and/or destroyed, it is almost impossible to know exactly where to find specific information on the Internet. From this point of view search engines are a great help in assisting and facilitating the average user in the daunting task of having to find relevant information (Machill, Neuberger & Schindler 2003:52). Furthermore, search engines can to some extent complicate the information retrieval process for certain users, e.g., entering incorrect search terms may lead the user to webpages of no interest (Kreymer 2002:30; Weideman 2004). Weideman (2002b:2) explains that this could occur especially if that particular word has many different interpretations.

2.4.2 Indexing

As mentioned before, indexing started approximately 5000 years ago and is still essential for information retrieval today. Indexing will allow the user to search through a collection of documents using certain keywords or phrases via an interface. The purpose of this process is to retrieve documents without examining the entire document, hence retrieving relevant information in the shortest time possible (Chambers 2005:17). According to an early study by Blair (1990:27-70), there are 12 different information retrieval models. Although these models appear to be relatively old, a better understanding could be gained of current search engines’ functionality by understanding some of the fundamental processes used by these information retrieval systems illustrated in Table 2.5.

TABLE 2.5: Twelve major information retrieval models
(**Source:** Blair 1990:27-70; Wilson 2002).

Model	Method	Disadvantages
1	Information retrieval occurs by looking up the author, title or description in a catalogue. Only a single descriptor query is permitted.	Large quantities of information are retrieved. The retrieved results are not ranked.
2	Similar to Model 1, however in addition multiple descriptor queries are permitted.	Cumbersome to implement.
3	Relaxes the retrieval constraint of Model 1 and 2 by allowing documents to be retrieved if the query matches only a subset of the descriptors indexed.	Processing problems due to high volume of document retrieval; high possibility of redundancy; retrieved documents are not ranked.
4	Similar to Model 3 but includes ranking of retrieved documents. The ranking depends on the query match to the descriptor.	Owing to the extra functionality, processing time is increased.
5	Permits the searcher to assign a weight to each query representing the relevancy of the query. Documents are then retrieved and sorted according to importance (weight) assigned to them.	The user might find it confusing and difficult to assign these weights.
6	Similar to Model 5 regarding weights being assigned to document in terms of relevancy. The only difference is that the user does not assign the weight, the indexer does, by calculating the number of times the descriptor appears in the document.	The user may differ regarding the weight assigned to a certain descriptor.
7	Model 7 is the combination of Model 5 and 6, permitting the user and the indexer to assign weights to documents in terms of relevancy.	Processing time is increased due to the ranking process.

8	Model 8, also known as the 'vector space model', is a conceptual model used to determine the value rating of a document. This is done by means of calculating the combination of weights assigned to a particular document depending on the request which is treated as a vector.	It was believed that this model is the basis for future research regarding information retrieval.
9	Model 9 allowed searchers to create complex arrangements of search terms as a query. It allowed the searcher to make use of Boolean operators (AND, OR, NOT) in their search queries.	This concept became too difficult for the average searcher.
10	Model 10 did not make use of indexing due to the fact that the query passed through the entire stored text in order to determine relevancy. Boolean operators were also incorporated in this model.	Model 10 retrieved large numbers of irrelevant results in the process. The searcher had to think of several possible searching terms in order to retrieve relevant information.
11	Model 11 provided the searcher with searching terms relating to the user's initial searching terms.	Terms provided by the system (model) may not accurately represent the searcher's perception.
12	Model 12 is similar to Model 11 with the only difference being that the searcher is able to decide which of the related terms suggested by the system is more relevant to the searcher's perception.	New terms assigned to a newly acquired document required constant database updates and maintenance.

Although indexing technology has developed since the 1990s, the reality is that modern search engines and other information retrieval systems consist of a combination of these techniques and models. Scrutinising Blair's information retrieval models, one important aspect is noted, namely, that all 12 models are limited to indexing text only. This is due to the major difficulty associated in analysing other non- standard formats of information such as audio/video clips, Flash movies and images for indexing purposes (Chambers 2005:22; Ru & Horowitz 2005:250).

Webpages pass through different processes, which include algorithms when indexed by search engines and placed in their index databases. In fact this is the very essence of the research project, as search engine algorithms are treated as a 'corporate secret'. After webpages have been indexed, searchers are able to query the index database through the interface. The searchers query is optimised before consulting the index database. The results are then ranked according to relevancy for the searcher to analyse. The ranking aspects of information retrieval systems are essential. The reason is that if less relevant results are presented first, it defeats the purpose of such a system, which is to find relevant information in the shortest time possible (Wilson 2002; Chambers 2005:23).

Owing to the Internet's highly dynamic nature and size with regard to websites, it has become almost impossible for searchers to retrieve relevant information on the Web without making use of a good quality searching service (Fouchard & Young 2001:2; Wilson 2002; Machill *et al.* 2003:52; Chambers 2005:24; Ru & Horowitz 2005:249). In fact, Alimohammadi (2003:238) found that 85% of Internet users make use of search engines. The same author furthermore suggests that 77% of Internet users' time is spent with search engines.

2.4.3 The visible and invisible Web

Before evaluating searching services, it is important to note that the Web *content*, as defined earlier by Laing and Powling (refer to Paragraph 2.3.1), is not a single coherent element. The web content consists of two types of webpages, namely static and dynamic. In order to understand the implications of these webpage types for information retrieval, it is deemed prudent to first understand how these webpages are developed and how searching services respond to them (Green 2000:124; Van der Westhuizen 2001).

2.4.3.1 The visible Web

The visible Web contains only static webpages or brochure websites. These webpages provide the same generic information to everyone that visits the website. They are created by web designers, who in turn need to manually update or change the website when required to do so. Static webpages, which contain information that remain visible to search engines, are the webpages that search engines index and therefore constitute the visible Web (Green 2000:124; Van der Westhuizen 2001; Mbikiwa 2005:11).

2.4.3.2 The invisible Web

McGuigan (2003:68) is of the opinion that most of the World Wide Web's content that does exist cannot be located through most searching tools and is referred to as the 'invisible Web', 'deep Web' or 'dynamic Web'. Ru and Horowitz (2005:249) support the view of McGuigan (2003:68), and state that the invisible web consists of an immense amount of information that is not indexed by conventional search engines but is publicly accessible. The dynamic webpage typically consists of two parts, namely, the static webpage (front-end) and a database (back-end). A dynamic page is generated by the computer using the Common

Gateway Interface (CGI) scripting (Java, Perl, etc.) which acts as an intermediary between the user's request on the front-end and the database at the back-end. The scripting places the user's information in a blank webpage template which then presents the dynamic webpage to the user. The dynamic page provides unique information that is customised according to the user's requirements (Green 2000:124; Van der Westhuizen 2001). Figure 2.4 illustrates how dynamic webpages are generated.

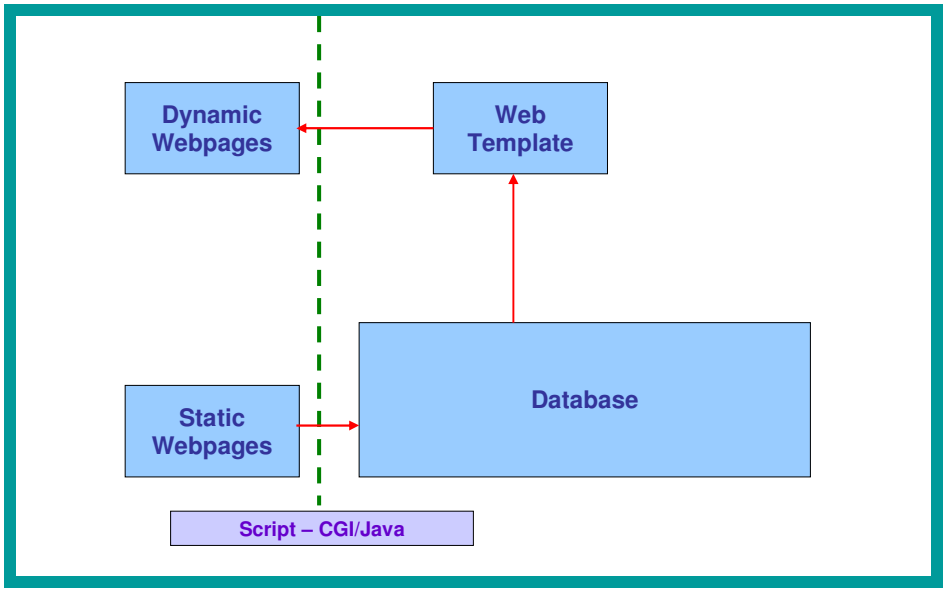


FIGURE 2.4: The generation of dynamic webpages (**Source:** Green 2000:125).

According to McGuigan (2003:68) and Ru and Horowitz (2005:250), the invisible Web is estimated to contain more than 500 times the content of the visible Web. A large portion of this content is stored in databases which cannot be indexed by search engines. There are other reasons, besides not being able to index content, why search engine crawlers do not index webpages. Crawlers are often programmed not to locate webpages containing a "?" in the URL. The question mark indicates the use of scripting, which search engines avoid indexing as they are dynamic (McGuigan 2003:69; Ru & Horowitz 2005:250). Ru and Horowitz (2005:250) explain that this occurrence is due to the possibility that the scripting could contain an infinite loop. Another way to prevent indexing would be for a developer to password protect a webpage and inform the crawler not to index the page by means of a 'robots.txt' file or 'noindex' meta-tag.

The fact remains that the invisible Web does exists. Although search engines were developed in order to assist the searcher in finding relevant information (including e-commerce websites), the user could be excluding a large amount of information by relying on the results of search engines only (McGuigan 2003:69). It seems prudent that web developers should be aware of these aspects in order for them to design improved static webpages (which is an element of the dynamic websites), which will form part of the visible Web. Ru and Horowitz (2005:253) ascertain that new techniques are being developed in order to index the content of the invisible Web directly. One such technique is creating a

dynamic webpage with pre-set value and then storing the webpage in a repository. The repository will have the ability to be searched, thus making the invisible Web visible.

2.4.4 Search services

Search engines have become the primary searching tool used for information retrieval on the Internet (Spink & Xu 2000). A typical search engine has clear tangent planes with the components of an information retrieval system of the past. A study of Weideman (2004) established that these components consisted of a front end, index file and information collection. Today search engines are categorised into two different types of sources namely 'spider-based' or 'crawler-based' known as *search engines,* and 'human-based' known as *web directories* (Green 2000:125; Thurow 2003:11; Chambers 2005:26). Table 2.6 lists the basic differences between web directories and search engines.

TABLE 2.6: Differences between Web directories and search engines (**Source:** Anon, 2001; Mbikiwa 2005:21).

Web directory	Search engine
Edited by a human reviewer	Crawled by a robot 'spider'
Meta-tags are not considered	Meta- and title-tags considered
HTML code not very important	HTML code extremely important
Most allow paid submission	Few allow paid submission
Quality of site very important	Quality of site not very important

2.4.4.1 Search engines (automated indexing)

According to Green (2000:126), Thurow (2003:13) and Wells (2005), search engines consist of four primary components, which are as follows:

- crawlers that examine websites;
- an indexer that indexes words and phrases;
- an interrogation processing - whereby a match of the search query is searched for in the search engine index; and
- the ranking of search results.

Thurow (2003:13) explains that web directories differ from search engines as the latter consist of a database that is compiled through special software called spiders, crawlers or robots in order to retrieve information from webpages. The specialised software resides on a host computer and automatically travels the Internet using a protocol, following links and collecting information about the resources they come across (Oppenheim, Morris & McKnight 2000:191; De Wet 2002). The crawlers then index the websites into the database whereby the website listings are organised according to relevancy. The search engine determines relevancy of a website by following a set of rules, known as algorithms. Each search engine has its own algorithm as they are close-kept trade secrets (Sullivan 2003a). If these algorithms are not treated as trade secrets, web developers will be able to easily

manipulate their website's ranking. This could result in Internet users retrieving information that is not relevant to their search, which is exactly what search engines and Internet users do not desire.

Web crawlers are constantly crawling the web and are therefore continuously retrieving new information and updating their databases. In fact it is the opinion of Thurow (2003:15) that search engines try to update their database every four to six weeks. Figure 2.5 illustrates how search engines 'crawl' webpages.

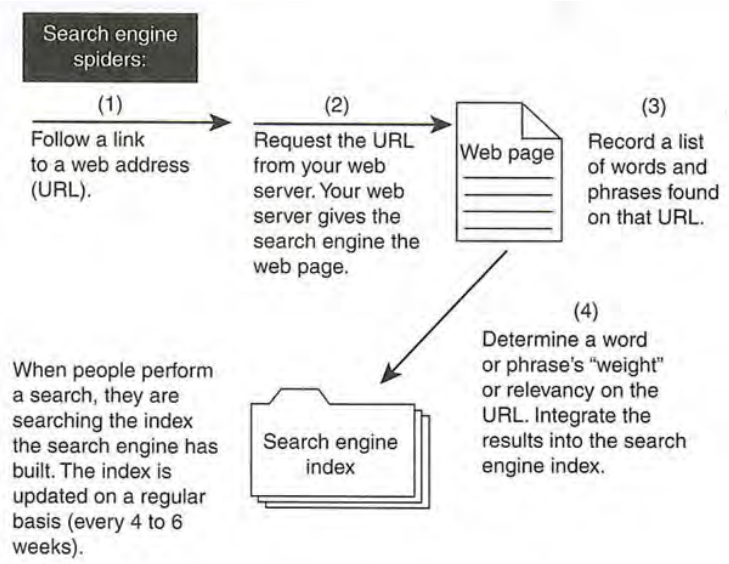


FIGURE 2.5: How search engines crawl webpages (**Source:** Thurow 2003:15).

Although search engines are able to search through a vast amount of information at an impressive speed, they are still limited as a result of their slow response time, retrieval of duplicate records, failure to retrieve relevant information and retrieval of large amounts of irrelevant information (Oppenheim *et al.* 2000:190-191; Kritzinger 2006:14).

2.4.4.2 Web directories (manual indexing)

Web directories are collections of links to relevant URLs created and maintained by human subject experts and are therefore also known as 'subject collections' or 'subject gateways' (Thurow 2003:25). Although web directories rely on human editors to create their lists, they also include the crawler-driven search engine facility. This, however, is not their primary purpose and is only used to provide secondary results (Green 2000:125). Websites that require indexing do not necessarily need to be submitted to the web directory. Thurow (2003:25) points out that websites could also be discovered by the human editors of a web directory by searching or browsing the web. Green (2000:125) explains that web directories have four attributes, which are as follows:

- They contain a pre-defined list of websites.
- They are compiled by human editors.
- They are categorised according to subject/topic.

- Human editors select certain content.

Once a website is submitted to or discovered by a web directory editor, humans review the site in order to determine whether or not to include the site in the directory. When the website is listed in the web directory, it is categorised in a particular way. These categories are typically hierarchical in nature and consist of different subcategories. As a result, the user is able to retrieve information in two ways. Web searchers can either perform a keyword search or they can locate a website of interest by navigating through the categories (Thurow 2003:25). Figure 2.6 illustrates how web directory editors evaluate websites.

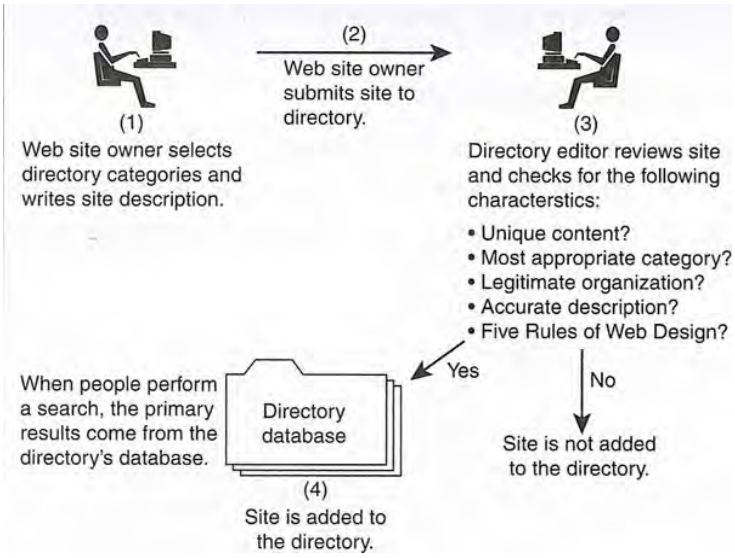


FIGURE 2.6: How Web directories evaluate websites (**Source:** Thurow 2003:31).

Green (2000:125) explains that once a website has been indexed by a web directory, it will remain listed unless manually removed. Sullivan (2002a) supports the view of Green (2000:125), and adds that changing a website that has already been indexed by a web directory will have no effect on ranking. As a result, updates that may improve ranking with search engines may not improve ranking with web directories (Sullivan 2002a).

Some difficulties have been identified with regard to web directories.

- Hubbard (2006) is of the opinion that searching tools powered by humans can not keep up with the capabilities of automated systems. This is with regard to the cost in time and manpower as opposed to automated systems that require minimal human intervention.
- Poulter (1997:137) supports the view of Hubbard (2006), and adds that web directories will not be able to keep up with the ever increasing flow of WWW pages, which require individual attention.
- Furthermore the same author suggests that web directory categories are continuously expanding and it will thus become increasing difficult to preserve the structure.

In spite of these difficulties, web directories still exist. It is the opinion of Green (2000:125), Poulter (1997:136), Strauss and Frost (2001:3) and Sullivan (2004) that Yahoo! is the largest, most successful, most popular and oldest web directory in the world.

2.4.5 Types of search services

2.4.5.1 Meta-search engines

Meta-data is defined by Rob and Coronel (2002:7) as 'data about data'. Tangent planes can be drawn between meta-data and meta-search engines as this type of search engine gathers data from other search engine databases. Meta-search engines do not have crawlers or human editors that index Internet webpages and therefore do not have their own databases to maintain. Instead, keywords are transmitted simultaneously by the meta-search engine to several other search engines in order to obtain results. The results are then ranked by the meta-search engine and presented to the user (Green 2000:127; Oppenheim *et al.* 2000:192; Zhang & Cheung 2003:433; Chen & Luh 2005:423). The advantage of such a search engine is its ability to retrieve a broader scope of information than a single search engine (Zhang & Cheung 2003:433). Furthermore, users doing exhaustive searches on obscure topics save time and effort when using a meta-search engine (Hubbard 2006). Conversely, a study done by Green (2000:127) found that several meta-search engines tend to duplicate results; this in turn frustrates users. A more recent study done by Zhang and Cheung (2003:434) found that meta-search engines are able to remove duplicates. Although meta-search engines have this ability, duplicates are still found in their results (Xie 2004:216). The more popular meta-search engines are MetaCrawler, Dogpile and Mamma (Green 2000:127; Oppenheim *et al.* 2000:192).

2.4.5.2 Popularity-based analysis

Popularity-based analysis methodology is referred to as 'the third way'. The other two methodologies would be 'automated indexing' and 'manual indexing'. Popularity-based analysis was claimed to be user controlled when introduced as the new technology of Direct Hit in April 1998 (Green 2000:127). Direct Hit is similar to meta-search engines in the sense that it does not have its own index with the ability to be queried directly. Direct Hit provides a second level analysis of search results. The technology applies a ranking algorithm to search results based on user popularity. The more often searchers click on a particular link, the higher the website could rank on the results page. Furthermore this also depends on how much time the searcher spends on that particular website (Sullivan 2002b). This is calculated by determining how much time elapses between each of the searcher's clicks on the results page (Henzinger, Motwani & Silverstein 2002:6; Chambers 2005:30). Direct Hit can thus rank popular websites for various search topics higher than those websites that are calculated as less popular (Sullivan 2002b; Chambers 2005:30).

2.4.5.3 Natural language searching

First generation search engines required a keyword to be submitted by the user which was matched to the keywords present in the search engine's database. The search engine would then present the user with a list of links to webpages whereby that particular keyword was indexed from the content of that webpage (Green 2000:128). This was due to the fact that computers operate by assigning a single sign to a single meaning (Kreymer 2002:31). As a result, search engines interpreted keywords without considering semantics or the use of thesauri. Furthermore, search engines ignore frequently used words, called 'stop words', such as *and*, *or*, *to*, *not*, etc. (Green 2000:128). According to Kreymer (2002:31), the natural language can be analysed on several different levels, i.e., phonetic, phonological, morphological, syntactic, semantic, discourse and pragmatic. In 1998 the first natural language search engine, 'Ask Jeeves', was launched which addressed some of the limitations previously listed. The concept behind this natural language search engine was that user queries were matched to a database of seven million template questions. Successfully matching the query to a question would present the user with a result page. If the user's query was not matched to a question, the user was presented with the nearest alternatives from the database whereby the user was given the opportunity to select the most appropriate. Ask Jeeves also conducted meta-searches across other search engines such as AltaVista, Go (InfoSeek), Lycos and Yahoo! (Green 2000:128).

'Electronic Monk' is another natural language search engine which makes use of its own processing techniques. Electronic Monk analyses a query using natural language algorithms which included making use of thesauri in order to consider alternative words. A complex Boolean query is then derived from the natural language query whereby it is submitted to AltaVista (Green 2000:128; Chambers 2005:31). Kreymer (2002:31) is of the opinion that natural language processing techniques can include everything from syntactic analysis, semantic analysis and discourse analysis, to concept matching.

2.4.5.4 Link-based analysis

According to Daniel Dulitz (Director of Technology for Google) as cited by Fifield (2002), it is becoming almost impossible to determine webpage relevancy based purely upon on-the-page factors such as page content, meta-tags, etc. The reason for this is due to web developers abusing the on-the-page factor in order to manipulate search engine result pages. Furthermore, search engine indexes have become large owing to the increasing number of webpages on the Internet. This fact, combined with the difficulties of interpreting user queries, makes it difficult for search engines to determine which webpages are more relevant than others (Fifield 2002). The study of Thelwall and Vaughan (2004:24) established that link-based analysis resolves this dilemma, assuming more relevant webpages will have more links. Link-based analysis does not only focus on the content of each specific page, but also how the webpages interrelate and connect. This is achieved by making use of the methodology 'PageRank', which is used to crawl the Web and analyse how websites link to one another (Green 2000:128-129). PageRank makes use of a link structure in order to

determine the value of that particular webpage. This means that the importance of webpage x is determined by not only its content, but also the number of links that are referred from other webpages to the x webpage (Green 2000:129; Fifield 2002). Fifield (2002) explains that each webpage of a website has one vote to give. The more links to different websites from the same webpage, the less weight each link will carry. Furthermore, higher quality websites carry more weight in their links than those of lesser quality. The same author expresses that link-based analysis is one of the most important techniques used by search engines in order to better determine relevancy. Green (2000:129) points out that Google is one search engine that exclusively focuses on link-based analysis.

2.5 SEARCH ENGINE OPTIMISATION (SEO)

According to Van Steenderen (2001), it is becoming increasingly important for businesses to produce websites and become part of the online environment. The research of Guenther (2004a:47), Thelwall (2000:152) and Thurow (2003:10) found that the majority of users still rely on search engines to navigate the Internet and discover websites. Considering the above, those businesses whose income depends on the number of users that visit their websites, should not only understand how search engines work but also what aspects could improve websites' visibility (Chambers 2005:25). It is also claimed that web developers are more interested in the incorporation of website 'bells and whistles' as opposed to spending time to make websites more visible. Ironically, improving website visibility is such a major aspect that search engine optimisers establish stand-alone companies to assist web developers with improving website ranking on search engines (Guenther 2004a:47). The process of improving website visibility is referred to as SEO, which involves designing or modifying websites in order to improve search engine result page ranking (George 2005:3). According to the author, 80% of users do not search beyond the second page of results presented by the search engine (George 2005:110). Each result page typically contains approximately 10 to 20 results. This confirms the importance of ensuring that websites rank as high as possible for targeted keywords (Thurow 2003:257).

Van Steenderen (2001) explains that the SEO process comprises a number of little steps, which can be time-consuming and an ongoing process, in spite of the specialised tools available on the market to assist in this process. George (2005:3) found that search engines are more interested in easy to navigate websites with good content. Furthermore, George explains that search engines dislike SEO so much, that they go out of their way to create methods in order to counter SEO strategies (Ramos & Cota 2004:11). This can be attributed to the fact that web developers want their websites to rank first on the result page in every single category and will try almost anything to achieve this. Ramos and Cota (2004:12) suggest that web developers believe that websites should capture the interest of the searcher, which in turn should increase revenue (Weideman & Chambers 2005). In the past, website developers were able to achieve this by identifying search engine vulnerabilities, which they abused in order to mislead search engines and improve their page ranking. The

problem with this was and still is website relevancy, as the search engine that gets the most traffic is the search engine that produces the most relevant results (Ramos & Cota (2004:115). Over time, search engines were able to minimise the abuse by constantly changing their ranking algorithms, which today is kept very secret, thereby limiting the exposure and abuse of their vulnerabilities (Sullivan 2003a).

Although search engines dislike SEO strategies, it is important to ensure that websites are visible to search engine crawlers. There are many different methods that can be implemented in order to improve website visibility; however, unfortunately, none of them can guarantee a particular position in search engine page ranking. Incidentally, George (2005:152) states that SEO strategies could improve traffic to websites, which in turn could improve and/or build customer relationships and thus boost revenue (Chambers 2005:35).

2.5.1 Factors affecting website visibility

Thurow (2003:18) is of the opinion that a website must be designed and programmed in HTML code in such a way that it will effectively improve the website's visibility. In turn, this should improve the chances that the website will appear at the top of a search engine's result page for selected keywords. Furthermore, Thurow (2003:18) explains that in order to ensure long-term search engine visibility, the website must consist of three components namely: 'Text, Links and Popularity components'. Not many websites are able to incorporate all three components; however, by including some of the fundamental components during website development, visibility could be improved (Chambers 2005:37).

2.5.1.1 User interaction, search engine and keywords

The approach adopted by many users regarding Internet searching is done in a fairly casual way. Very few users actually plan which words (keywords) they will use and/or the possible options of searching phrases (keyphrase) consisting of those keywords with the goal of increasing user searching success. A general approach adopted would be to correctly nominate keywords, which the user perceives to be the best term that describes what the searcher is looking for (Debowski 2001:371). Depending on the result presented by the search engine and what the user perceives to be the success factor, the user may alter the keyphrase and resubmit the search. The new search has the potential to increase the searching success factor. This concept could consequently result in a loop with two possible outcomes. The searcher could find information that would be sufficient to satisfy his/her need, or time could take its toll, whereby the searcher might give up entirely on the search. Figure 2.7 reflects a standard information access process. Although this standard information access process seems old and outdated, the concept remains the same as described earlier.

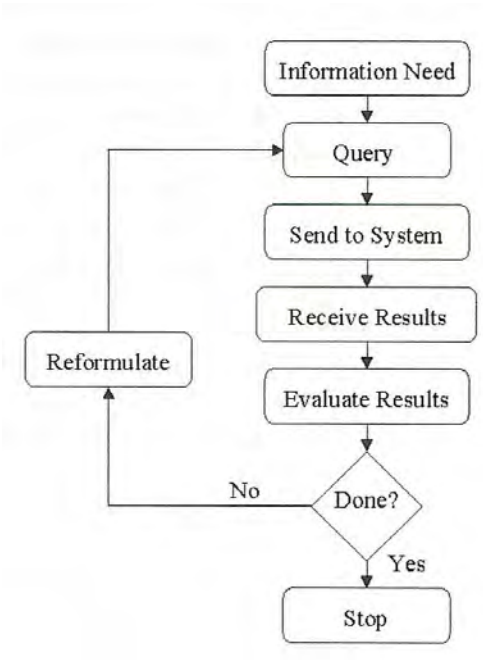


FIGURE 2.7: Standard information access process model
(**Source:** Baeza-Yates & Ribeiro-Neto 1999:263).

Keywords play an important role in Internet searching as there is a clear relationship between the keywords submitted by a searcher and the keywords present in the content and HTML code of a website. This relationship exists due to search engines building databases consisting of words and phrases obtained from websites (Thurow 2003:19). This emphasises the importance of selecting the correct keywords to represent the product, service, company or even the information on the website from the visitors' perception. Ramos and Cota (2004:96) are of the opinion that most websites do not contain enough content to be indexed by search engines. In fact, the same authors suggest that websites should consist of 25 to 50 pages of content. Thurow (2003:85) describes the situation slightly differently and states that each webpage of a particular website should consist of a total of no more than 800 words. The same author points out that a webpage containing more than 800 words will frustrate the visitor and probably cause a loss of interest. Comparing the views of Ramos and Cota (2004:96) with those of Thurow (2003:85), it is clear that web developers must find a happy medium, whereby the content must not be too little or too much. Although the two authors differ in the amount of content, both agree that the content must be high in quality, relevant and rich in keywords. More importantly, website content must be of good quality in terms of web directory indexing, as these search engines make use of human editors as previously discussed (Sullivan 2002a).

Konia (2002:174-176) found that there are three other important aspects to consider regarding keywords and the content of a webpage. The first being 'keyword placement', whereby the web developer should include primary keywords in titles and other areas of the webpage.

Kritzinger (2006:57) advises that keywords should be concentrated towards the top and diluted towards the bottom of a webpage. 'Keyword proximity' is defined as how close keywords are to one another on a webpage. Konia (2002:174-176) is of the opinion that keywords placed next to each other emphasises keyphrases, which are sometimes used by searchers. The research of Visser, Weideman and Strümpfer (2005:287) indicated a relationship between keyword proximity and keywords used by searchers. This is due to the results which indicated that searchers making use of two keywords during a search appeared to be more successful than those using one keyword. Last is 'keyword frequency', whereby the more keywords appear within the webpage, the more search engines are likely to consider that webpage to be relevant, However, careful consideration must be exercised not to make excessive use of keywords as search engines may penalise the webpage by not ranking the website at all (Konia 2002:174-176; Chambers 2005:44).

Chambers (2005:45) demonstrated that prominent domain names and HTML naming conventions should assist in making a website more visible to search engines. The same author also found that webpage names, which include the domain name in the URL, should not exceed 30 characters. Furthermore, these names should provide content-rich information about the webpage, consist of the primary keywords; these keywords should be separated by hyphens and not underscores. Ramos and Cota (2004:51) support the view of Chambers (2005:45) with regard to primary keywords being separated by hyphens as opposed to underscores, as some search engines treat hyphens as spaces. Although some of the other aspects may reflect a good development structure, Thurow (2003:84) states that these naming conventions will have minimal impact on making the website more visible to search engines. In fact, the same author states that search engine crawlers index text and follow links. Therefore, a website containing minimal text and no link architecture will not appear at the top of a search result, due to prominent naming conventions.

2.5.1.2 Frames

Thelwall (2000:152) describes frames as separate rectangular areas, independent of each other yet all present in a single web browser window. Each frame is an HTML document containing its own content (Konia 2002:203). Figure 2.8 illustrates a conceptual web browser window containing a webpage consisting of three frames.

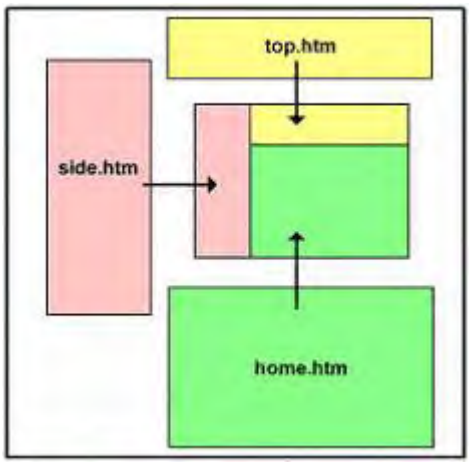


FIGURE 2.8: A Web browser window consisting of frames (**Source:** Anon 2005a).

Frames are used on webpages as a usability feature. Frames were useful when webpages consisted of content that required the visitor to scroll down in order to view all the content. For example, in Figure 2.8, side.htm could contain the webpage menu. Furthermore top.htm could contain the webpage title or banner ads. The home.htm will consist of the actual content of the webpage, which requires scrolling in order to view all the content. Frames work in such a way that when home.htm is scrolled down, side.htm and top.htm will remain static at any given time.

The problem with frames is that the HTML code does not often consist of keyword-rich text (Thurow 2003:140). Furthermore, some crawlers may try to index frames but for the most part, encounter problems that have disastrous consequences, such as missing all the links on the website (Thelwall 2000:152). As a result, search engine crawlers often ignore frame-based websites completely or frame-based websites beyond the homepage (Thelwall 2000:152; Konia 2002:174-176; Ramos & Cota 2004:60). Thurow (2003:140) does make suggestions when insisting on the use of frame-based websites. According to Ramos and Cota (2004:60) and Thelwall (2000:152), however, it is recommended to not make use of frames at all.

2.5.1.3 HyperText Markup Language (HTML)

Understanding the structure of a typical HTML document (webpage) may provide clarity of the aspects that affect website visibility (Chambers 2005:41). HTML is not a programming language. It is a text file with an .htm or .html extension that contains formatting symbols named *tags*, which specify the appearance of text, images, etc., in a web browser (Konia 2002:22; Morrison & Morrison 2003:3,40). Tags are placed before and after text, represented by the opening tag (<>) in the beginning, and a closing tag (</>) at the end. All HTML tags operate in pairs as text will not be presented as intended in the web browser if both tags are not present (Konia 2002:23). A webpage generally consists of two parts: the HEADER and the BODY. The header section generally provides information about the webpage and its content, which is not visible to the visitor. The body section typically contains the content of

the webpage and how the content must be presented to the visitor on the webpage. Figure 2.9 presents an example of HTML code, and how it is viewed in a web browser respectively.

```
<html>
<head>
<title>HTML Example</title>
<meta name=rby content="Just an example">
</head>
<body>
<h1>HTML Example</h1>
<p>
<hr>
<p>
HTML has many <i>tags</i>, among them:
<ul>
<li> links to other <a href=http://www.w3c.org/>pages</a>
    (a from anchor),
<li> paragraphs (p), headings (h1, h2, etc), font types (b, i),
<li> horizontal rules (hr), indented lists and items (ul, li),
<li> images (img), tables, forms, etc.
</ul>
<p>
<hr>
<p>
<img align=left src="at_work.gif">
This page is <b>always</b> under construction.
</body>
</html>
```

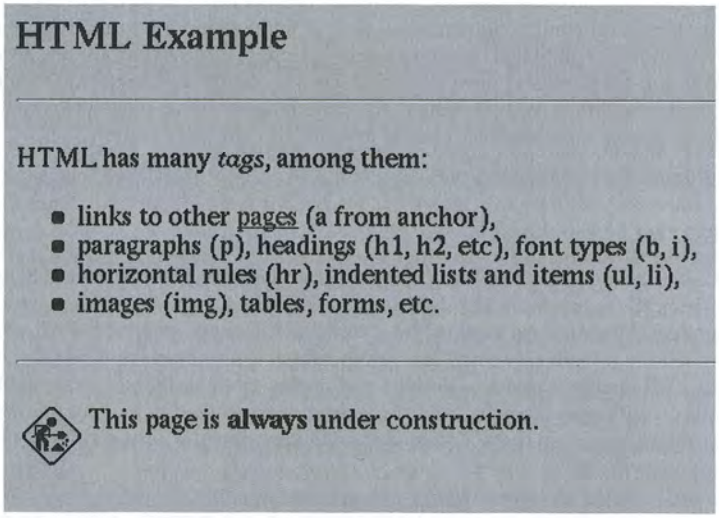


FIGURE 2.9: HTML and how it is viewed in a Web browser (**Source:** Baeza-Yates & Ribeiro-Neto 1999:153).

Henzinger *et al*. (2002:9) are of the opinion that HTML provides unintentional structure as it is not the intention of the web developer to describe the semantics of the webpage. However, when no reliable semantic information is provided, webpages can still prove valuable to search engines. Search engines can thus determine and adjust the weight of text in a document based on the layout of HTML code.

2.5.1.4 Meta-tags

A document (webpage) can contain information about itself (Baeza-Yates & Ribeiro-Neto 1999:141). This is referred to as meta-data and is defined by Rob and Coronel (2002:7) as 'data about data'. Meta-tags normally contain HTML meta-data that provides information about the content of the webpage (Weideman 2002a:6; Thurow 2003:74). The original idea

behind meta-tags was to provide information to the search engines about the website content along with keywords, which are central to the theme of the webpage. Search engines relied on web developers' good faith when creating these meta-tags. According to Konia (2002:15-16), this system worked relatively well until the Internet became commercialised. The result was that search engines realised that they could not rely on good faith as web developers were including irrelevant keywords in meta-tags to manipulate search results without affecting viewable content of the webpage in the web browser (Thurow 2003:74).

It is the opinion of Elser and Paxton (2005:317) and Konia (2002:16) that search engines ignore the meta-tags entirely or assign very little value to the information provided within meta-tags. However, Alimohammadi (2005:625) found that meta-tags can provide the web developer with some degree of control over how the website is indexed by search engines. Furthermore, Sullivan's claim in 2002, that meta-tags are ineffective with regard to improving website visibility, was not supported by any research (Alimohammadi 2005:629). In fact, South Africa's largest search engine, Ananzi, stated that a website not containing any meta-tags will not be indexed by them (Ananzi 2006a; Anon 2006b). Alimohammadi (2005:629), Thurow (2003:74-75) and Weideman and Chambers (2005) all agree that some search engines use meta-tags for different reasons, depending on the search engine and/or the algorithm.

This rather confusing range of views and research on the use of meta-tags prompted the authors to summarise the use of meta-tags as follows: "…they should be used as a secondary text in order to enhance website visibility for those search engines that do make use of meta-tags in some way or another" (Thurow 2003:74-75). Figure 2.10 illustrates an example of meta-tag usage in a webpage.

```
<HTML>

<HEAD>


<TITLE>World War 2 Timeline 1939-1945 - Worldwar-2.net</TITLE>


<META NAME="description" CONTENT="A complete World War 2 Timeline, detailing every event, day by
day from 1939 through to 1945.">


<META NAME="keywords" CONTENT="world war 2, world war two, world war II, world war 2 timeline,
world war two timeline, world war II timeline, world war, world, war, timeline, 2, II, two, history, 20th century,
holocaust, 1939, 1940, 1941, 1942, 1943, 1944, 1945">


<meta name="robots" content="all">
<meta name="Robots" content="INDEX,FOLLOW">
<meta name="revisit-after" CONTENT="5 days">


</HEAD>


<BODY >

        ----- HTML code representing the content of the webpage and how the content will be presented -----

</BODY>

</HTML>
```

FIGURE 2.10: An example of meta-tags usage in a webpage (**Source:** Anon 2005b).

- **Meta-title tag**

Konia (2002:130-133) is of the opinion that the title tag has the highest value with regard to making a website more visible to search engines (Craven 2003:8; Kritzinger 2006:16). This comes as no surprise as search engines often display the title tag in order to indicate content to the user. Furthermore, the title will also appear in the search result listing, the reverse bar and under favourites of the searcher's web browser (Konia 2002:130; Sullivan 2002c). Figure 2.11 demonstrates all the areas where the title tag will appear.

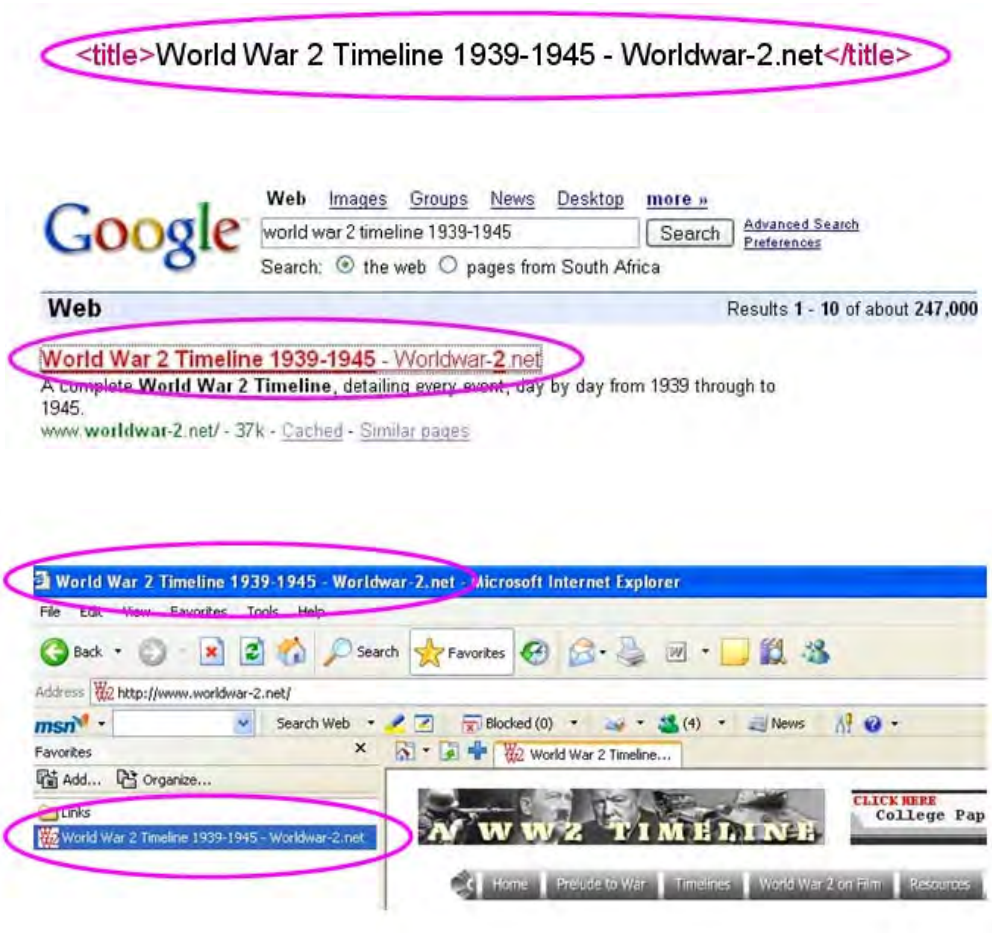


FIGURE 2.11: Areas where the title tag will appear (**Source:** Own source).

Weideman claims that title tags should be keyword rich and describe the content of that particular webpage (Weideman 2002a:14). This should not only improve website usability but also improve the website's ranking on search engines (Weideman & Chambers 2005). It is for this very reason that web developers must ensure that their title tags are relevant. Konia (2002:132) suggests some guidelines when creating a title tag: include company name, primary key phrases, short titles and plural and singular forms.

Different search engines have different limitations regarding the number of characters they are able to read from a title tag. Therefore, Ramos and Cota (2004:47) suggest that the title tag in general, should consist of no more than 50 characters including spaces. George (2005:76) differs slightly in opinion, and states that a title tag should be no more than 80 characters in total. Creating a correct and effective title tag, however, should not be a replacement for relevant and valuable content (Weideman 2004).

- **Meta-description tag**

According to Nobles and O'Neil (2000:75), a description tag can make a website appealing or unappealing to visitors. In fact they are of the opinion that the description tag is almost like an advertisement that is presented to the visitor about the website. Konia (2002:188) and Alimohammadi (2003:240) support the view of Nobles and O'Neil (2000:75), and add that the

description tag is used to describe and summarise the webpage. Certain search engines present the description in the search result list (Thurow 2003:75). Figure 2.12 highlights the location where the description will be presented by search engines that support description tags.

FIGURE 2.12: Appearance of description meta-tag in search engine results (**Source:** Own source).

Thurow (2003:75) is of the opinion that description tags can assist webpages in becoming more visible with regard to relevancy. With this in mind, Thurow also states that the description tag can be created using four to five keywords placed in complete sentences (Ramos & Cota 2004:48). Furthermore, both Alimohammadi (2003:240) and Thurow (2003:75) suggest that keywords should not be repeated. In addition, the description tag should consist of no more than 250 characters in total.

Moran and Hunt (2005:40) do not support the view of Thurow (2003:75) and point out that most search engines no longer present the description under the title in the search result. In fact, these authors suggest that search engines do not give any more weight to the description tag than they do to webpage content. Ramos and Cota (2004:49) reject the view of Moran and Hunt (2005:40), and explain that web directories make use of human editors and evaluators who find these descriptions more valuable than automated indexing tools. Once again, it appears as if there is some discrepancy between researchers' views on the use of this meta-tag.

- **Meta-keyword tag**

Keyword tags were originally intended to inform search engines what keywords were to be associated with the webpage (Alimohammadi 2003:240; Ramos & Cota 2004:50). The keyword tag is supposed to assist search engines by providing words under which the website is searchable and thus also helping to categorise the webpage. This in turn improves website visibility (Alimohammadi 2003:240). When creating the keyword tag, the following, according to Thurow (2003:79), should be considered:

- The keyword tag should consist of keywords found in the content of the webpage.
- Do not repeat keywords or keyphrases in the keyword tag (Nobles & O'Neil 2000:75).
- Search engines generally do not use algorithms that make use of case sensitive elements. Furthermore, searchers seldom make use of capitalisation when searching on the Internet. Therefore capitalising keywords will be a waste of time.
- Search engines do not distinguish between commas and spaces. Consequently, it will make no difference whether the web developer uses commas or spaces to separate keywords or keyphrases.
- Alimohammadi (2003:241) is of the opinion that keyword acronyms, synonyms, related words and even commonly misspelled words should all be included in the keyword tags. Thurow (2003:80) does not support this and refers to the scenario as problematic. This is due to search engines that are able to determine that those keywords are not present in the content of the webpage, making the keyword density non-existent, which in turn will not aid webpage relevancy.

Konia (2002:187) and Ramos and Cota (2004:50) found that keyword tags were an important factor regarding search engine ranking. These authors agree that keyword tags are no longer applicable as most search engines simple ignore them – Ananzi being a notable exception. In spite of these factors, keyword tags should still be incorporated in webpages as secondary text for the purpose of enhancing website visibility for those search engines that still utilise them (Thurow 2003:74-75). Apart from Ananzi (2006b) stating that no more than 100 keywords are permitted per website, no other guidelines could be found regarding this matter.

- **Meta-robot tag**

Assuming that all content on every webpage of every website must be indexed by crawlers is a mistake, as some website owners do not want certain content indexed (Thurow 2003:81; Ramos & Cota 2004:58). Robot tags and robot.txt files were developed with the intent to give the web developers control over crawlers. These search engine crawlers are programmed to abide by the web developers' instructions.

The robot.txt file is also referred to as the disallow file, which consists of two operating statements, the 'user-agent' (defines the crawler) and the 'disallow' (specifies the files the crawler is not permitted to crawl) (Moran & Hunt 2005:242). Figure 2.13 illustrates a typical robot.txt file.

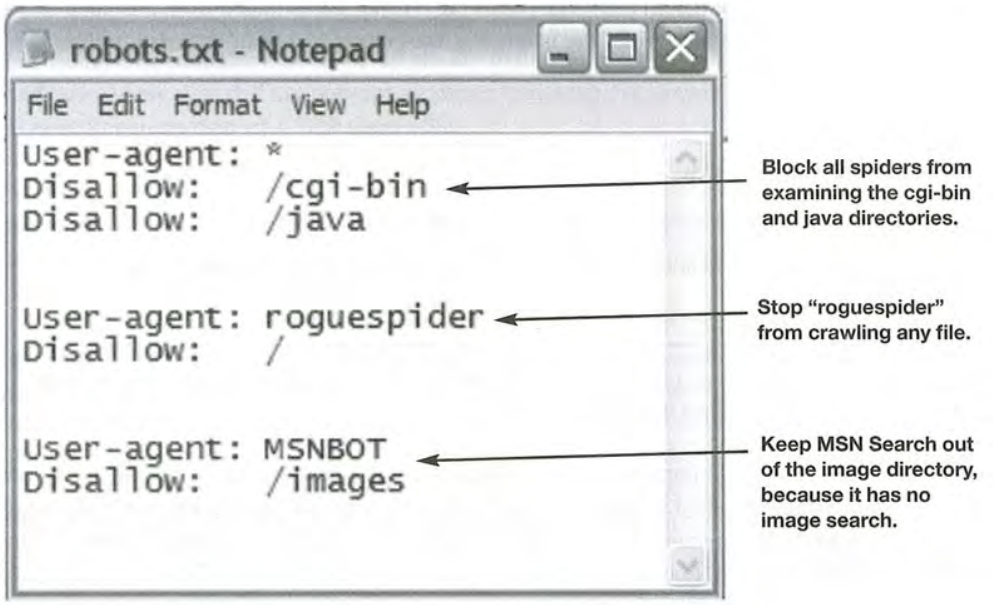


FIGURE 2.13: Example of a robot.txt file with file content explanations (**Source:** Moran & Hunt 2005:243).

The robot.txt files are used to prevent crawlers from crawling webpages that make use of scripting, excessive graphics or program files and directories that crawlers do not want to view anyway, thus improving server performance (Moran & Hunt 2005:242).

The robot tag is overruled by the robot.txt file, which means that should a robot.txt file disallow the webpage, the robot tag will not be consulted. Conversely, if the robot.txt file allows the crawler to crawl the webpage, the robot tag will be consulted. The robot tag can then specify whether or not the webpage's content must be indexed and/or links must be followed to other webpages. Figure 2.14 reflects two possible ways of using robot tags.

Instructs spiders to index the page, but not follow any links on the page:

```
<meta name="robots" content="index,nofollow">
```

Instructs spiders not to index the page, but to follow all links to other pages:

```
<meta name="robots" content="noindex,follow">
```

FIGURE 2.14: Example of two possible ways of using the robot tag (**Source:** Moran & Hunt 2005:244).

If neither the robot.txt not the robot tag exists, the crawler will index the page in the normal way (Moran & Hunt 2005:242). It is the opinion of Thurow (2003:80) that if the web developer intends to have all the content on every webpage indexed, the robot tag should be omitted. Furthermore, the same author advises that search engine crawlers do not heed the revisit instruction on frequency of revisits. Therefore web developers should not waste their time in

creating revisit meta-tags, although making use of this meta-tag will not disadvantage the website in any way.

Robot tags can assist in making a webpage more visible especially if it is a dynamic webpage. For example, assuming an online book store website makes use of a robot.txt file that prevents the crawler from indexing the *checkout* webpage as this webpage is not worth visiting without selecting a product. However, the robot tag in the product webpage should advise the crawler to index the webpage but not follow any links to other webpages. As a result searchers are able to search for products that have been indexed, hence making the website more visible (Moran & Hunt 2005:245).

- **Meta-header tag**

Search engines deem the header tag to be very important when determining what the webpage is about and thus the indexing of that webpage. This is due to the fact that the HTML language maps very closely to how the content is displayed on the webpage. As a result, unethical web developers will be unsuccessful when endeavouring to encourage search engines to think something is important, while at the same time make users perceive it as unimportant (Henzinger *et al*. 2002:10). In HTML there are six different header sizes, H1 being the largest moving down to H6 being the smallest. Figure 2.15 represents the relative sizes of HTML headers.

FIGURE 2.15: HTML headers presented in relative sizes
(**Source:** Morrison & Morrison 2003:50).

The H1 header is very prominent on the webpage and generally contains descriptive information about the webpage. Search engines therefore place a lot of weight and emphasis on the words used in those headers (Henzinger *et al*. 2002:10; Ramos & Cota 2004:52). Consequently, web developers must include H1 headers containing primary keywords in their webpages in order to improve website visibility. Craven (2003:8) supports the views of Ramos and Cota (2004:52) and Henzinger *et al*. (2002:10), and adds that the remaining headers up to and including H4 also carries a lot of weight with search engines. Ramos and Cota (2004:52) explain that many web developers do not like using headers, as

they are ungainly. These headers are often replaced by images that may appear attractive to the user but are not crawlable and whose content do not contribute to the overall website visibility.

- **Alt tag**

The 'alt tag' is referred to as alternate text or alt text, which is an HTML tag primary used for naming images on a webpage. This is due to search engines being unable to interpret images (Konia 2002:30; Moran & Hunt 2005:50-52; Hubbard 2006). This tag displays text on a webpage image when the mouse pointer is placed over that image for a few seconds. Furthermore, many searchers disable images on their web browser in order to improve download speed. The reason for this is that webpages without graphics load much faster than those with graphics. Consequently the alt tag text is presented where the image would have been displayed (Konia 2002:30). Therefore visitors (with their images turned off in the web browser) will be unsuccessful in navigating through a website that makes use of images as links, but without alt tags.

Moran and Hunt (2005:52) proved that webpage titles are often incorporated into images. As previously mentioned, images are invisible to search engines unless these images have alt tags that clearly describe them. Moran and Hunt (2005:53) and Konia (2002:30) all agree that some search engines consider alt tags as a crucial component in their ranking algorithms as most webpages make use of images.

2.5.1.5 Links

Anchor text, often referred to as hypertext links or just links, typically consists of words underlined by the web browser, which provides access to another webpage location (Rowley 2001a:356; Henzinger *et al*. 2002:5). Guenther (2004b:56) is of the opinion that visitors are often uncertain of where navigational links will lead them. In order to solve this problem, web developers could create links that include targeted keywords that describe the destination (George 2005:57). This does not only take the guesswork out of navigation, but it also improves keyword density, which in turn improves website visibility (Thurow 2003:86). However, Thurow (2003:95) points out that too many links can interfere with keyword density which in turn will decrease webpage relevancy.

There are two types of links, namely 'internal' and 'external'. The internal link connects one webpage to another webpage within the same domain (website) (Konia 2002:29; Ramos & Cota 2004:55; Moran & Hunt 2005:341). Websites containing high-quality internal links juxtaposed with good content could radically improve the page ranking on Search Engine Result Pages (SERPs) (George 2005:58). According to Ridings and Shishigin (2002:28), there are three different structures to interlink webpages within a website, namely hierarchical, looping and extensive. Figure 2.16 illustrates these three different interlinking structures.

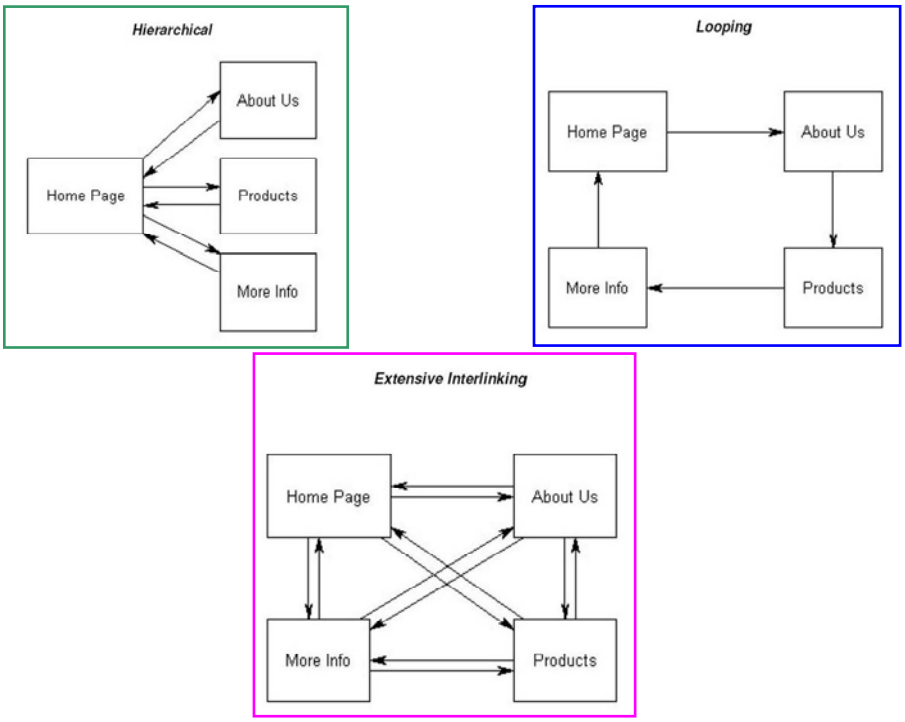


FIGURE 2.16: Hierarchical, looping and extensive interlinking structures (**Source:** Ridings & Shichigin 2002:28).

When applying standard page ranking calculations to the three interlinking structures in Figure 2.16, it was determined that the extensive interlinking strategy resulted in the highest PageRank value within the website. Next in line was the hierarchical structure and thereafter the looping structure (Ridings & Shishigin 2002:34).

External links connect one website to another. These links are of interest to search engines as they act as a surrogate for the quality and trustworthiness of website content from an inbound perspective. This implies that more inbound links raise the importance as perceived by search engines. This concept is referred to as link popularity (Moran & Hunt 2005:341, 343). The same author found that 25 links pointing to a particular webpage could significantly improve that webpage's page ranking on SERPs. Furthermore, Moran and Hunt (2005:343) point to the fact that these 25 links must be of high quality, as links from 25 mediocre websites will not improve that particular page's ranking (Thurow 2003:113). Walker (2005:525) describes a slightly different algorithm utilised by certain search engines. For example, assume there are three websites, named Alfa, Lima and Vector. The Alfa website has a great deal of links pointing to it. Vector, on the other hand, has very few links pointing to it. Search engines tend to assign more weight to a link pointing from Alfa to Lima than a link from Vector to Lima. Therefore, web developers should try to obtain links from webpages that are credible (Thurow 2003:113).

2.5.1.6 Graphics, Flash and PDF files

Graphics, Flash, video, sound, animation and other interactive features all enable visual tours and demonstrations, which in turn improve the users' experience. From a marketing

perspective, these factors all contribute and add style, not only to the website but also the product on sale. Unfortunately, they also interfere with a search engine marketing campaign. This means that websites containing these elements could be at a disadvantage when crawlers index websites, as they can only index text (Thurow 2003:122; Ramos & Cota 2004:60; Moran & Hunt 2005:256-257).

- **Graphics:** Owing to the inability of search engines to interpret images, web developers should start a webpage with text as opposed to an image. Using images to spell out keywords should also be avoided even when alt tags are used for those images. Web developers should incorporate descriptive and keyword-rich alt tags when making use of images in webpages. Furthermore, web developers should take caution with overall website design and refrain from creating a website using only images. Web directories will not find a website appealing for indexing purposes as searchers are interested in obtaining quality content and only images (Nobles & O'Neil 2000:51; Thurow 2003:122; Ramos & Cota 2004:60).

- **Flash:** Macromedia Flash or Flash creates an opportunity for web developers to design good-looking websites with visual flair. Web developers are able to animate graphics, sound and text, creating a very pleasant experience for the visitor. Furthermore, Flash can provide a vector image as opposed to the normal bitmap image on a webpage. This means that webpages designed in Flash are almost dynamic. Flash remains in proportion no matter how large or small the web browser becomes, especially when the web browser is resized by the visitor (Thurow 2003:146; Chambers 2005:61; Ngindana 2006:27). According to Goh and Wang (2004:144), Flash is the most widely accepted vector-based multimedia web format. Although 98% of all web browsers support Flash, web crawlers are unable to index Flash content. In spite of web developers being aware of this, some still design webpages using Flash navigation buttons. These Flash buttons are not a problem to search engines, but the actual Flash technology used to produce them is, as Flash is more of a 'movie' than a 'text document' (Moran & Hunt 2005:256-257; Thurow 2003:122,146). This does not mean that Flash should not be used; it only means that Flash should be used wisely. For instance, some web developers incorporate animated banner advertisements at the top of their websites (Van Steenderen 2001). These banner advertisements might be appealing to visitors but they are invisible to search engines. The use of Flash must be reserved for content not to be indexed. Web developers should not design their homepage as a Flash experience, containing either a splash page or multiple Flash images (Thurow 2003:146). In order to make the website more appealing to visitors and search engines, Moran and Hunt (2005:256-257) suggest that Flash must be preceded by an ordinary HTML page containing quality and keyword-rich content.

- **PDF:** In the past, search engines where only able to interpret HTML documents. Today, search engines have become increasingly efficient, as different search engines are able to index different non-HTML documents (Thurow 2003:163). Chambers (2005:64) researched the Google and Yahoo! search engines in order to determine which search engines index which file types. Table 2.7 provides a list of different file types and indicates which search engine indexes the different file types.

TABLE 2.7: File indexing by Google and Yahoo!
(**Source:** Chambers 2005:64).

Number	File Types	Google	Yahoo!
1	Adobe Portable Document Format (pdf)	✔	✔
2	Adobe PostScript (ps)	✔	
3	Lotus 1-2-3 (wk1- wk5, wki, wks, wku)	✔	
4	Lotus WordPro (lwp)	✔	
5	MacWrite (mw)	✔	
6	Microsoft Excel (xls)	✔	✔
7	Microsoft PowerPoint (ppt)	✔	
8	Microsoft Word (doc)	✔	✔
9	Microsoft Works (wks, wps, wdb)	✔	✔
10	Microsoft Write (wri)	✔	
11	Rich Text Format (rtf)	✔	
12	Shockwave Flash (swf)	✔	
13	Text (ans, txt)	✔	✔
14	Standard HTML (htm, html)	✔	✔
15	RSS or XML feeds (xml, rdf, rss)		✔

Table 2.7 illustrates that both Google and Yahoo! index the Portable Document Format (PDF). Moran and Hunt (2005:48) found that when search engines come across a non-HTML file, they convert the document into a standard format, which they then index and store. Website owners often make use of PDFs, as they want to preserve the exact look and feel of the document which can not be imitated on a webpage. PDF documents can achieve high search engine ranking when formatted correctly. Thurow (2003:167) suggests a few guidelines when making use of PDF documents on the Internet, which incidentally are the same which should be applied to HTML documents:

- The PDF document must contain text and not an image of the text.
- The PDF document must contain keyword-rich text.
- The most important information must be provided on the first page of a multiple page PDF document.
- Create an abstract of the PDF document with optimised HTML tags. The abstract should consist of no more than 250 words in the body of the webpage.
- Do not place any links in the PDF document, as search engine crawlers do not follow links in non-HTML documents (Chambers 2005:64).

2.5.1.7 JavaScript

JavaScript is a type of client-side scripting, which is embedded in HTML that runs in the web browser on a searcher's workstation (Morrison & Morrison 2003:107-108). JavaScript is a programming language that is used to create small programs consisting of fewer than 100 lines of code. These programs usually perform validation on dynamic webpages or control webpage content and appearance (Nobles & O'Neil 2000:184; Morrison & Morrison 2003:107-108). JavaScript is very popular owing to its presentation and ease of use on a webpage, especially with drop down functionalities and navigational menus (Thurow 2003:123). Unfortunately, most search engine crawlers do not interpret JavaScript and are unable to index it or follow the links inside JavaScript (Moran & Hunt 2005:219; Thurow 2003:123). George (2005:60) is of the opinion that search engine crawlers do not understand JavaScript and attempting to build this knowledge into them will make the crawlers too complicated and slow. However, Thelwall (2002:105-106) and Weideman and Chambers (2005), explain that some search engine crawlers may be able to look for links in JavaScript. An example of JavaScript in an HTML document is given in the centre of Figure 2.17.

```
<HTML>
<HEAD>
<TITLE>World War 2 Timeline 1939-1945 - Worldwar-2.net</TITLE>
<META NAME="description" CONTENT="A complete World War 2 Timeline, detailing every event, day by
day from 1939 through to 1945.">
<META NAME="keywords" CONTENT="world war 2, world war two, world war II, world war 2 timeline,
world war two timeline, world war II timeline, world war, world, war, timeline, 2, II, two, history, 20th century,
holocaust, 1939, 1940, 1941, 1942, 1943, 1944, 1945">
<meta name="robots" content="all">
<meta name="Robots" content="INDEX,FOLLOW">
<meta name="revisit-after" CONTENT="5 days">

            <script language="javascript">
               <!--
                  function runloop() {
                     var counter = 1;
                     while (counter<=5) {
                        document.write(counter + "<br>" );
                          counter++;
                     }
                  }
               //-->
              </script>

</HEAD>
<BODY >
            onload="runLoop()">
           ----- HTML code representing the content of the webpage and how the content will be presented -----
</BODY>
</HTML>
```

FIGURE 2.17: JavaScript embedded in HTML (**Source:** Morrison & Morrison 2003:164).

Web developers can place the JavaScript in one of two places: between the <head> and </head> tags or between the <body> and </body> tags. Thurow (2003:123) suggests placing JavaScript in the head of the HTML document and calling on it in the body when required, as illustrated in Figure 2.17. Konia (2002:204) points out that JavaScript should not affect the website's ranking, as long the amount of code is not too high. Furthermore, the same author also suggests placing large amounts of JavaScript at the bottom of the webpage in order to ensure that the optimised content is read first by a visiting crawler.

Thurow (2003:126) suggests two other ways to ensure that search engine crawlers are not impacted upon by JavaScript. The one method would be to make use of an external JavaScript file (js file), placing all JavaScript in that external file whenever possible. The HTML document can then reference the js file, which is loaded into the workstation's cache (memory). The advantages are that search engine crawlers can now be ordered not to scan the js file using a robot.txt file, thus not only improving download time but also minimising the amount of unreadable code to crawlers.

The other method entails making use of the <noscript> and </noscript> tags in the head of the HTML document, which allow for alternative content to be presented in the browsers. These tags are useful with web browsers that do not support JavaScript, and with visitors who have disabled JavaScript while searching. Unfortunately, unethical web developers abuse this function, by placing unrelated content on the webpage by using these tags in an attempt to boost rankings (Thurow 2003:132).

2.5.1.8 Spamming

According to Fetterly, Manasse and Najork (2004), commercial websites require a large volume of traffic, and are therefore becoming more dependent on higher placements in search engines. This is due to 85% of searchers examining only the first search result page, which usually consists of the top 10 results (Henzinger *et al*. 2002:1). A more recent study done by Ntoulas, Najork, Manasse and Fetterly (2006) found that 80% of searchers examine no more than the first three batches of results provided by search engines. Thus, in order for web developers to include their website in this range, they often try to deliberately manipulate their website ranking (Henzinger *et al*. 2002:1; Ntoulas *et* al. 2006). Henzinger *et al*. (2002:1) refer to this process as search engine spam. Implementing SEO strategies is not spamming, but unethical practices within SEO with regard to manipulating crawlers and redirecting users to inappropriate content are referred to as SEO spamming (Wilkinson 2004). Search engine spamming is defined by Ramos and Cota (2004:102) as web developers trying to place their website in as many search engine categories as possible. Search engines have attempted to provide the public with clear guidelines as to what constitutes spamming. Unethical web developers find loopholes or exceptions to those guidelines, which force the search engines to update these rules in order to include the exceptions. Search engines developers have come to realise that there will always be exceptions to their rules. Consequently, search engines only lately have provided a general guideline. Accordingly, search engines interpret spamming as more about 'how' and to 'what extent' rather than 'had' the technique been used (Thurow 2003:219). There are many different types of spamming, but according to Henzinger *et al*. (2002:1), spamming falls into three broad categories: text spam, link spam and cloaking.

- **Text spam:** Search engines evaluate the content of a webpage and sometimes meta-tags to determine relevancy with regard to a search query. The concept of this technique is to modify the text in such a way that the webpage appears to be

particularly relevant, but in fact is irrelevant to the searcher (Henzinger *et al*. 2002:3-4). Keyword 'stacking' and 'stuffing' are two types of text spamming methods used by some unethical web developers. Keyword stacking is the repetitive use of one keyword at the bottom of the webpage in very small font, usually in HTML tags or even in the same colour as the webpage's background, thus appearing invisible to the visitor (Henzinger *et al*. 2002:4; Thurow 2003:221-222). Keyword stuffing is, for example, placing very small images on the webpage and then giving them alternative tags containing keywords (Thurow 2003:221-222).

- **Link spam:** Henzinger *et al*. (2002:4) describe 'link farms', which are collections of links to every other webpage on the same website, at the bottom of each webpage (Thurow 2003:224). This practice is suspect as webpages with extensive content, requiring the visitor to scroll down, are now able to link to the next webpage without scrolling back to the top of the webpage. This practical usability feature is, according to Henzinger *et al*. (2002:4), problematic as search engines sometimes determine relevance by the number of incoming links to the website. 'Doorways' are something similar to link farms. The only difference is that doorways are webpages that consist entirely of links. These doorways, containing thousands of links often have multiple links, to the same webpage which may manipulate the search engine's popularity-based analysis (Henzinger *et al*. 2002:4). Thurow (2003:223) explains that hidden links are another form of link spamming, which are links hidden from the user in punctuation and sometime in images. Certain search engines interpret hidden links to be unethical and are in essence trying to deceive the crawler.

- **Cloaking:** Cloaking is feeding search engine crawlers with a given webpage but supplying the human user with another. In this way, crawlers may allocate a high ranking to a webpage, but when the user finds that page, he/she actually sees a different one. This technique is generally used on webpages that are multimedia content rich, which is usually not very search engine friendly. In this instance, the webpage created for the search engine crawler would contain the same information as the webpage being presented to the searcher, with the only difference being the format (search engine friendly). An auto-refresh tag is used in the header of the webpage, in order to present the search engine friendly webpage for a split second and then replace it with the intended webpage (multimedia rich). Spammers make use of this technique with the intention of manipulating search engines and improving their website relevancy (Henzinger *et al*. 2002:4). Sullivan (2003b) is of the opinion that some search engines have strict guidelines against cloaking, whereas other search engines still allow it. Thurow (2003:227) rejects the view held by Sullivan (2003b), and states that all search engines consider cloaking to be spam.

Spammers make use of many different spamming techniques in order to achieve top search engine positions. It is strongly advised by Konia (2002:311), Thurow (2003:233), George (2005:15) and Maron and Hunt (2005:302) not to utilise spamming techniques as they may result in website banning. In fact, websites making use of spamming techniques and which have been identified in doing so, run the risk of incurring one of several degrees of punishment (Konia 2002:311):

- The website is red flagged to be inspected by a human viewer to determine appropriate punishment.
- The website's ranking position may be radically reduced.
- A particular webpage or the entire website may be banned from the search engine, thus not appearing on the result page at all.

2.5.1.9 Search engine registration

Thurow (2003:10) claims that an average of over 300 million searches are done on search engines and web directories per day. Thurow (2003:10) and Van Steenderen (2001) state that an effective way to increase the probability that searchers will visit a particular website is to ensure that the website is listed with the most popular search engines and web directories. This is can be achieved by ensuring that the website is visible to those searching services. Search engine registration is but another method that can be used to improve website visibility. Van Steenderen (2001) is of the opinion that a website must be submitted to different search engines to guarantee that those websites will be available to searchers on those search engines. The same author explains that there are three different ways to submit a website to search engines, namely:

- The website can be submitted to each search engine individually.
- Software can be used to submit the website to multiple search engines simultaneously.
- A website can be used that provides free automated submission to multiple search engine simultaneously.

Konia (2002:227) rejects the view of Van Steenderen (2001) regarding the necessity to submit a website to search engines. According to Konia (2002:227), websites must not be submitted to search engines unless there is a specific reason to do so. Maron and Hunt (2005:237) support the view of Konia (2002:227), and add that website submission should occur only as a last resort. Konia (2002:227) suggests four possible instances when it is feasible to submit a website to search engines.

- The website has never been submitted before and it has been verified that the website is not listed in the search engines index.
- The website has been submitted and the recommended waiting time has lapsed, yet the website has not appeared in the search engine's index.

- The website is present in the search engine's index, but the website is poorly ranked for the targeted keyword or phrases.
- Website information needs to be updated in the search engine's index.

Thurow (2003:191) found that search engines tend to find and index frequently visited webpages in web directories. Therefore, a website should be submitted to web directories as the first step regarding submission in order to boost popularity. The study of Mbikiwa (2005:24) demonstrated that web directory editors are more concerned with content, functionality and good design when submitting a webpage to web directories. Furthermore, the same author highlights the following tactics that can get a website rejected and strategies that could increase the acceptance rate.

Tactics that can get a website rejected:

- Websites that are still in the construction phase.
- Websites containing links that do not work (dead links).
- Website containing minimal content or consisting of only links (link farms).

Strategies that could increase websites being accepted:

- Website containing well-designed webpages which are optimised for fast download.
- Webpages containing relevant and useful content.
- Fully functional websites.
- The submitter providing an appropriate category and description of the website.

Thurow (2003:191-192) explains that not every webpage of a website must be submitted, only the optimised webpage (normally the homepage). In order to ensure optimal search engine indexing and visibility, keywords and phrases must be placed strategically throughout the entire webpage. The following is a summary of locations where keywords or phrases may be placed: title tag, throughout the body content, within or near links, meta-tags and alternative text. Furthermore, the website should have effective cross-linking or have a webpage containing links to other webpages within that website (site map). Submitting the site map webpage will give the web crawlers access to all the URLs within the website (Thurow 2003:192). This could effectively maximise search engine visibility through search engine submission.

2.6 CLOSURE

The literature review and analysis provided sufficient corroboration of the importance of SMMEs in South Africa. The literature also identified how vulnerable SMMEs are not only to the economy but also to the environment. It is for this reason that SMMEs must become more strategic to ensure their survival and potentially increase revenue. One particular method would be to incorporate e-commerce and/or e-marketing into their business strategy.

Real estate companies in South Africa, which are predominantly SMME-based, are currently unable to incorporate e-commerce in its purest form. Fortunately, this does not mean that those companies cannot incorporate e-marketing. In general, websites are used for that purpose. Website URLs should be and sometimes are marketed by the company by ensuring that those URLs are present and visible on their letterheads, vehicles, newspapers advertisements, emails, business cards and outside their company buildings. Search engines can also be used to market websites. Search engines exist to assist the searcher in finding what they are looking for in the shortest amount of time. Owing to this, it would be in the best interest of a company to ensure that search engines not only find their websites but rank them as highly as possible in order to improve the possibility that a searcher would visit such a website. In order to achieve this, web developers would not only have to understand the very essence of the Internet and search engines, but also which elements of a website could affect website visibility. To better explain this, an illustration will be used to present a more holistic view of all the conceptual elements involved in this project.

A conceptual model was created (see Figure 2.18) in order to illustrate how all the aspects discussed in the literature are linked to one another.

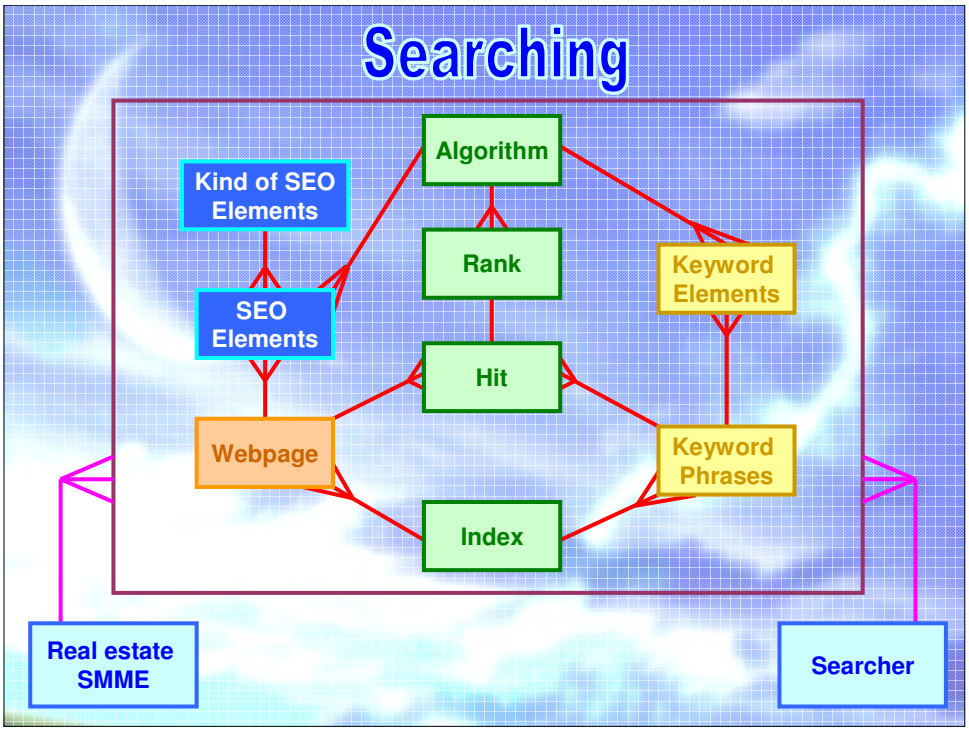


FIGURE 2.18: Conceptual model of the literature review and analysis (**Source:** Own source).

The keywords or phrases provided by the searcher when searching for a particular website play an important role in SEO. Those keywords or phrases need to be interpreted by the search engine in order to provide the searcher with the relevant websites. As a result, keywords or phrases present on a website are the only real connection to the searcher. Figure 2.18 illustrates the searching process, by considering the keywords used by the

searcher, the keyword elements present on the website and the essentials of a search engine that determines the relevancy of such a website, thus connecting the searcher to the SMME.

It is apparent that SMMEs which do not invest in a website are at a marketing disadvantage. Conversely, SMMEs investing in a website are not necessarily at a marketing advantage, especially if that website is not visible to search engines.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 INTRODUCTION

In the literature review and analysis of Chapter 2, Chambers (2005:72) and Kritzinger (2006:41) indicate that there is no simple approach a web developer could take to significantly improve website visibility. In fact SEO is such a technical, complex and ongoing process that independent companies exist purely to address this issue.

In the past a great deal of research has been done with regard to the Internet as a source of information, search engines, websites and the indexing thereof by search engines. Chambers (2005:128) created an SEO model (see Table 3.1), which web developers could follow, in order to improve the indexing of websites by search engines. The author suggested that the applied model could radically increase ranking of those websites. It was thus concluded that further research could be conducted by applying the model to websites whereby the researcher will be able to monitor the ranking of websites on search engines. The application of the theoretical SEO model (Table 3.1) of Chambers to the real estate SMME industry, is due to the fact that 'no empirical evidence could be found which confirms or rejects the value of website visibility optimisation in that particular South African industry'.

TABLE 3.1: Elements that improve website visibility (**Source:** Chambers 2005:128).

Number	Leading Visibility Elements	Rank
1	Inclusion of Meta Tags	1.5
2	Hypertext / Anchor text	2
3	No Flash or fewer [*sic*] than 50% of content	3
4	No Visible Link Spamming	4
5	Prominent Link Popularity	4.5
6	No Frames	5
7	Prominent Domain Names	7
8	Prominent Headings	7
9	No Banner Advertising	8
10	Prominent HTML Naming conventions	10

The most important element in Table 3.1 is represented with the lowest rank number, whereby the element's importance decreases as the rank number increases.

In this chapter, the author defines the research question and sub-questions along with sample size, specialised software, different research approaches, the selected research method, process and other related factors which all contribute to the research methodology.

3.2 RESEARCH QUESTIONS

The Internet is fast becoming a communication, commerce and marketing medium that is changing business globally. The first question that needs to be addressed is whether or not this change applies to the real estate industry, and if so, will the industry be able to make effective use of this changing environment? Owing to the possibility that this question could be answered conclusively in the literature review and analysis, the following research question can be addressed, namely 'Will search engine optimisation elements improve the visibility of real estate SMME websites?'.

In order to answer this question, the following research sub-questions were formulated addressing different aspects of the research question.

- 'Is strategic real estate e-marketing necessary?' - This question was partially answered in the literature review and analysis indicating that real estate e-marketing is necessary.
- 'What search engine optimisation elements exist?' - Table 3.1 illustrates a summary of the most important SEO elements researched by Chambers (2005), which have been confirmed, rejected or added to in the literature review and analysis.
- 'What types of search engines are there and how do they work?' - The literature review and analysis highlighted and elaborated on the existence of two types of searching services, namely the web directory (human-based) and search engines (crawler-based).
- 'How do search engine optimisation elements affect website ranking?' – The literature review and analysis indicated that search engines make use of algorithms, for that purpose, which are kept secret and often changed in order to prevent abuse by web developers.
- 'What is the general perception of the community regarding the use of keywords when searching for real estate companies?' – To be addressed in the results and conclusion.
- 'Does the identified search engine optimisation model apply to the real estate industry?' - To be addressed in the results and conclusion.

The last two questions above will be answered once the methodology has been completed. All six answered sub-questions along with the derived statistics will answer the research question which in turn will mitigate the research problem.

3.3 SAMPLE ENVIRONMENT

Scrutinising the last two research sub-questions, it becomes evident that there are two dimensions that need to be considered before selecting the appropriate research method. The one is the use of keywords by the general community and the other is real estate SMMEs. The general community in this instance is referred to as the South African

community. For the most part, South Africans may at some point in time be faced with the option to do real estate business in some way or another. From this perspective, the majority of South Africans interested in doing real estate business, will most probably need to work through an estate agency. There are many different ways to get in touch with such a company - using the Internet and search engines are but one of them. Different searchers might have different needs that must be satisfied regarding real estate business. Therefore, users may use different keywords or phrases when searching on the Internet for real estate. It is therefore deemed necessary to obtain keywords and phrases from as many different individuals from the Internet community as possible in order to acquire a very broad perception. Analysing this dimension, it has become apparent that the most important aspects are 'obtaining keywords predominantly from the South African community'. Furthermore, the real estate SMME industry is one of the focus points of the research project. In order to determine whether or not applied SEO elements improve real estate website visibility, it is deemed a requirement to conduct experiments on actual and current real estate websites in South Africa.

3.4 SPECIALISED SOFTWARE

It was predicted that the research experiments will take exceptionally long when executed normally by a single researcher. This was based on the number of keywords used in a search, the number of search engines to be searched and search engine results to be considered. In this instance it will be the first 30 results presented by the search engine. Subsequently, a total of 30 (search engine results) multiplied by an estimated 100 (keywords) multiplied by 20 (search engines) equals 60 000 results to be inspected for each experiment. Notwithstanding this fact, a few other potential problems surfaced when considering the different approaches when trying to answer the last two research sub-question. For instance:

- Determining the exact number of search engines or web directories available locally and internationally.
- The number of searches that will have to be conducted depending on the number of keywords or phrases obtained from the community.
- The possibility that search engines might reject the Internet Protocol (IP) address, used by the computer, when continually bombarding them with search queries.
- Obtaining and documenting the ranking of predetermined websites in search engine results.

Owing to the above, two options present themselves when considering how to solve these problems. They are, to obtain additional research assistance and/or to acquire specialised software which in both instances should be able to assist in the research process. Under the circumstances, both options were deemed necessary, with the only difference being that additional research was required in order to ensure that the correct software was purchased.

An independent industry expert in SEO (Sullivan editor of Searchenginewatch), adopted a position on two separate occasions regarding the superior functionality of WebPosition Gold (WPG) (Sullivan 1998; Sullivan 2000). WebPosition Gold is a program capable of determining a webpage's visibility to search engines. Not only is this program able to address all the problems stated above, but it is also able to reduce the time required to conduct a single experiment. Because of the opinion of Sullivan and the program's functionality, it was concluded that the author should make use of the WPG program, in order to measure website visibility in this research project.

3.5 RESEARCH METHODS

Before applying a particular research method it would seem necessary to take cognisance of the different types of research approaches available. Following is a short descriptive summary of different research methods.

3.5.1 Quantitative research approach

Quantitative research examines the measured variables of a theory in order to test the hypothesis. This approach requires a relatively large data sample in order to articulate the collection of data in numbers, and therefore answer questions about the variables and their relationships (Struwig & Stead 2001:4-7,36). This will result in either the verification or contradiction of the tested hypothesis (Leedy & Ormrod 2005:94-95).

Five characteristics of the quantitative approach according to Leedy and Ormrod (2005:95-97) are listed below:

Purpose: The purpose of quantitative research is to test the hypothesis but also to search for clarification or predictions in order to create generalisations that in turn would contribute to the theory.

Process: The process must be fairly structured as concepts, variables and measuring methods need to be defined beforehand and remain the same throughout the research. Furthermore, researchers need to be separated from the participants to remain unbiased in their findings.

Data Collection: During the data collection process, one or more variables in the hypothesis need to be identified for studying. Once identified, data must be collected relating only to those variables. Although data is collected from a population sample, the data must be converted to numeric values which in turn will represent that population.

Data Analysis: Data analysis takes place with logical reasoning in mind. The researcher must endeavour to remain objective and use predetermined statistical procedures to draw a logical conclusion from the analysis.

Reporting Findings: Reporting findings in quantitative research occurs whereby researchers make use of predetermined summarised statistics. The interpretation of group

performance relies on the large number of scores rather than individual scores, whereby findings can be generalised to the population.

According to Struwig and Stead (2001:7), the most common quantitative research methods used are exploratory research, descriptive research, experimental research as well as quasi-experimental research.

3.5.1.1 Exploratory research

Research is typically generated by a problem situation. Exploratory research is used when very few (if any) previous research has been done in that particular problem area. This approach, more often than not, is taken when the researcher is trying to clarify initial ideas or to focus on the problem at hand in order to develop the research question (Struwig & Stead 2001:7). Welman and Kruger (1999:12, 19) are of the opinion that exploratory research does not start with a particular problem. The study assists the researcher in defining a hypothesis which in turn could be tested. The purpose is consequently for the researcher to determine the existence of such a phenomenon, not to test it.

Owing to the research being done in a relatively new area with no reputable theories, it was deemed appropriate rather to investigate the relationship between variables than to develop a hypothesis (Welman & Kruger 1999:24). Thus, other research could begin where exploratory research left off.

3.5.1.2 Descriptive research

Descriptive research entails the identification of features or the investigation of the relationships among phenomena. The cause-and-effect of phenomena relationships is not determined by descriptive research. In fact, descriptive research describes the situation as is, as comprehensively as possible and without altering the situation during the investigation (Struwig & Stead 2001:8; Leedy & Ormrod 2005:179). Goddard and Melville (2004:9) mention that descriptive research is often used when the research as such is very complex. Struwig and Stead (2001:8) explain that there are two methods that are descriptive, namely case studies and statistical methods.

- **Case studies**

Olivier (2004:10, 98) avers that the survey approach is to gain little information from a large number of respondents. Case studies are just the opposite, whereby a large amount of information is gathered from a small number of cases (Struwig & Stead 2001:8). The purpose of a case study is not only to gather information that is interesting, but also useful. There are many different types of techniques used to gather information from a case study including interviewing, observations and group discussions. Even through these techniques appear to be qualitative in nature, the information gathered could in fact be quantitative or qualitative in nature (Olivier 2004:98). Struwig and Stead (2001:8) are of the opinion that case studies could aid the researcher in understanding the constructs being studied, which

in turn could assist the researcher in the initial stages of their research process. This approach is not only used to increase the researcher's knowledge, but could also provide information for conclusive purposes. Once a researcher has decided on the use of a case study and the boundaries of that case study have been defined, the researcher must decide on a quantitative or qualitative method when collecting and analysing the data (Henning, Van Rensburg & Smit 2004:40). This could depend on the number of cases used in the study as well as the researcher's methodology. Leedy and Ormrod (2005:108, 135) explain that researchers sometimes study a single case in depth for understanding purposes (which reflects a qualitative approach) and at other times they study multiple cases for comparative and/or generalisation purposes (which reflects a quantitative approach).

- **Statistical method**

Statistical methods are used to analyse data collected from a large number of respondents. These respondents are not studied in depth, as done with case studies. The data collected is typically analysed or measured by making use of a predetermined statistical procedure, i.e., central tendency, percentages or measures of dispersion (Struwig & Stead 2001:9). Owing to the large number of respondents being studied, it becomes less likely that a few cases may distort findings as the statistical method reflects an overall picture. The statistics derived could be compared against an ideal, or previously generated statistics. One particular disadvantage is that some insight into the actual problem might be compromised when making use of statistical methods (Struwig & Stead 2001:8-9).

3.5.1.3 Experimental and quasi-experimental research

Experimental research, also known as true experimental design, is a research approach whereby the researcher intends to determine to what extent an independent variable will influence a dependent variable when addressing a research question. Experimental research makes use of a before (pre) and after (post) test control group design, whereby an experimental intervention is applied to one particular group during the process. This is accomplished by randomly assigned participants into two separate groups. The two groups are then named the experimental group and the control group. Both groups are then tested under identical circumstances before any treatment has been applied to either group. After the before (pre) test has taken place, results are documented. The experimental group then receives the experimental intervention whereas the control group does not. Both groups are again tested whereby the results are documented as before. Comparing the documented results, the researcher could conclude to what extent the independent variable influenced the dependent variable (Welman & Kruger 1999:68-69; Struwig & Stead 2001:9-10).

Stead and Struwig (2001:10) suggest that quasi-experimental research is similar to the true experimental design with the most important difference being that the researcher does not randomly assign participants to groups. Welman and Kruger (1999:78) support the view of Stead and Struwig (2001:10), and add that sometimes it might be impossible or undesirable to assign subjects randomly.

3.5.1.4 Questionnaires

Although the use of questionnaires is not part of a particular quantitative or qualitative research approach, they are often used as a method of collection data for both methods of research. Because of this, it was deemed necessary to briefly describe questionnaire specifications.

Creating an effective questionnaire is not a relatively simple task. Questionnaires can be conducted via personal interviews, telephone and mail, which will include emails and other electronic and non-electronic formats, where the interviewer will not be present. Personal interview is an expensive way to collect data due to manpower required, training and time, as there might be a need for multiple interviews. The advantage of personal interviews is the collection of accurate data from the interviewee, due to the presence of the interviewer when conducting the survey. Telephone surveys can be conducted at high speed. However, keeping the interviewee interested while documenting open-ended questions is more of a challenge. Mail surveys are problematic as there is a low response rate, often between 15% and 25%, due to lack of interest in the topic, and time and effort required to fill in the questionnaire. Furthermore, someone other than intended may respond to the questionnaire (Stead & Struwig 2001:86-88).

Mail surveys appear to be the most feasible in spite of the problematic issues listed above. This is due to mail surveys being less expensive and less time consuming as opposed to personal interviews, considering the large number of respondents involved (Hussey & Hussey 1997:162). Currently, it may be more practicable to place a questionnaire on the Internet, or even better, on a search engine depending on the area of research. This should ensure questionnaire exposure and possibly reduction in non-interested respondents from the equation. Weideman and Visser (2006:431) attempted this approach by placing a questionnaire on the Ananzi search engine from the 1st of July 2005 until the 31st of July 2005. Of the 445 883 unique users, 510 questionnaires were submitted, from which 482 questionnaire results were usable. This reinforces the practicable approach regarding questionnaires and the Internet.

Other problems associated with the use of questionnaires could be resolved or minimised by following basic guidelines. For example: the wording of the questionnaire should be done in such a way that the target respondent will easily understand the questions. The layout must also ensure that the respondents can follow the logical sequence of queries. A questionnaire should start with the easier and non-specific queries moving towards the more difficult and specific queries at the end of the questionnaire. Subsequently, these factors could assist the researcher by making it easier to analyse the data being collected (Hussey & Hussey 1997:162-163; Babbie 2004:250-251).

Goddard and Melville (2004:48) are of the opinion that researchers should ensure that their questionnaires have the following ten characteristics.

Ensure that the questionnaire:

- is comprehensive,
- is as short as possible,
- includes only relevant questions,
- supplies clear and concise instructions to the respondent,
- includes questions easily understood by the respondent,
- does not include questions that guide respondents,
- starts with general questions and ends with more specific questions,
- includes suitable questions,
- places debate and sensitive questions last, and
- consists of predominantly closed questions.

3.5.2 Qualitative research approach

Leedy and Ormrod (2005:94-95, 133-134) state that the qualitative research approach is used by researchers studying the complex nature of a phenomenon, to answer questions about the phenomenon, from the participants' point of view. The answers obtained are typically limited as they are acquired from a particular point of view. Olivier (2004:100) points out that qualitative data, e.g., observations, can not be measured in the same way as quantitative data (through the use of values). Consequently, qualitative researchers normally present their findings with in-depth descriptions and interpretations (Leedy & Ormrod 2005:94-95, 97, 133-134, 143-144).

Five characteristics of the qualitative approach, according to Leedy and Ormrod 2005:94-97, are:

Purpose: The purpose of qualitative research is to describe and understand a complex phenomenon, often explanatory in nature, by means of observation. The study may possibly result in a tentative hypothesis which could form the basis of study which is quantitative in nature.

Process: The process of qualitative research is initially holistic but eventually becomes more focused as the research progresses. This would mean that the research boundaries are often not predetermined but instead are created as data is collected.

Data Collection: Qualitative researchers tend to collect data from only a few participants. The study is then done in depth with the objective to better understand the phenomenon. Both verbal and nonverbal data could be collected for interpretation.

Data Analysis: Inductive reasoning is frequently used by qualitative researchers during their data analysis. Furthermore, the analysis is done subjectively, whereby the data is searched for patterns.

Reporting Findings: In reporting findings**,** qualitative researchers generate their interpreted conclusion from the data collected, and sometimes even reflect the participants' perspectives.

Qualitative research is associated with many research methods as there is no one particular formula the researcher could follow when conducting qualitative research (Stead & Struwig 2001:11; Leedy & Ormrod 2005:134-135). Olivier (2004:113-116) identifies seven research methods, namely, appreciative inquiry, action research, ethnography and participant observation, focus group, grounded theory, hermeneutics, and semiotics.

3.5.2.1 Appreciative inquiry

Research as such is about solving problems. The appreciative inquiry is to not solve a problem but instead to improve the situation at hand. This research method consists of three phases. In the discovery phase whereby the parties involved discover and appreciate that which is good. In the design phase where the parties involved create a strategy to follow in order to improve the situation. In the final phase, plans are implemented which is know as the delivery phase. The researcher in this instance acts more as a facilitator to synchronize the activities of the parties involved (Olivier 2004:113-114).

3.5.2.2 Action research

Leedy and Ormrod (2005:108) explain that the action researcher entails solving a particular problem in local surroundings. It is a repetitive cycle of activities where participants and the researcher are both involved in a process, regarding research decisions (Stead & Struwig 2001:15). Olivier (2004:114) points out that the research method involves creating an intervention to the current situation of interest. The situation is then re-evaluated in order to determine whether the problem has been resolved or if another intervention is necessary. This cycle continues until the problem is resolved.

3.5.2.3 Ethnography and participant observation

According to Leedy and Ormrod (2005:108), ethnography is a comprehensive study of a culture in its natural surroundings in order to capture a way of life. To accomplish this, the researcher must become part of the community, and thus becomes a participant as well as an observer. This is done to assist the researcher in better understanding the community, as the researcher experiences the culture first hand (Henning *et el.* 2004:42; Olivier 2004:114).

3.5.2.4 Focus group

A focus group consists of participants that are associated by a common situation. These participants are then gathered to discuss their experiences, feelings and opinions about products, services or types of situations. This research method is generally used at the initial stages of research, e.g., providing guidance to the researcher when developing a questionnaire or interview. As a result, the researcher would have obtained rich data and insight during a focus group, otherwise not easily acquired outside the group (Hussey & Hussey 1997:155-156; Olivier 2004:114).

3.5.2.5 Grounded theory

Grounded theory involves observing a situation of interest where current theories are inadequate or nonexistent. Data obtained from different participants is compared whereby emerging patterns could give the researcher the opportunity to construct a theory. The theory is adjusted by obtaining data from participants that differ from those already interviewed or observed. The adjustments to the theory will cease once the data obtained no longer adds to the pool of knowledge (Babbie 2004:372; Olivier 2004:115; Leedy & Ormrod 2005:140).

3.5.2.6 Hermeneutics

Hermeneutics is the interpretation of text from the author's perception. It is not intended that the researcher interprets the text from his/her own perception. The researcher must consider the context in which the text was created, as documents are created in different times and inside different cultures (Olivier 2004:115).

3.5.2.7 Semiotics

Semiotics is the study of signs and symbols of all kinds as well as the relationship between a signifier (sign) and the signified (meaning). Researchers using semiotics will interpret text being analysed and assign meaning to a particular sign in the text. Furthermore, the researcher must determine which meaning assigned to a sign in text is more plausible than any other meaning (Olivier 2004:115-116).

3.6 PHILOSOPHICAL INFLUENCES

Pather and Remenyi (2005:76) are of the opinion that every day humans make decisions based on previous actions they have reflected on. This is even more applicable to scientists collecting data systematically and/or objectively in order to obtain valid and reliable solutions to research problems. The same authors suggest that there are three traditional methodological options, namely, positivism or logical positivism, interpretivism, and critical research. Positivism or logical positivism is quantitative in nature, whereas interpretivism is qualitative. Critical research appears to be a mixture of the two, leaning a bit more to the qualitative side as this approach denies that a researcher can be objective to his/her research. Positivism, on the other hand, is based on the notion that the researcher is able to function independently and objectively from his/her research when obtaining and analysing data (Pather & Remenyi 2005:78-81). The same authors also state that positivism utilises mainly quantitative methods containing the following characteristics:

> "… an emphasis on quantification of constructs; assigning numbers to perceived quality of things; the use of variables have a central role; and, there is either experimental or statistical control for sources of error."

Owing to a positivist influence and a preliminary experimental study done by the author on the same type of problem (Visser, Kritzinger & Weideman 2006), the author was inclined to follow a quantitative approach.

3.7 RESEARCH DESIGN AND METHODOLOGY

A preliminary study was conducted in order to test the parameters of this research project and therefore functioned as a stepping stone towards the design of this research project. The preliminary experimental study done by the author in solving the same type of problem appeared to be a very practicable approach as the experiments worked particularly well. The author thus concluded that the use of an experimental approach would again provide conclusive data and should be used to conduct this study with the unit of analysis being website visibility.

The quantitative, experimental approach, as briefly described in Paragraph 3.5.1.3., specifies the use of two groups in a 'before test' as well as an 'after test'. Experimental intervention is applied to one group in the process. Apart from these two phases, an additional two phases were required, namely, the initialisation and finalisation phases. The outline structure of the methodology is presented in Figure 3.1.

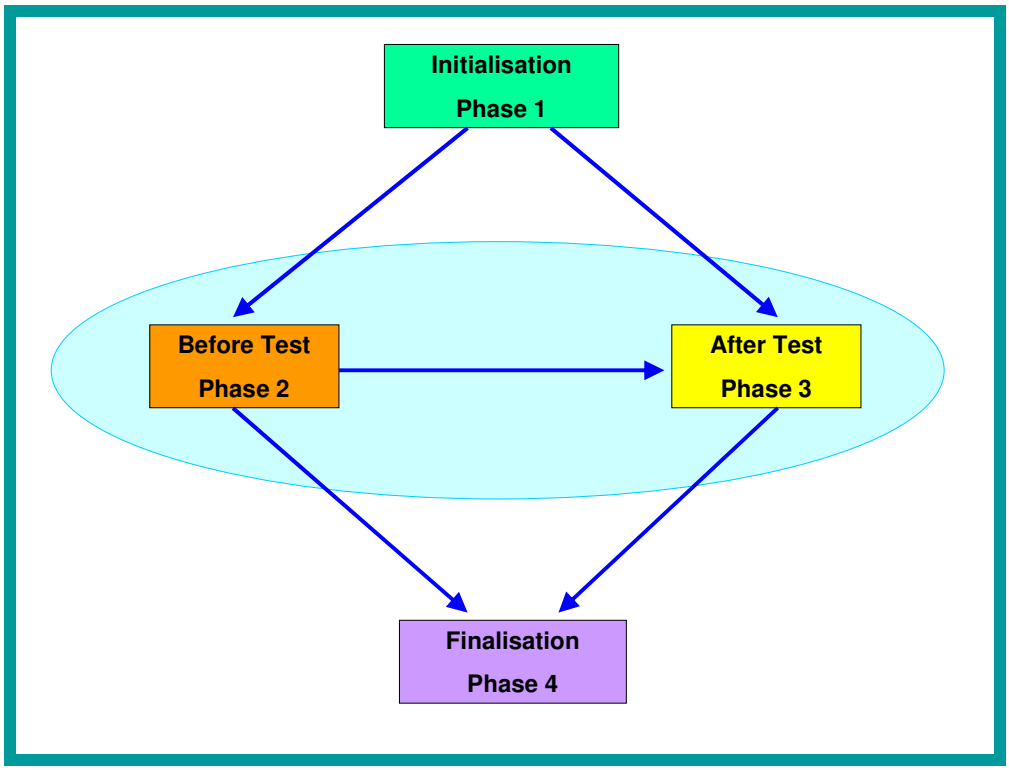


FIGURE 3.1: An outline structure of the research project methodology (**Source:** Own source).

Further development in the project revealed that the quasi-experimental approach would be the more appropriate quantitative research method to apply. This is due to participants not

being randomly assigned to groups. In fact, participants will need to fulfil certain requirements before becoming part of the study. From the outline structure developed in Figure 3.1 and proposed quasi-experimental research methods, a detailed methodology was constructed as illustrated in Figure 3.2.

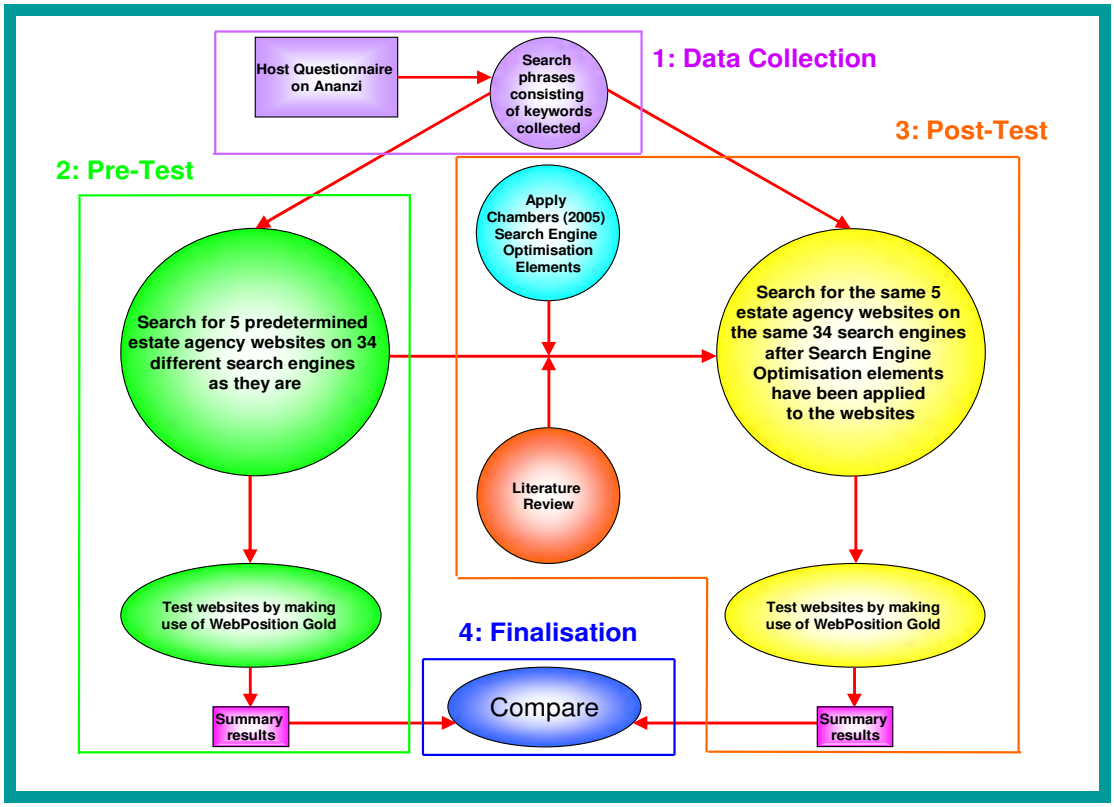


FIGURE 3.2: Model presenting detailed processes involved in the research project (**Source:** Own source).

3.7.1 PHASE 1: DATA COLLECTION

The purpose of this phase was to collect data, more specifically keywords, from predominantly the South African community, to be used in phase 2 and 3.

The keywords were to be used in these phases when searching on search engines and web directories for the predetermined websites. Furthermore, the objective was to obtain a general perception of SEO by the community. This was deemed necessary as it contributed to the confirmation or rejection regarding the value of website visibility optimisation in the real estate industry of South Africa, from a community perspective.

It was concluded that the best way to achieve this would be to make use of a questionnaire. In addition, it became apparent that the most practicable way to distribute the questionnaire was to host it online, as opposed to using postal questionnaires. This resulted in the reduction of time and effort required by the author to obtain data, as the questionnaire and results were already in electronic format. Furthermore, the questionnaire was predominantly

exposed to the South African community as it was hosted on Ananzi, which indexes only South African websites.

3.7.1.1 Questionnaire layout

The questionnaire consisted of 14 questions of which the first nine were a variety of multiple-choice, dual and dichotomous questions. The last five questions were open-ended questions (Steyn, Smit, Du Toit & Strasheim 1994:44; Struwig & Stead 2001:92-94). In addition, the questions were divided into six parts, which are explained as follows:

Part one: Consisted of the first question, which also happened to be the filter question. This question determined which participants had done real estate business in the last six months. Results obtained for Question 1 were of particular interest to the researcher. This was not only due to participants remembering what they had recently done, but also a very good opportunity existed that those participants had made use of the Internet during their business process.

Part two: Consisted of questions obtaining information about the demographic features of participants.

Part three: Determined the participants' perception regarding SEO.

Part four: Consisted of questions determining participants' Internet usage regarding real estate business.

Part five: Was the key-focus area of the questionnaire. Its function was to obtain keywords used by the community when searching on the Internet for property, home or businesses they intended to buy, sell, and/or rent as well as keywords used when looking for an agent to assist with the real estate business process.

Part six: Was not part of the research project as such, but was included on behalf of Ananzi in order to provide them with data focusing exclusively on the Ananzi search engine. Part six consisted of one question which was placed at the end of the questionnaire. This question was added to give something in return for allowing the author to host the questionnaire on Ananzi.

The questionnaire was hosted on the Ananzi search engine result page from the 2nd of June 2006 to the 24th of July 2006. The questionnaire structure, questions and details as it was hosted on the Ananzi search engine result page is shown in Appendix A.

3.7.2 PHASE 2 & 3: INITIALISATION

The first part of this phase was to identify five real estate companies in the Western Cape, all with their own websites. The websites had to be older than three months to ensure that they had been adequately exposed to search engines and web directories for indexing purposes.

The five real estate companies identified, as per permission letters Appendix B, (B1 to B5), had all agreed to participate in this research project. The letter authorised the author to conduct experimental tests on each company's website.

On the 26th of June 2006, five new domain names were registered, one for each company in order to host the five new optimised websites developed by the author. These websites were created by using the information provided by each company, which they preferred to be presented on their new website. In addition, these websites were optimised following the guidelines presented in Table 3.1, juxtaposed with findings obtained from the literature review and analysis.

The five new optimised real estate websites were hosted on the Internet from the 4th of July 2006. Although the old and the new websites were present on the Internet simultaneously, the new websites were given a limited period of 27 days whereby search engines had the opportunity to index them.

Before the experimental tests were to commence, the following were required:

- Specialised software, namely WebPosition Gold 4 Professional edition (WPG4), as specified in Paragraph 3.4.
- A broadband Internet connection with no less than two ADSL accounts. This was required in order to prevent search engines from identifying the IP address which was continually bombarding the search engine with search queries. The author was able to control this by disconnecting and then reconnecting to the Internet, using a different username and password after each experiment had been completed. This process forced an IP address change whereby the search engine interpreted the computer to be a new user.
- One computer to operate the specialised software on the Internet.
- A list of keywords of phrases obtained from the online questionnaire results.

The questionnaire results obtained were divided into four categories, the same four categories that were presented in the questionnaire. The buy category consisted of 39 keyword phrases which could be used as is in every experiment (Appendix C1). The sell category consisted of 32 keyword phrases which could also be used in every experiment (Appendix C2). The rent category was the last set of keywords that could be used in every experiment and also consisted of 32 keyword phrases (Appendix C3). The agent category consisted of 18 keyword phrases which was unique to each of the five companies. The list below indicates which Appendix (agent keywords) was used with the appropriate company:

- Atlantic real estate agent keywords = Appendix D2
- Value Homes real estate agent keywords = Appendix E2
- Cypress Projects agent keywords = Appendix F2
- ERA Steer Blaauwberg real estate agent keywords = Appendix G2
- Realty1elk real estate agent keywords = Appendix H2

In summary, there were 10 websites, two for each company (5 old: Appendix D1, E1, F1, G1 and H1) – (5 new: Appendix D7, E7, F7, G7 and H7). Each website was tested using all 121

keywords combined in the specialised software, which was able to identify 29 different international search engines and four regional or local search engines as per Table 3.2.

TABLE 3.2: Search engines identified by the software
(**Source:** Software package - WebPosition Gold 4 Professional).

International search engines & web directories			**Local search engines**
A9.com	Go	MSN	Ananzi.co.za
About.com	Google	Netscape	Google.co.za
AllTheWeb	HotBot	Open Directory	za.msn.com
AltaVista	ICQSearch	Search.com	MWeb.co.za
AOL Web Sites	ISleuth	Tygo	
Ask	Ixquick	Webcrawler	
Earthlink	Jayde	WiseNut	
Entireweb	LookSmart	Yahoo Directory	
Excite	Lycos	Yahoo Web Results	
Galaxy	Mamma		

3.7.3 PHASE 2: PRE-TEST AND PHASE 3: POST-TEST EXECUTION

Although phase 2 and phase 3 were two independent experimental approaches, it was deemed necessary to execute the two phases in parallel. On the 1st of August 2006, phase 2 (represented by x in Table 3.3) and phase 3 (represented by yy in Table 3.3) commenced, whereby one single company was tested each day until all five company results were acquired. Table 3.3 illustrates how this was accomplished. Consequently, it ensured that the testing conditions remained almost 100% identical for each company's 'before' (Old Website) and 'after' (New Website) tests.

TABLE 3.3: Each day for five days a single company's old and new website was tested
(**Source:** Own source).

		Atlantic	**Value Homes**	**Cypress Projects**	**ERA Steer**	**Realty1elk**
Old Websites	**Buying**	X	X	X	X	X
	Selling	X	X	X	X	X
	Renting	X	X	X	X	X
	Agent	X	X	X	X	X
New Websites	**Buying**	YY	YY	YY	YY	YY
	Selling	YY	YY	YY	YY	YY
	Renting	YY	YY	YY	YY	YY
	Agent	YY	YY	YY	YY	YY

The specialised software (WPG4) interrogated the first 30 results of each search on every search engine. This was specified in the software in order to ensure that the results obtained

remained in the parameters as researched in the literature review and analysis (see Chapter 2, Paragraph 2.5.). Because of this, the following mathematical representation illustrates the number of results inspected during phase 2 and 3: 33 (search engines) * 121 (keywords) * 30 (results) * 10 (websites) = 1 197 900 results inspected.

3.7.4 PHASE 4: FINALISATION

Results obtained from phase 2 and 3 were analysed using descriptive statistics, which according to Steyn *et el.* (1994:5) is defined as follows:

> "Descriptive statistics entails ordering and summarizing the data by means of tabulation and graphic representation and the calculation of descriptive measures. In this way the inherent trends and properties of the observed data emerge clearly."

In addition, the derived statistics of phases 2 and 3 were compared with one another in order to measure website visibility improvement or deterioration, which in turn provided accurate data.

3.8 CLOSURE

In this chapter the author described the research question and sub-questions whereby the sample environment and specialised software were identified and elaborated on. Furthermore, the author identified several research approaches providing a brief overview of each. The author concluded that the quantitative, quasi-experimental research approach was the more appropriate method due to preliminary studies as well as philosophical influences. Lastly, a detailed research model was constructed (Figure 3.2), which was extensively elaborated on.

CHAPTER 4
RESEARCH RESULTS AND ANALYSIS

4.1 INTRODUCTION

In this chapter, the results obtained from the questionnaire and the experiments were interpreted and analysed. A small number of results obtained from the questionnaire were presented in a basic structure, as those results contributed in some way in answering a specific part of the research question. Some of the other questionnaire results were processed in order to provide the participating real estate companies with a profile of a typical online purchaser. This information was conveyed to the real estate companies, giving them some indication of a target market. In addition, those companies were warned to consider the sample size with regard to the development of the profile. The remaining questionnaire results provided the keywords and phrases to be used in the experiments.

The experiments were conducted on all 10 websites, which were grouped into five pairs according to company, consisting of one old and one new website per pair. Results were obtained from each website whereby the results of the old websites were compared with the results of the new websites. The purpose was to confirm or reject the improvement of website visibility.

4.2 QUESTIONNAIRE RESULTS

The questionnaire was hosted on the Ananzi result page. The reason for this was to ensure that when Internet users viewed their search results on Ananzi during the month of June and July 2006, they would also be offered the option of answering the questionnaire. According to Ananzi, over 1 million (1 070 173) uniquely identified IP addresses (users) accessed the Ananzi search engine during June and July 2006. A total of 168 questionnaires were submitted, of which 159 results were usable. The other nine questionnaires were submitted containing no information at all. In addition to this, a filter was applied to the 159 results in order to ensure that all the information gathered from the respondents was within the scope of the methodology. This was achieved by omitting all respondents that had not done any real estate business whatsoever, nor had done real estate business before the 1st of December 2005 as specified in Paragraph 3.7.1.1 of Chapter 3. This left a total of 58 questionnaire usable responses. Table 4.1 provides a basic summary of the information contained in the 58 usable responses.

TABLE 4.1: Information obtained from the 58 usable results (**Source:** Own source).

	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age group	58	100.0	0	0.0	58	100.0
Gender	58	100.0	0	0.0	58	100.0
Race	57	98.3	1	1.7	58	100.0
Qualification	58	100.0	0	0.0	58	100.0
Income	58	100.0	0	0.0	58	100.0
SEO	57	98.3	1	1.7	58	100.0
Used Internet	56	96.6	2	3.4	58	100.0
Future Internet	57	98.3	1	1.7	58	100.0

Questions 10 to 13 of the questionnaire were designed to harvest search phrases used by the general public when searching for real estate on the Internet. These search phrases were divided into four categories, each one being a different aspect of real estate. The first one is 'buying' real estate, the second 'selling', the third 'renting' and the fourth is searching for a particular real estate 'agent'. The questionnaire participants had no idea which real estate companies or areas and real estate agents were to be used in the experiments. The area, real estate company name, as well as the names of real estate agents could not be used as is in the experiments. These factors could vary from any name to any place, which was not necessarily part of the parameters of this project. As a result, the search phrases that did contain these anomalies were edited to include the parameters of the correct area, company names and agent name included in the experiments. In addition, the structure of these search phrases was not altered, nor was incorrect spelling corrected. This was done in order to ensure that these search phrases remained as close as possible to their original state. For the most part, 'buying' (Appendix C1), 'selling' (Appendix C2) and 'renting' (Appendix C3) required minimal alteration, whereby the same search phrases for each of the three categories could be applied to all five companies. The 'agent' category had to be altered according to each company name and agent name. The 'agent' keywords used with the appropriate company are listed in Appendices as specified in Paragraph 3.7.2 of Chapter 3.

4.2.1 Evidence that strategic online real estate marketing is necessary

Research sub-question as specified in Paragraph 3.2 of Chapter 3 ('Is strategic real estate e-marketing necessary?') was addressed in the literature review and analysis, indicating that it is true. Table 4.2 returned that 85.7% of the participants did make use of the Internet when doing real estate business.

TABLE 4.2: Distribution of results obtained by respondents regarding Internet usage (**Source:** Own source).

Internet used in the past		
Yes	48	85.7%
No	8	14.3%
Subtotal	**56**	100.0%
Missing Values	2	
Total	**58**	

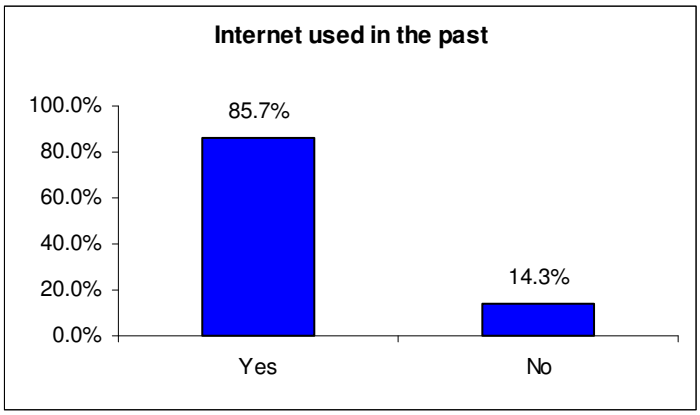


FIGURE 4.1: Graphical representation of Table 4.2 (**Source:** Own source).

Furthermore, Table 4.3 indicated that a slight increase had occurred in the participant's perception regarding future use of the Internet when doing real estate business.

TABLE 4.3: Distribution of results obtained by respondents regarding future Internet usage (**Source:** Own source).

Future Internet usage		
Yes	53	93.0%
No	4	7.0%
Subtotal	**57**	100.0%
Missing Values	1	
Total	**58**	

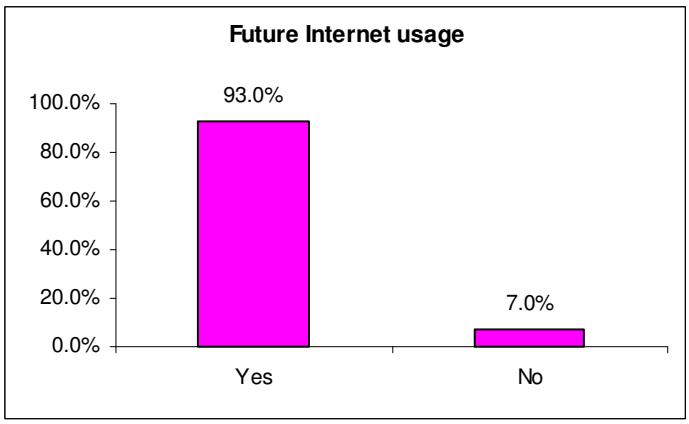


FIGURE 4.2: Graphical representation of Table 4.3 (**Source:** Own source).

Although the increase is relatively small, the attention of the reader is drawn to the following facts. Firstly, a large number of participants (considering the sample size) did make use and will be making use of the Internet when doing real estate business. This means that real estate companies should represent their companies on the Internet for marketing purposes. Secondly, the results are supplemented by the literature review and analysis, which indicate that online real estate marketing is necessary.

In addition to this, the author tried to determine whether or not these companies could be strategic when marketing themselves on the Internet. Consequently, a question was asked in the questionnaire in order to obtain a perception of the participants regarding search engine optimisation. The results contained within the ambit of Table 4.4, returned that 96.5% of the participants believed that a website could be developed in such a way that it would improve the website's visibility and thus increase its chances of being found on search engines.

TABLE 4.4: Distribution of results obtained by respondents regarding perception to search engine optimisation (**Source:** Own source).

Search Engine Optimisation		
Agree	55	96.5%
Disagree	2	3.5%
Subtotal	**57**	100%
Missing Values	1	
Total	**58**	

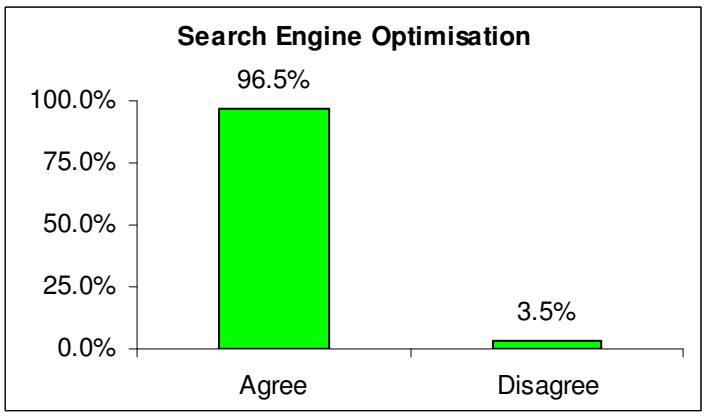
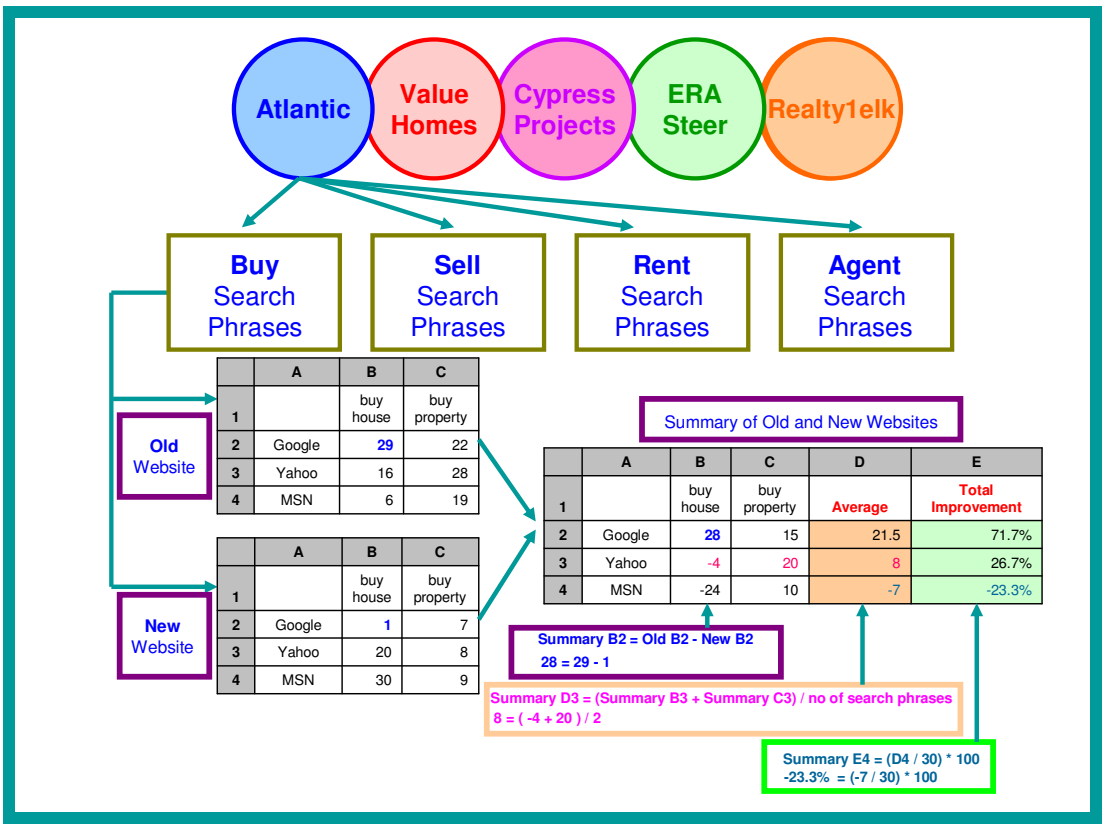


FIGURE 4.3: Graphical representation of Table 4.4 (**Source:** Own source).

The literature review and analysis (Rowley 2005:220), along with the participants indicate that not only is strategic online marketing necessary, but according to the results indicated in Figure 4.3, it is also possible. When considering the existence of such a marketing strategy for real estate companies, it seemed practicable to develop a profile of a typical real estate user. Taking into consideration the parameters of the respondents and the sample size, a profile was developed. Thirty-one percent of all respondents fell into the following category: a white male, aged 26 to 35, with a qualification varying from grade 12 to an Honours degree and earning over R10 000 per month.

4.3 THE EXPERIMENTS

The 40 experiments (as specified in Table 3.3, Chapter 3) were conducted by making use of WPG4 which provided 1.32 Gb of raw data. Each experiment was based on certain search engines (Table 3.2, Chapter 3) and search phrases (Appendix C1, C2, C3, D2, E2, F2, G2 and H2), with the four categories (‘buy’, ‘sell’, ‘rent’ and ‘agent’). The data consisted of the ranking position produced by each search phrase on every search engine for a particular website. Every ranking position obtained in the new website was subtracted from the corresponding ranking position obtained in the old website, which produced the quality factor. The quality factor of all the search phrases used in a particular search engine within each category for every company was added. The total was then divided by the number of search phrases used in that particular search engine within that category for every company, in order to obtain the average for that search engine. The average of every search engine within every category for every company was divided by 30 and multiplied by 100 in order to calculate the improvement or lack thereof as a percentage. The averages were divided by 30, since that searcher more often than not only viewed the first 30 results presented by the search engine (Ntoulas *et al*. 2006). As a result, any visibility improvements indicate only the minimum improvement as search engine results presented beyond 30 were not considered. Figure 4.4 illustrates how the experiments were processed.



	A	B	C
1		buy house	buy property
2	Google	29	22
3	Yahoo	16	28
4	MSN	6	19

	A	B	C
1		buy house	buy property
2	Google	1	7
3	Yahoo	20	8
4	MSN	30	9

	A	B	C	D	E
1		buy house	buy property	Average	Total Improvement
2	Google	28	15	21.5	71.7%
3	Yahoo	-4	20	8	26.7%
4	MSN	-24	10	-7	-23.3%

FIGURE 4.4: Processes applied to old and new company websites within categories (**Source:** Own source).

4.3.1 Atlantic

4.3.1.1 Atlantic – results

- ***Buy***

TABLE 4.5: Atlantic – 'buy' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	0.0%	MSN (SA)	0.0%
AllTheWeb	0.0%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	0.0%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	0.0%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISIeuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	Ixquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	21.2%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	0.0%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

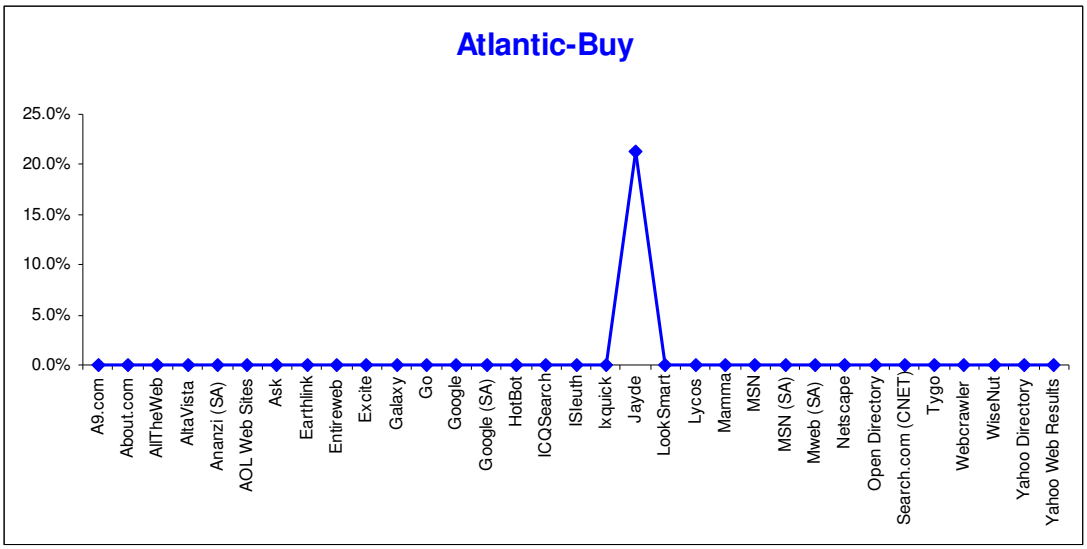


FIGURE 4.5: Graphical representation of Table 4.5 (**Source:** Own source).

- ***Sell***

TABLE 4.6: Atlantic – 'sell' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	0.0%	MSN (SA)	0.0%
AllTheWeb	0.0%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	0.0%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	0.8%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISIeuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	Ixquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	8.6%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	0.0%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

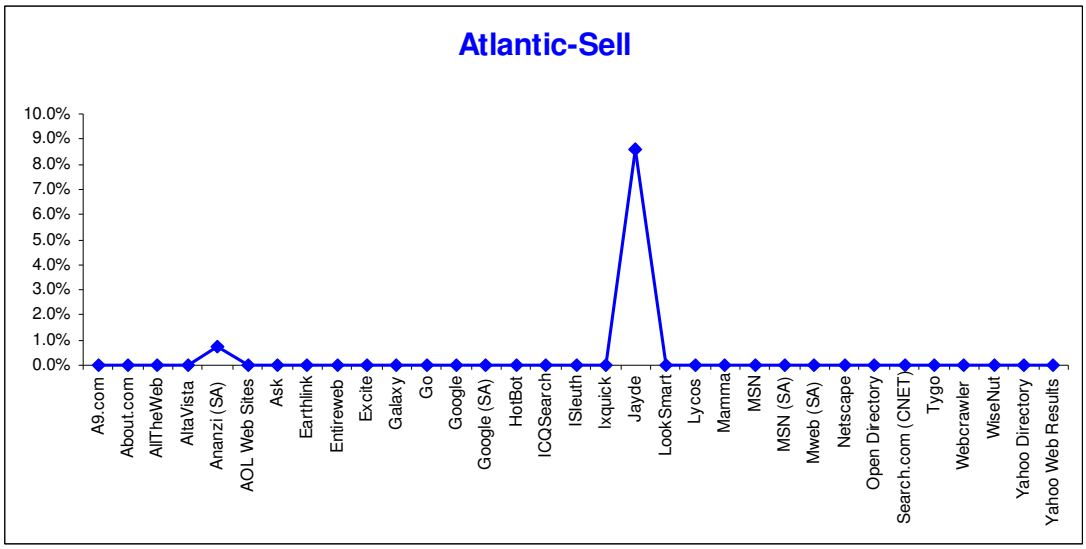


FIGURE 4.6: Graphical representation of Table 4.6 (**Source:** Own source).

- ***Rent***

TABLE 4.7: Atlantic – 'rent' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	0.0%	MSN (SA)	0.0%
AllTheWeb	0.0%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	0.0%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	0.0%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISIeuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	lxquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	14.1%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	0.0%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

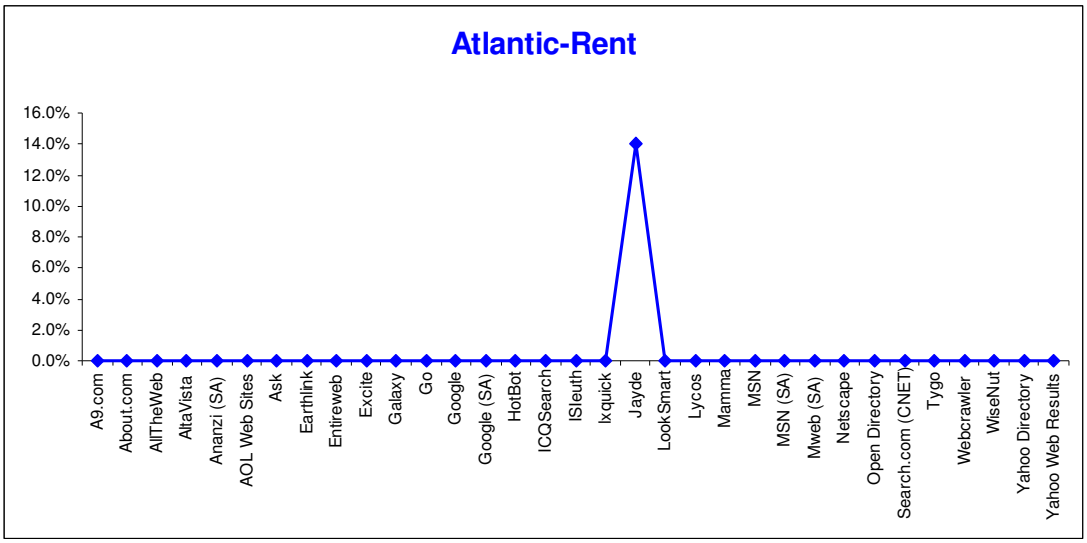


FIGURE 4.7: Graphical representation of Table 4.7 (**Source:** Own source).

- ***Agent***

TABLE 4.8: Atlantic – 'agent' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	5.6%	Go	33.3%	MSN	11.1%
About.com	0.0%	Google	27.0%	MSN (SA)	11.1%
AllTheWeb	27.8%	Google (SA)	27.0%	MWeb (SA)	27.0%
AltaVista	33.3%	HotBot	5.6%	Netscape	26.7%
Ananzi (SA)	58.7%	ICQSearch	21.5%	Open Directory	4.3%
AOL Web Sites	26.5%	ISIeuth	13.5%	Search.com (CNET)	25.2%
Ask	0.0%	Ixquick	35.7%	Tygo	0.0%
Earthlink	21.9%	Jayde	34.8%	Webcrawler	26.9%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	27.0%	Lycos	5.6%	Yahoo Directory	33.3%
Galaxy	0.0%	Mamma	10.9%	Yahoo Web Results	33.3%

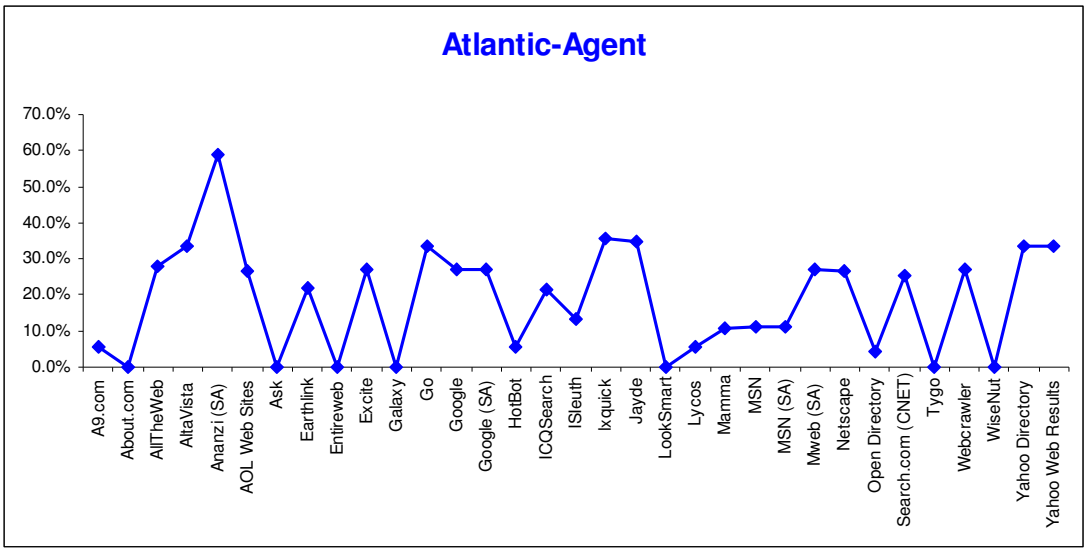


FIGURE 4.8: Graphical representation of Table 4.8 (**Source:** Own source).

4.3.1.2 Atlantic - analysis

The quality factor reflected in Table 4.5 and Figure 4.5 with regard to the 'buy' search phrases, as per Appendix C1, indicates that there was a 21.2% visibility improvement on the new optimised Atlantic website when searched for on the Jayde search engine. No other improvements occurred on any of the remaining 32 search engines. In addition, no negative percentages were evident, indicating that the new optimised Atlantic website did not deteriorate in visibility on any of the listed search engines.

In respect of the results of the 'sell' search phrases (Appendix C2), as illustrated in Table 4.6 and Figure 4.6, the new optimised Atlantic website achieved an 8.6% visibility improvement on the Jayde search engine and a 0.8% visibility improvement on the Ananzi search engine.

Again no other improvements occurred on any of the remaining search engines and no negative percentages were indicated.

Similarly to the 'buy' category, the results obtained regarding 'rent' search phrases (Appendix C3), as presented in Table 4.7 and Figure 4.7, indicated that the new optimised Atlantic website achieved a 14.1% visibility improvement on the Jayde search engine only. No other improvements and no negative percentages were evident.

Table 4.8 and Figure 4.8 prove that results obtained regarding the 'agent' search phrases (Appendix D2) showed a large change. All search engines, with the exception of seven (About.com, Ask, Entireweb, Galaxy, LookSmart, Tygo and WiseNut), indicated that the new optimised Atlantic website achieved visibility improvements. The Ananzi search engine presented the best visibility improvement by 58.7%. No negative percentages were recorded.

The new optimised Atlantic website, in general, indicated a slight visibility improvement over the old Atlantic website, especially on the Jayde search engine. This could be explained by considering the functionality of Jayde. Jayde is the largest business-to-business human reviewed directory, powered by an algorithmic concept called click relevance. This concept ranks a website according to how often unique searchers click on that particular website result, informing the search engine (Jayde) that this result is of particular importance (Anon 2006d). Regrettably, the problem is the lack of visibility improvement on other search engines. Most search engines tend to rely more on content, keyword density and keyword relevancy, which the new optimised Atlantic website lacks. Although the author developed the new optimised website, Atlantic real estate provided their own content and keywords. The website was optimised with regard to the content and keywords provided.

- **Atlantic experiments**

Old website	**New website**
'Buy' as per Appendix D3	'Buy' as per Appendix D8
'Sell' as per Appendix D4	'Sell' as per Appendix D9
'Rent' as per Appendix D5	'Rent' as per Appendix D10
'Agent' as per Appendix D6	'Agent' as per Appendix D11

4.3.2 Value Homes

4.3.2.1 Value Homes - results

- ***Buy***

TABLE 4.9: Value Homes – 'buy' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.4%	Go	-2.0%	MSN	-0.7%
About.com	0.0%	Google	0.0%	MSN (SA)	-1.8%
AllTheWeb	-1.6%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	-3.9%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	-17.2%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISleuth	-2.9%	Search.com (CNET)	0.0%
Ask	0.0%	Ixquick	-1.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	22.2%	Webcrawler	-0.5%
Entireweb	0.0%	LookSmart	-1.1%	WiseNut	-1.1%
Excite	-1.1%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	-4.3%

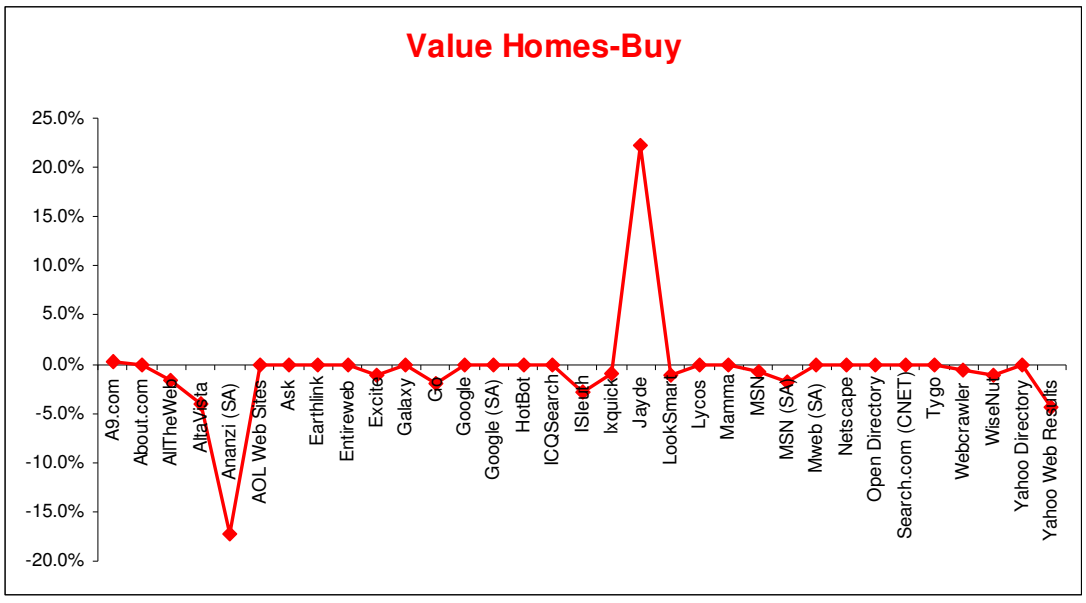


FIGURE 4.9: Graphical representation of Table 4.9 (**Source:** Own source).

- ***Sell***

TABLE 4.10: Value Homes – 'sell' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.4%	Go	-5.6%	MSN	-0.9%
About.com	0.0%	Google	0.0%	MSN (SA)	-2.2%
AllTheWeb	-4.3%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	-4.2%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	-12.8%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISleuth	-2.8%	Search.com (CNET)	0.0%
Ask	0.0%	Ixquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	9.4%	Webcrawler	0.2%
Entireweb	0.0%	LookSmart	-1.3%	WiseNut	-1.3%
Excite	-0.4%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	-5.7%

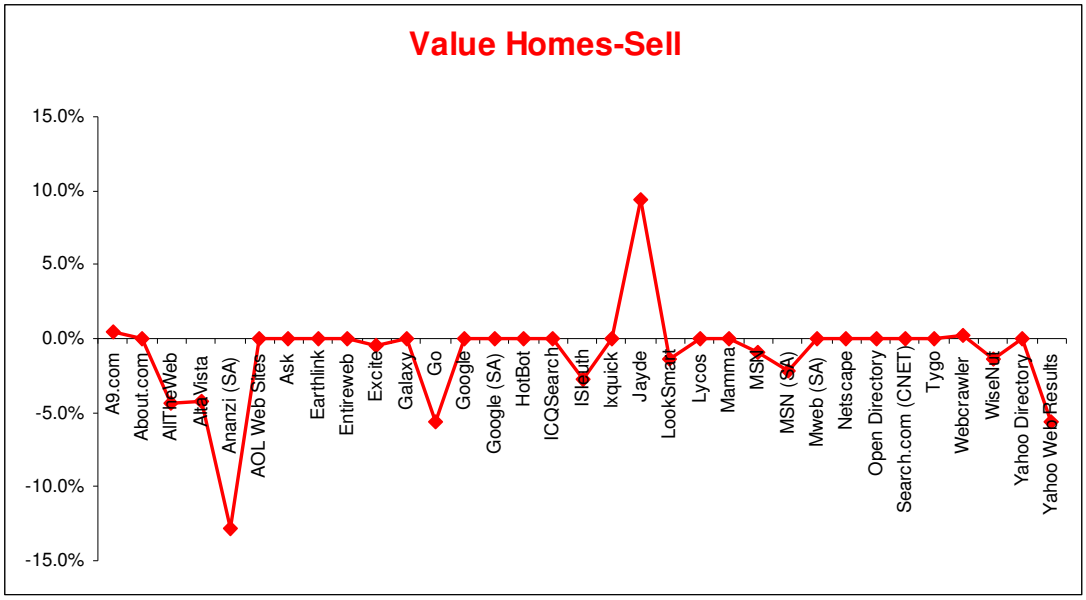


FIGURE 4.10: Graphical representation of Table 4.10 (**Source:** Own source).

- ***Rent***

TABLE 4.11: Value Homes – 'rent' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.4%	Go	-5.2%	MSN	-0.9%
About.com	0.0%	Google	0.0%	MSN (SA)	-2.2%
AllTheWeb	-4.9%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	-4.8%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	-16.0%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISleuth	-1.5%	Search.com (CNET)	0.0%
Ask	0.0%	Ixquick	-1.2%	Tygo	0.0%
Earthlink	0.0%	Jayde	15.2%	Webcrawler	-0.8%
Entireweb	0.0%	LookSmart	-1.3%	WiseNut	-1.3%
Excite	-1.0%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	-5.2%

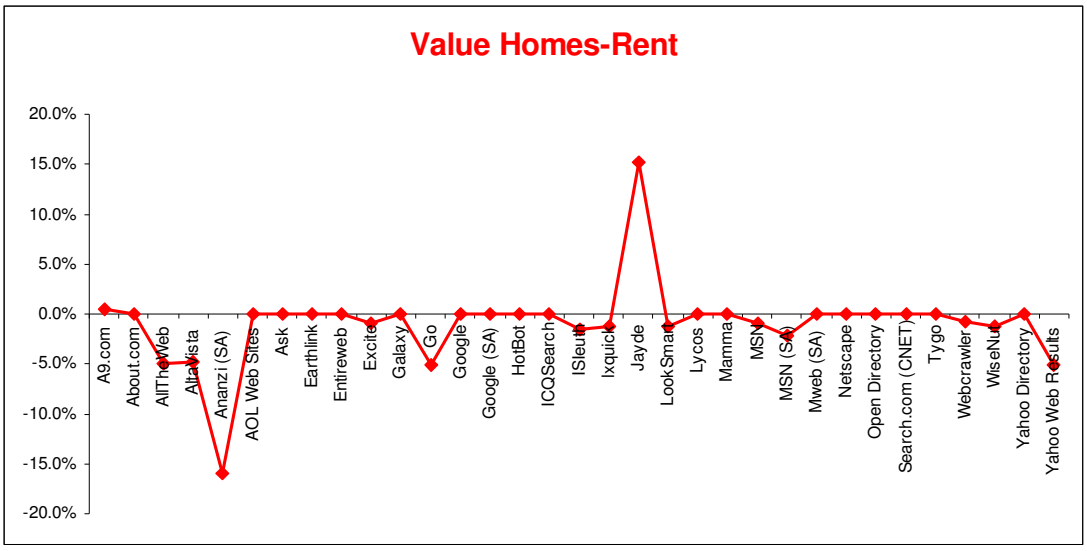


FIGURE 4.11: Graphical representation of Table 4.11 (**Source:** Own source).

- ***Agent***

TABLE 4.12: Value Homes – 'agent' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	16.5%	Go	-4.2%	MSN	15.8%
About.com	0.0%	Google	20.7%	MSN (SA)	12.3%
AllTheWeb	23.2%	Google (SA)	20.7%	MWeb (SA)	20.7%
AltaVista	23.3%	HotBot	15.8%	Netscape	20.5%
Ananzi (SA)	47.2%	ICQSearch	20.7%	Open Directory	0.0%
AOL Web Sites	20.5%	ISIeuth	-2.5%	Search.com (CNET)	8.2%
Ask	0.0%	Ixquick	31.2%	Tygo	0.0%
Earthlink	9.1%	Jayde	19.8%	Webcrawler	21.4%
Entireweb	0.0%	LookSmart	-2.1%	WiseNut	-2.1%
Excite	25.1%	Lycos	0.0%	Yahoo Directory	21.1%
Galaxy	0.0%	Mamma	15.8%	Yahoo Web Results	21.9%

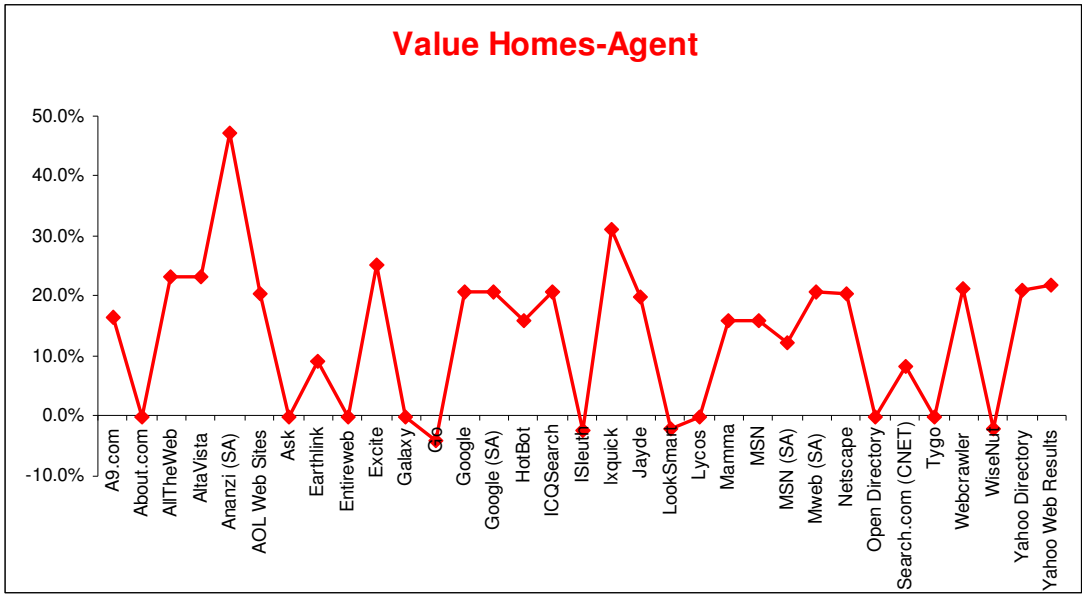


FIGURE 4.12: Graphical representation of Table 4.12 (**Source:** Own source).

4.3.2.2 Value Homes - analysis

Table 4.9 and Figure 4.9 indicate that the 'buy' search phrases, as per Appendix C1, used to search for the old and new Value Homes websites, returned a number of disappointing results. There was a 22.2% website visibility improvement obtained on the Jayde search engine and a 17.2% reduction in website visibility on the Ananzi search engine. In addition, 12 other search engines also returned a reduction in visibility towards the new Value Homes optimised website. The remaining search engines demonstrated no difference in visibility between the old and new websites.

Table 4.10 and Figure 4.10 present the results of the 'sell' search phrases (Appendix C2), which indicate that the optimised website's visibility improved by 9.4% on the Jayde search engine and 0.4% on the A9.com search engine. As with the 'buy' search phrases, the 'sell' search phrases also produced a reduction in visibility. In fact, 11 search engines indicated that the old website was ranking higher and better than the new optimised Value Homes website regarding these search phrases.

The results obtained from the 'rent' search phrases (Appendix C3) as per Table 4.11 and Figure 4.11, are almost identical to the results obtained from the 'buy' search phrases. Visibility improvements occurred on the Jayde search engines, returning a 15.2% increase. The A9.com search engines also returned a 0.4% visibility enhancement. As before, 13 search engines revealed a reduction in visibility towards the new Value Homes optimised website with regard to the rent search phrases. The Ananzi search engine had the highest reduction in website visibility of 16.0%.

Table 4.12 and Figure 4.12 present the results obtained from the 'agent' search phrases (Appendix E2), which indicate radical website visibility improvements opposed to 'buy', 'sell' and 'rent' search phrases. The Ananzi search engine revealed the highest website visibility improvement at 47.2%. Regrettably, four search engines (Go, ISIeuth, LookSmart and WiseNut) also indicated a reduction in visibility with regard to the new Value Homes optimised website. Although the reduction in visibility was minimal, it is important to clarify that for the above-mentioned search engines, the old Value Homes website was more visible than the new optimised website.

In spite of various elements having improved in visibility, the optimised Value Homes website did not improve in visibility. In fact, the old website appeared to be more visible than the new website, especially on the Ananzi search engine. According to Anon (2006c), the Ananzi search engine interprets that the most important aspect in improving visibility is a well-structured website with good content. This may be the actual problem as there is a serious lack of content in this website as opposed to the old Value Homes website. As before, the author developed the new optimised website whereby Value Homes real estate provided their own content and keywords. Although Value Homes was briefed on the importance of content, not much effort was made to provide good content.

- **Value Homes experiments**

Old website	**New website**
'Buy' as per Appendix E3	'Buy' as per Appendix E8
'Sell' as per Appendix E4	'Sell' as per Appendix E9
'Rent' as per Appendix E5	'Rent' as per Appendix E10
'Agent' as per Appendix E6	'Agent' as per Appendix E11

4.3.3 Cypress Projects

4.3.3.1 Cypress Projects - results

- ***Buy***

TABLE 4.13: Cypress Projects – 'buy' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	0.0%	MSN (SA)	0.0%
AllTheWeb	0.0%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	0.0%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	0.0%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISIeuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	lxquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	1.4%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	0.0%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

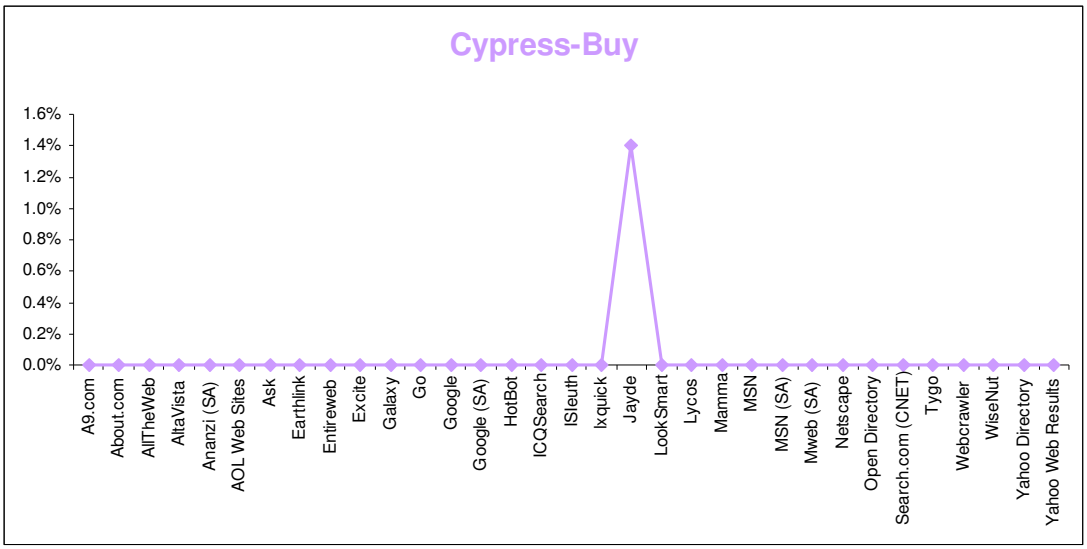


FIGURE 4.13: Graphical representation of Table 4.13 (**Source:** Own source).

- ***Sell***

TABLE 4.14: Cypress Projects – 'sell' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	0.0%	MSN (SA)	0.0%
AllTheWeb	0.0%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	0.0%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	0.0%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISIeuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	Ixquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	0.0%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	0.0%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

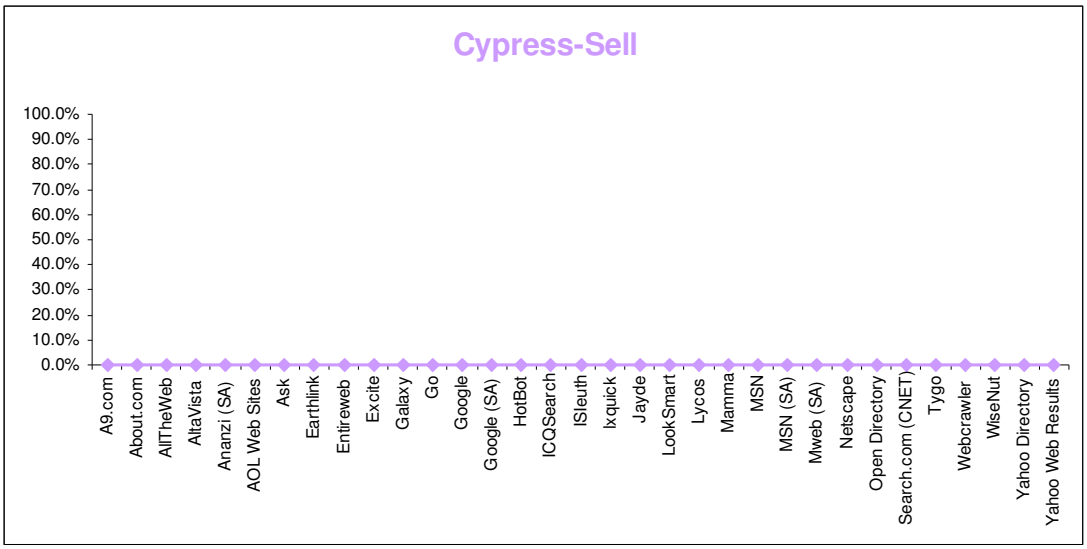


FIGURE 4.14: Graphical representation of Table 4.14 (**Source:** Own source).

- ***Rent***

TABLE 4.15: Cypress Projects – 'rent' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	0.0%	MSN (SA)	0.0%
AllTheWeb	0.0%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	0.0%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	0.0%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISIeuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	Ixquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	0.0%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	0.0%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

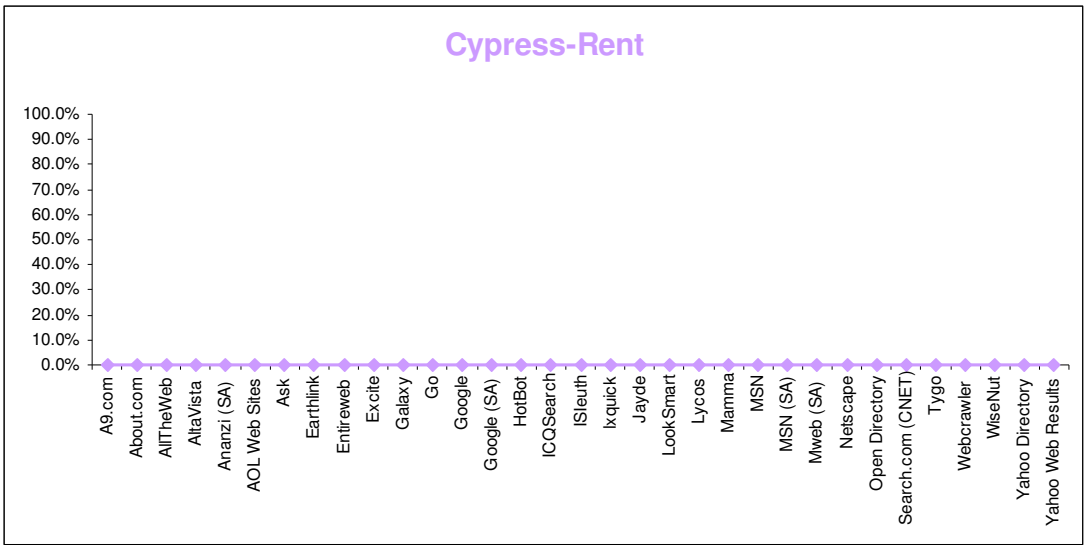


FIGURE 4.15: Graphical representation of Table 4.15 (**Source:** Own source).

- ***Agent***

TABLE 4.16: Cypress Projects – 'agent' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	4.4%	MSN	0.0%
About.com	0.0%	Google	5.4%	MSN (SA)	0.0%
AllTheWeb	4.8%	Google (SA)	5.6%	MWeb (SA)	5.6%
AltaVista	4.8%	HotBot	0.0%	Netscape	5.2%
Ananzi (SA)	66.5%	ICQSearch	5.4%	Open Directory	0.0%
AOL Web Sites	5.4%	ISIeuth	0.0%	Search.com (CNET)	1.5%
Ask	0.0%	Ixquick	4.6%	Tygo	0.0%
Earthlink	5.4%	Jayde	9.1%	Webcrawler	5.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	5.4%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	4.4%

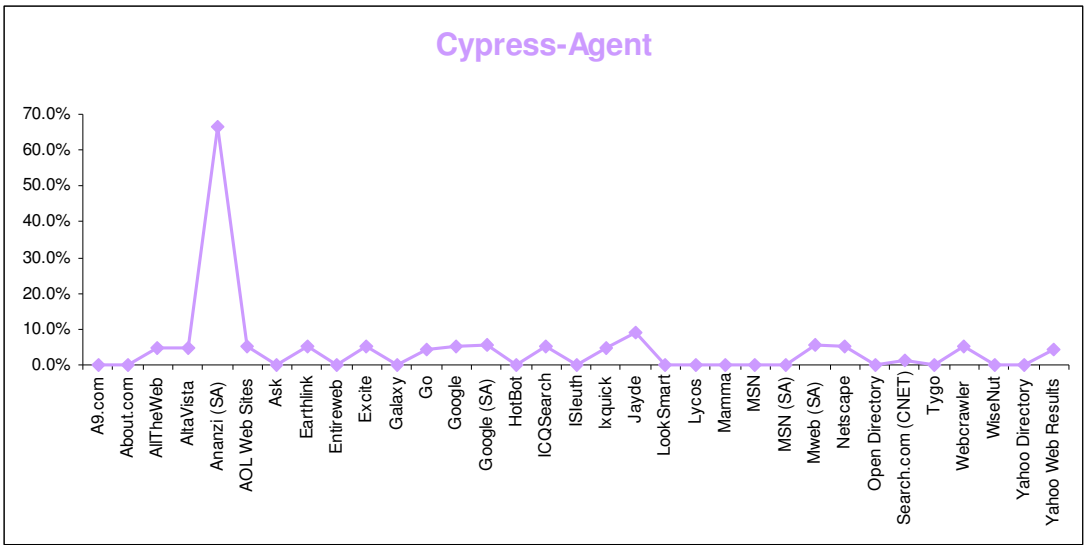


FIGURE 4.16: Graphical representation of Table 4.16 (**Source:** Own source).

4.3.3.2 Cypress Projects - analysis

The results obtained from the old and new Cypress project websites, regarding the 'buy' search phrases (Appendix C1), are listed in Table 4.13 and Figure 4.13. The only website visibility improvement that did occur was on the Jayde search engine (1.4%). Other than this improvement, no negative percentages were seen, indicating that the new optimised Cypress website did not deteriorate in visibility.

With regard to the 'sell' (Table 4.14 and Figure 4.14) and 'rent' (Table 4.15 and Figure 4.15) search phrases as per Appendix C2 and C3 respectively, no website visibility improvement occurred, nor were there any negative percentages.

Table 4.16 and Figure 4.16 reflect the results from the 'agent' search phrase (Appendix F2), which significantly differs from the results of 'buy', 'sell' and 'rent' search phrases. More than 50% of the listed search engines indicate some website visibility improvements. The Ananzi search engine revealed that the visibility improvement between the old and new optimised Cypress website was 66.5%, the highest figure so far. In addition, no negative percentages were revealed.

An analysis of Cypress results indicates that the website contained relatively good but limited content. This is based on the probability that the new optimised Cypress website had radically improved in visibility on the Ananzi search engine but not much on any of the other search engines. It could also indicate that the Cypress website is not completely optimised for the keywords obtained from the questionnaire (Appendix C1, C2, C3 and F2). This can be attributed to the fact that Cypress does not function as a traditional real estate company. Cypress is more of a construction company which buys property for a client, and then constructs the customer's building; the property and the building are then sold to the customer on completion. It is clear that the only function Cypress does not do is to rent property. This is not an exception to the rule as many traditional real estate companies do not rent property.

- **Cypress Projects experiments**

Old website	**New website**
'Buy' as per Appendix F3	'Buy' as per Appendix F8
'Sell' as per Appendix F4	'Sell' as per Appendix F9
'Rent' as per Appendix F5	'Rent' as per Appendix F10
'Agent' as per Appendix F6	'Agent' as per Appendix F11

4.3.4 ERA Steer Blaauwberg

4.3.4.1 ERA Steer Blaauwberg - results

- ***Buy***

TABLE 4.17: ERA Steer Blaauwberg – 'buy' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	1.2%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	4.3%	MSN (SA)	3.9%
AllTheWeb	0.0%	Google (SA)	4.5%	MWeb (SA)	4.5%
AltaVista	0.0%	HotBot	1.2%	Netscape	2.9%
Ananzi (SA)	6.8%	ICQSearch	4.3%	Open Directory	0.0%
AOL Web Sites	3.9%	ISleuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	Ixquick	1.1%	Tygo	0.0%
Earthlink	2.1%	Jayde	-12.9%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	1.4%	Lycos	1.2%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

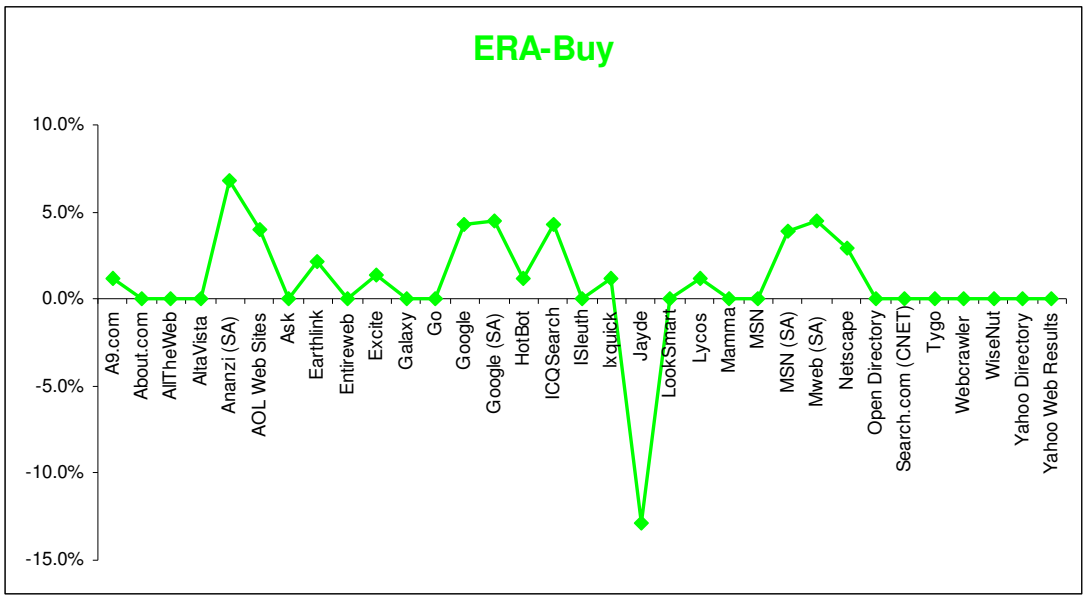


FIGURE 4.17: Graphical representation of Table 4.17 (**Source:** Own source).

- ***Sell***

TABLE 4.18: ERA Steer Blaauwberg – 'sell' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	0.0%	MSN	3.0%
About.com	0.0%	Google	2.8%	MSN (SA)	0.0%
AllTheWeb	0.0%	Google (SA)	1.8%	MWeb (SA)	2.9%
AltaVista	0.0%	HotBot	1.6%	Netscape	3.0%
Ananzi (SA)	4.1%	ICQSearch	3.0%	Open Directory	0.0%
AOL Web Sites	2.7%	ISIeuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	lxquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	-4.9%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	0.0%	Lycos	1.4%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

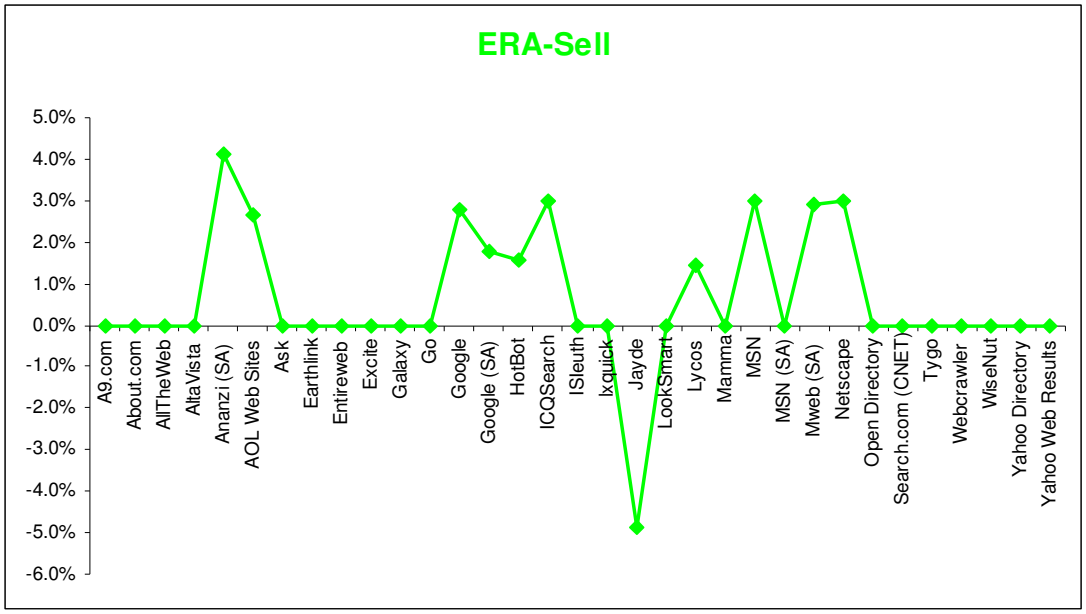


FIGURE 4.18: Graphical representation of Table 4.18 (**Source:** Own source).

- ***Rent***

TABLE 4.19: ERA Steer Blaauwberg – 'rent' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	1.4%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	5.7%	MSN (SA)	5.8%
AllTheWeb	0.0%	Google (SA)	5.8%	MWeb (SA)	5.9%
AltaVista	0.0%	HotBot	1.4%	Netscape	5.7%
Ananzi (SA)	6.3%	ICQSearch	5.7%	Open Directory	0.0%
AOL Web Sites	5.3%	ISleuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	Ixquick	2.9%	Tygo	0.0%
Earthlink	4.7%	Jayde	-8.2%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	1.8%	Lycos	1.4%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

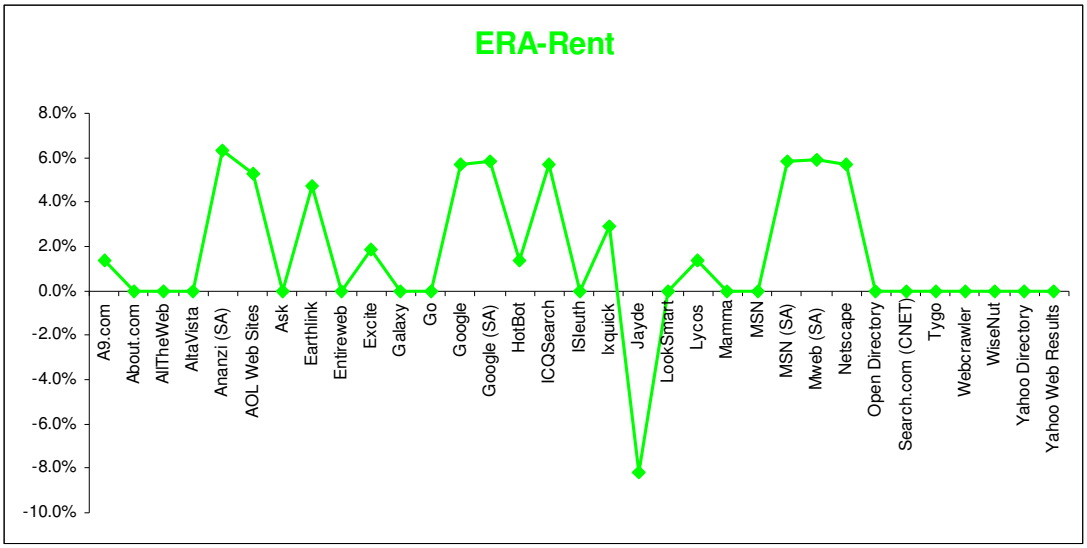


FIGURE 4.19: Graphical representation of Table 4.19 (**Source:** Own source).

- ***Agent***

TABLE 4.20: ERA Steer Blaauwberg – 'agent' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	5.2%	Go	25.9%	MSN	5.2%
About.com	0.0%	Google	22.2%	MSN (SA)	22.2%
AllTheWeb	25.6%	Google (SA)	20.0%	MWeb (SA)	23.3%
AltaVista	25.9%	HotBot	5.2%	Netscape	21.1%
Ananzi (SA)	3.1%	ICQSearch	21.5%	Open Directory	0.0%
AOL Web Sites	20.9%	ISleuth	2.0%	Search.com (CNET)	5.4%
Ask	-5.6%	Ixquick	18.5%	Tygo	0.0%
Earthlink	15.9%	Jayde	-12.4%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	12.6%	Lycos	5.2%	Yahoo Directory	21.3%
Galaxy	0.0%	Mamma	-0.6%	Yahoo Web Results	20.4%

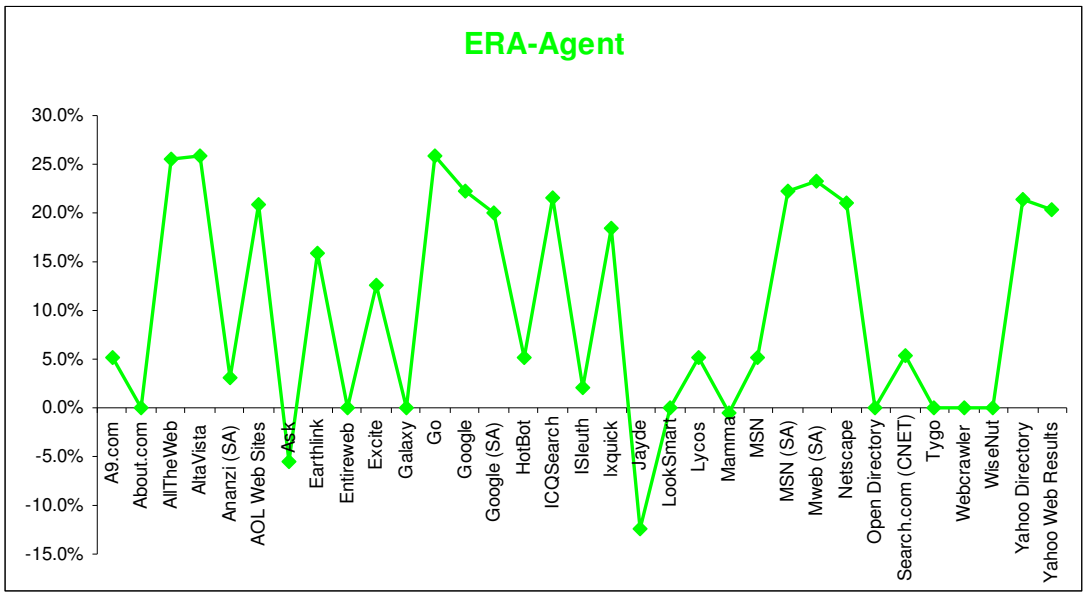


FIGURE 4.20: Graphical representation of Table 4.20 (**Source:** Own source).

4.3.4.2 ERA Steer Blaauwberg - analysis

The 'buy' search phrases (Appendix C1), used to search for the old and new ERA Steer websites on various search engines, indicate a general visibility improvement. Table 4.17 and Figure 4.17 illustrate that the new optimised ERA Steer website achieved a visibility improvement on 14 different search engines with the best improvement being on the Ananzi search engine. Eighteen of the 33 search engines revealed that the quality factor remained zero, indicating that the optimised ERA Steer website did not improve or deteriorate in visibility on those search engines. The one search engine that did reveal a negative percentage was the Jayde search engine, demonstrating that the new optimised ERA Steer website deteriorated in visibility with 12.9%.

Table 4.18 and Figure 4.18 illustrate the findings of the 'sell' search phrases (Appendix C2) when searching for the old and new ERA Steer websites, which coincidently appear to be quite similar to Table 4.17 and Figure 4.17. The visibility improvements, with regard to the 'sell' search phrases, occurred on 10 search engines varying from 1.4% to 4.1% increase in website visibility. Controversially, negative percentages were returned on the Jayde search engine with 4.9% deterioration in website visibility. The remaining 22 search engines showed no other improvements or deteriorations in visibility.

The results obtained from the 'rent' search phrases (Appendix C3) as presented in Table 4.19 and Figure 4.19, indicated a similar structure to the 'buy' and 'sell' search phrases. In fact, Figure 4.17 and Figure 4.19 are almost identical with the only difference being the actual percentages. Of the 33 search engines, 14 demonstrated visibility improvements, 18 revealed no visibility improvements and the Jayde search engine indicated deterioration in visibility of 8.2%.

An examination of Table 4.20 and Figure 4.20, which contain the results of the 'agent' search phrases (Appendix G2), highlights major visibility improvements. The AltaVista search engine illustrates the best improvement with a 25.9% increase in visibility, followed by AllTheWeb with 25.6%. Furthermore, nine search engines demonstrated a zero percent visibility figure indicating no visibility improvements. Two search engines (Ask and Jayde) returned negative percentages, indicating that the new optimised ERA Steer website did deteriorate in visibility to some extent.

The ERA Steer optimised website radically improved in visibility in all four categories ('buy', 'sell', 'rent' and 'agent'). With regard to these categories, the Jayde search engine appeared to be the most problematic searching tool regarding the deterioration in visibility. The explanation for this could be that the old ERA Steer website was optimised in some way or another. In addition to this, the Jayde search engine makes use of a click relevance concept as discussed in Paragraph 4.3.1.2. The longer the website is hosted, the better it will rank depending on the amount of clicks it receives. This is emphasised by the fact that the optimised website had been hosted for less than a month, which means not enough time had passed, giving searchers the opportunity to search for and click on the new website. In addition to this, the old website had been hosted for more than two years, increasing its exposure exponentially.

- **ERA Steer Blaauwberg experiments**

Old website	**New website**
'Buy' as per Appendix G3	'Buy' as per Appendix G8
'Sell' as per Appendix G4	'Sell' as per Appendix G9
'Rent' as per Appendix G5	'Rent' as per Appendix G10
'Agent' as per Appendix G6	'Agent' as per Appendix G11

4.3.5 Realty1elk

4.3.5.1 Realty1elk - results

- ***Buy***

TABLE 4.21: Realty1elk – 'buy' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	0.0%	MSN (SA)	0.0%
AllTheWeb	0.0%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	0.0%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	6.8%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISIeuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	Ixquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	17.1%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	0.0%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

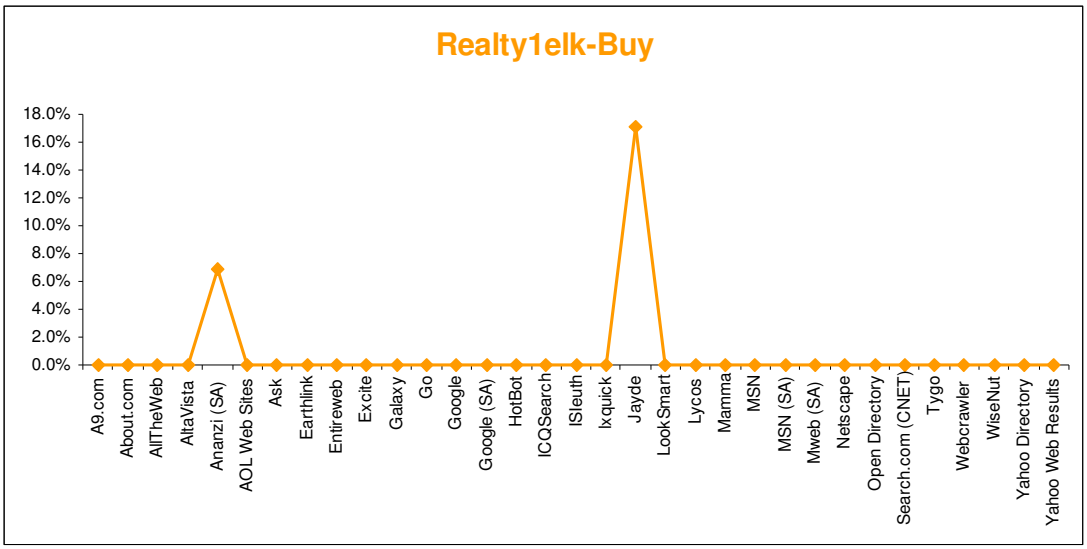


FIGURE 4.21: Graphical representation of Table 4.21 (**Source:** Own source).

- ***Sell***

TABLE 4.22: Realty1elk – 'sell' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	0.0%	MSN (SA)	1.9%
AllTheWeb	0.0%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	0.0%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	5.3%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISleuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	lxquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	8.3%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	0.0%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

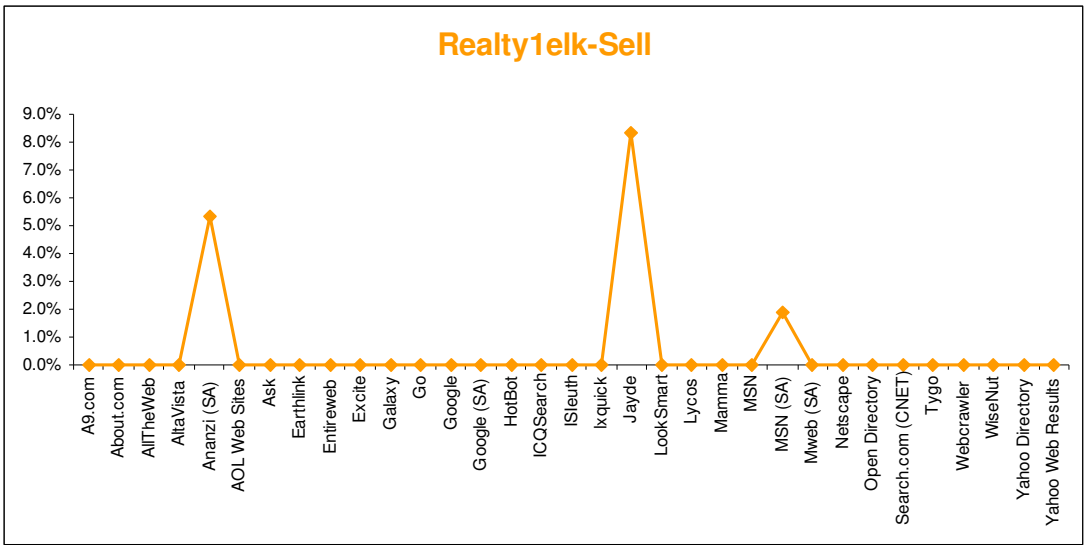


FIGURE 4.22: Graphical representation of Table 4.22 (**Source:** Own source).

- ***Rent***

TABLE 4.23: Realty1elk – 'rent' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	0.0%	Go	0.0%	MSN	0.0%
About.com	0.0%	Google	0.0%	MSN (SA)	0.0%
AllTheWeb	0.0%	Google (SA)	0.0%	MWeb (SA)	0.0%
AltaVista	0.0%	HotBot	0.0%	Netscape	0.0%
Ananzi (SA)	4.6%	ICQSearch	0.0%	Open Directory	0.0%
AOL Web Sites	0.0%	ISIeuth	0.0%	Search.com (CNET)	0.0%
Ask	0.0%	lxquick	0.0%	Tygo	0.0%
Earthlink	0.0%	Jayde	12.2%	Webcrawler	0.0%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	0.0%	Lycos	0.0%	Yahoo Directory	0.0%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	0.0%

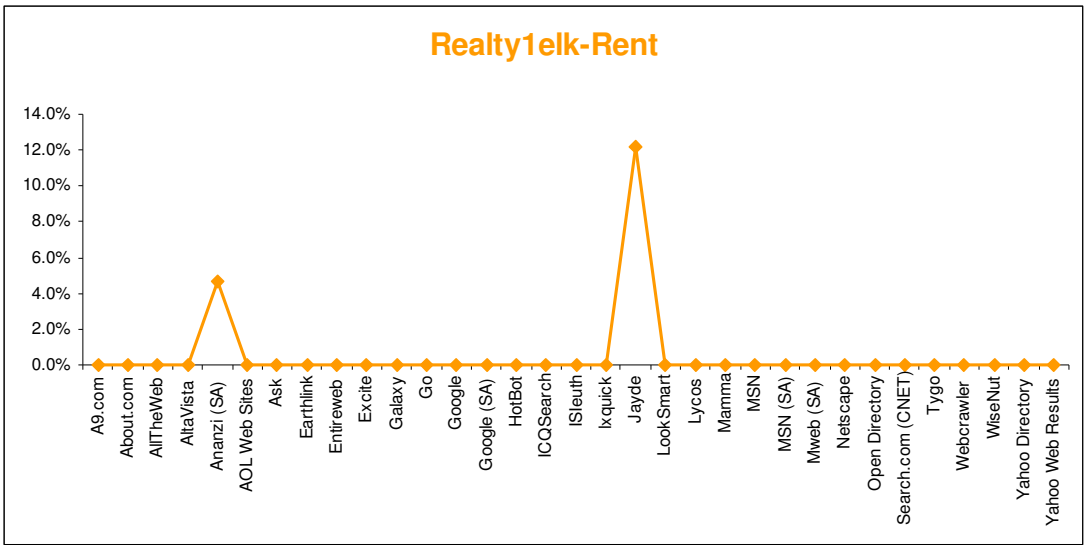


FIGURE 4.23: Graphical representation of Table 4.23 (**Source:** Own source).

- ***Agent***

TABLE 4.24: Realty1elk – 'agent' - Website visibility improvements or the lack thereof (**Source:** Own source).

A9.com	5.6%	Go	20.4%	MSN	5.6%
About.com	0.0%	Google	4.3%	MSN (SA)	5.6%
AllTheWeb	20.7%	Google (SA)	4.3%	MWeb (SA)	4.3%
AltaVista	20.7%	HotBot	5.6%	Netscape	4.3%
Ananzi (SA)	69.8%	ICQSearch	4.3%	Open Directory	0.0%
AOL Web Sites	4.3%	ISIeuth	0.0%	Search.com (CNET)	3.7%
Ask	0.0%	Ixquick	12.8%	Tygo	0.0%
Earthlink	4.3%	Jayde	22.4%	Webcrawler	4.8%
Entireweb	0.0%	LookSmart	0.0%	WiseNut	0.0%
Excite	2.4%	Lycos	5.6%	Yahoo Directory	10.6%
Galaxy	0.0%	Mamma	0.0%	Yahoo Web Results	20.4%

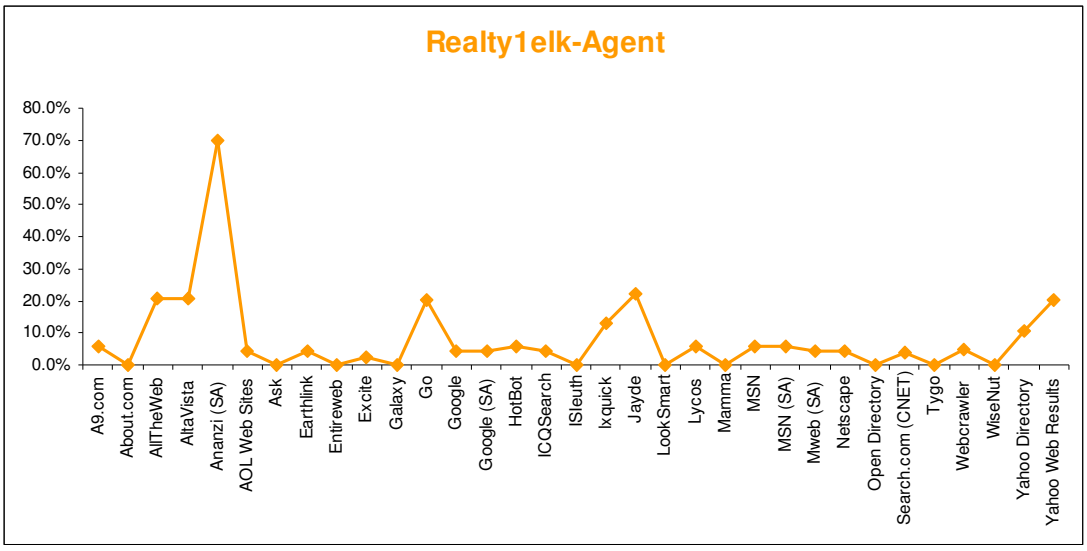


FIGURE 4.24: Graphical representation of Table 4.24 (**Source:** Own source).

4.3.5.2 Realty1elk - analysis

The 'buy' search phrases (Appendix C1) used to search for the old and new Realty1elk websites, presented the following findings when the results were compared in Table 4.21 and Figure 4.21. The new optimised Realty1elk website improved in visibility on the Jayde search engine with 17.1% and on the Ananzi search engine with 6.8%. No negative percentages were recorded.

The 'sell' search phrases (Appendix C2) used in the experiments on the old and new Realty1elk websites, presented more or less the same results obtained with the Realty1elk 'buy' search phrases experiment. Table 4.22 and Figure 4.22 ('sell' search phrases experiments) also illustrate visibility improvements on the Jayde search engine with an 8.3%

improvement, followed by Ananzi with a 5.3% improvement and MSN (South Africa) obtaining a 1.9% improvement. No negative percentages were evident.

Table 4.23 and Figure 4.23 list the results obtained for the 'rent' search phrase (Appendix C3), which again appear to be similar to the results obtained by the 'buy' and 'sell' search phrases. The Jayde search engine demonstrated the highest website visibility improvement with 12.2%. The Ananzi search engine also illustrated a visibility improvement of 4.6%. The remaining 31 search engines returned no other information, only that the new optimised Realty1elk website ranked no different than the old Realty1elk website regarding the 'rent' search phrases.

Table 4.24 and Figure 4.24 reflect the results obtained from the experiments conducted on the old and new Realty1elk websites with regard to 'agent' search phrases (Appendix H2). No negative percentage was revealed, indicating that the optimised Realty1elk website did not deteriorate in visibility. Ten search engines did not reveal any visibility improvements. In contrast, 23 search engines demonstrated visibility improvements, with the Ananzi search engine obtaining the highest (69.8%) improvement.

Consequently, Realty1elk's new optimised website, which appears to contain relatively relevant content due to its visibility improvement on Ananzi, conversely may lack the optimisation towards the particular search phrases used in the experiments. In spite of the limited visibility improvements, the new optimised Realty1elk's website appeared to be quite promising, considering the amount of content on the website. In addition to this, no deterioration in visibility was evident in any of the four categories.

- **Realty1elk experiments**

Old website	**New website**
'Buy' as per Appendix H3	'Buy' as per Appendix H8
'Sell' as per Appendix H4	'Sell' as per Appendix H9
'Rent' as per Appendix H5	'Rent' as per Appendix H10
'Agent' as per Appendix H6	'Agent' as per Appendix H11

4.4 CLOSURE

The results obtained from the questionnaire clearly indicated that strategic online marketing is not only necessary, but feasible. This was concluded on the basis that almost every one of the respondents had made use of the Internet for real estate business in the past and intended to use the Internet for the same purpose in the future.

With regard to the experiments, the results presented for one company appeared to sometimes have the same structure as the results presented for another company. However, some results indicated substantial visibility improvements. Conversely, some results

illustrated deterioration in visibility, making the old company website more visible than the new optimised company website. For ease of reference, each of the five company websites was briefly analysed to identify potential problems in order to explain why the website's visibility did not improve or deteriorate.

Scrutinising the experiments of all the results, one anomaly was identified, namely, the Jayde search engine. In most instances this was the one search engine that was inconsistent, either presenting the highest visibility improvement or deterioration opposed to the other search engines. A logical explanation for this could be that Jayde applies a combination of ranking and indexing methods, as no other explanation can clarify the anomaly. As illustrated in the results, the Jayde search engine anomaly can function as an advantage or disadvantage in terms of website visibility.

The author intends to further analyse, in Chapter 5, those websites with respectively the highest and lowest visibility. The reason for this is to identify the search engine optimisation elements that had not been included in the Chambers model (Table 3.1) or which had been included but were no longer relevant.

CHAPTER 5
CONCLUSION

5.1 INTRODUCTION

The aim of this chapter is to evaluate the results produced in order to reach a final conclusion. Consequently, a brief summary of the literature review and analysis, methodology and the results and analysis is presented, providing the framework of the thesis. The author will also elaborate on further results in order to ascertain which company website achieved respectively the highest and lowest visibility improvement. The reason is that the author may be able to identify other visibility elements not mentioned in the Chambers model (refer Table 3.1, Chapter 3), or re-evaluate current visibility elements. This provides the author with an opportunity to modify, refine and even optimise the current Chambers model. Furthermore, it could result in the development of a new search engine optimisation model framework, which may be used by real estate website developers as a framework to improve website visibility.

5.2 SUMMARY

5.2.1 Literature review and analysis

The literature review and analysis is divided into three categories, namely SMMEs, the Internet and search engines. This was done since these categories, along with websites, play a major role when doing business electronically.

SMMEs are supposedly very crucial to the survival of any economy, but unfortunately they often tend to fail. It seemed appropriate to determine whether or not SMMEs are important to the survival of an economy, and if so, what could SMME owners do to assist in their survival, which in turn will assist the economy. Not surprisingly, this statement was found to be true. In addition, it was also found that more and more people all over the world are making use of the Internet as a platform for business. Consequently, this means that companies not making use of the Internet will soon struggle (if not already struggling), to ensure market reward. SMMEs will find greater profitability when adapting their business to include e-commerce. Companies that are unable to adapt to e-commerce in its purest form could also obtain market reward by marketing themselves, their product or service electronically (e-marketing). The real estate industry of South Africa finds itself in this position, as 100% real estate e-commerce is at this stage not possible in South Africa. Unfortunately, almost everyone in the real estate industry is making use of e-marketing, thus reducing their opponents' chance of being exposed on the Internet. Hence the importance of the research into the effect of search engine optimisation elements on website visibility. The author intends to determine whether or not a real estate website could be optimised to improve its visibility (strategic e-marketing).

Attempting to improve a website's visibility involves three issues, namely the Internet, search engines and the actual website. Of these parameters, only the website could be altered by the developer. The Internet is a concept that will not change and search engines are dynamically altered by their own developers, in a way which is kept secret from the public in order to prevent ranking abuse. Consequently, when attempting to improve website visibility, one would need to understand how the Internet works. The development of the Internet dates as far back as 1939, as events that took place directly after the Second World War radically influenced its development. A search engine conversely, is based on a concept that has been around for centuries, as it is an information retrieval system. Owing to the large amount of information as well as the evolution of computing systems and the Internet, programs were required to assist in retrieving information from the Internet. These programs (search engines) attempt to index as much as possible of the information on the Internet and then present the information to the searcher, sorted according to relevancy. This depends on two aspects, namely the searcher's request and the search engine's algorithm, which interprets the searcher's request and ranks the results according what it interprets to be relevant or not. If the search engine's algorithm were public, one could manipulate the ranking system, hence the secrecy. In addition, there are many different types of search engines, all with their own algorithms.

Search engines can be categorised as automated indexing (whereby software is used to index websites) or manual indexing (whereby a human subject expert maintains website indexing). Other types of search services do exist, for instance Meta-search engines, which do not make use of automated or manual indexing as this type of search engine does not have its own index. Instead it gathers data from other search engine databases and presents those results to the searcher.

SEO is the process of designing or modifying a website in order to improve its ranking on a search engine. This is important since search engines tend to retrieve thousands of results (depending on the search query) whereby the searcher tends to only view the first 30. Some factors have been identified whose presence or absence is believed to affect website visibility. These include:

- Keywords.
- Frames.
- HyperText Markup Language.
- Metatags.
    - Meta-title tag.
    - Meta-description tag.
    - Meta-keyword tag.
    - Meta-robot tag.
    - Meta-header tag.
    - Alt-tag.
- Links.

- Graphics, Flash and PDF files.
- JavaScript.
- Search engine registration.

Regrettably, some unethical website developers take this to the extreme. They apply SEO elements in an attempt to deliberately manipulate website ranking on search engines. In addition, they also attempt to place their website in as many search engine categories as possible. This means that it would not matter what a searcher will be searching for, as the unethical developer's website will appear in the results. This is referred to as spamming and search engines are constantly developing new methods for detecting this type of website, which they often blacklist once identified.

5.2.2 Research methodology

The methodology consisted of two stages, namely a questionnaire and empirical experiments. A quantitative research approach was adopted for both of these components. The questionnaire had three subsections: obtaining demographic information in order to create a profile, perceptions with regard to SEO and search phrases used. The search phrases were grouped into four components, 'buy', 'sell', 'rent' and 'agent'. A quasi-experimental research method was adopted for the experiments, which used these search phrases in order to document the visibility of websites for each search phrase. The quasi-experimental research method makes use of a before and an after test control group. The before group is tested under certain circumstances. An experimental intervention is then applied to the group, and is again tested under the same circumstances. The results are then compared. In this instance, the before group consisted of five different websites from five different real estate companies that have been active on the Internet for a duration of no less than three months. By making use of the Chambers model, the author developed five new optimised websites, one for each company. These websites were hosted on the Internet for 27 days, in order to give search engines the opportunity to index them. On the 1st of August 2006 the experiments began, testing one company's old and new optimised website each day for five days.

5.2.3 Research results and analysis

The results obtained from the questionnaire provided evidence, which is substantiated by the literature review and analysis, that strategic online real estate marketing is both possible and necessary. With regard to the experiments, the author provided statistics on all four categories for each company. The statistics obtained from the old and new websites were applied to a process which produced a combination of results which illustrated either a visibility improvement, deterioration, or no change. The author was, as a result, able to compile a graph which illustrated the results of each optimised website with regard to every category.

5.3 FURTHER ANALYSIS

Further analysis was required in order to re-evaluate the SEO elements specified in the Chambers model and to identify new SEO elements. The preferred route for further analysis was to determine which of the five optimised websites yielded the greatest improvement and decrease in visibility respectively. These two websites were compared in order to identify and re-evaluate the SEO elements, as both had been developed using the Chambers model. The figures that follow combine all five companies in a particular category. These figures provide visual representation of the tables in Appendix I, J, K and L respectively, whereby each company's totals and averages were calculated and compared with each company within that particular table. The company that attains the highest total and average value within each table is the better optimised website. The company that attains the lowest total and average value within each table is the worst optimised website.

5.3.1 Buy

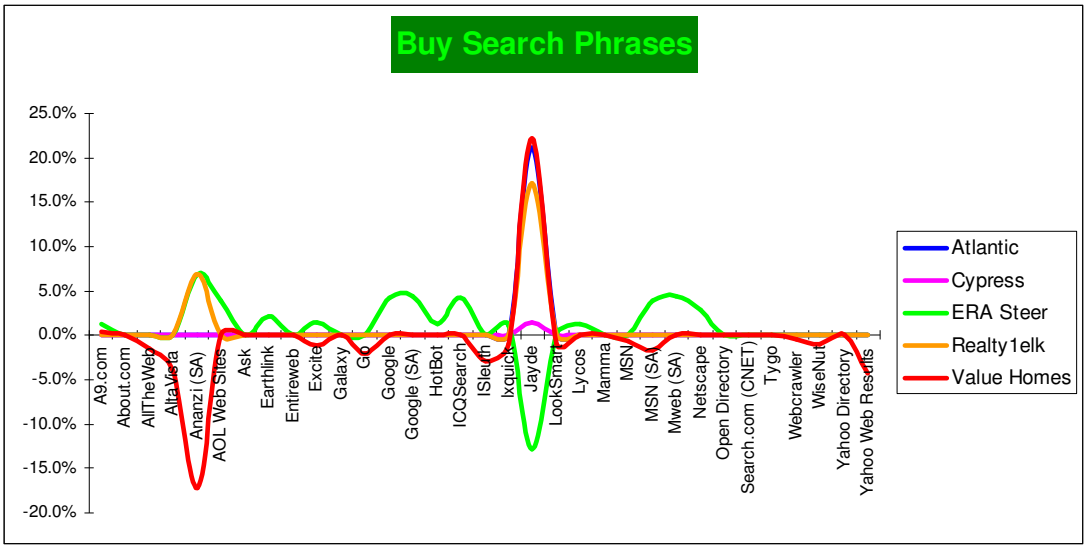


FIGURE 5.1: Graphical representation of Appendix I (**Source:** Own source).

5.3.2 Sell

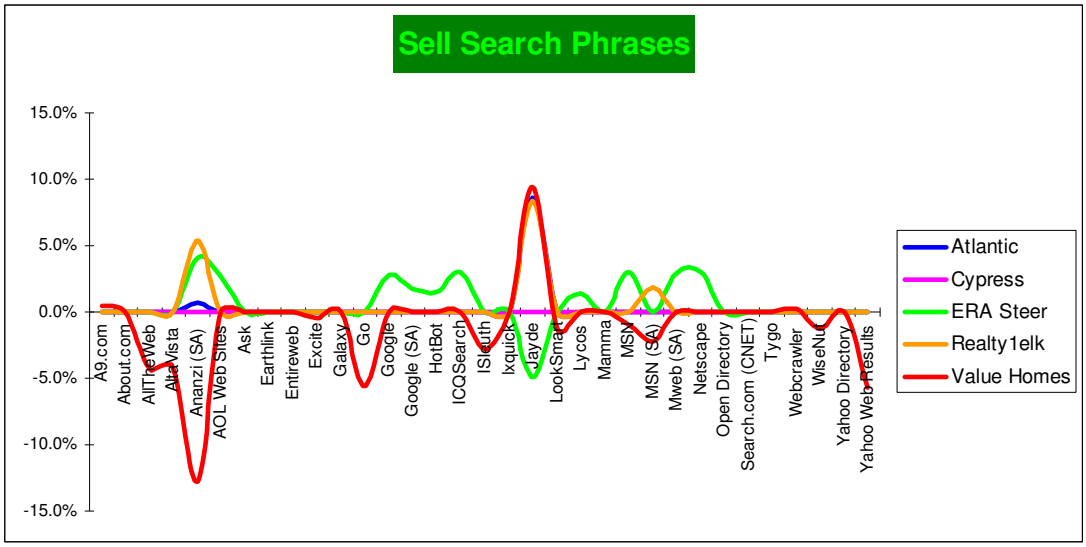


FIGURE 5.2: Graphical representation of Appendix J (**Source:** Own source).

5.3.3 Rent

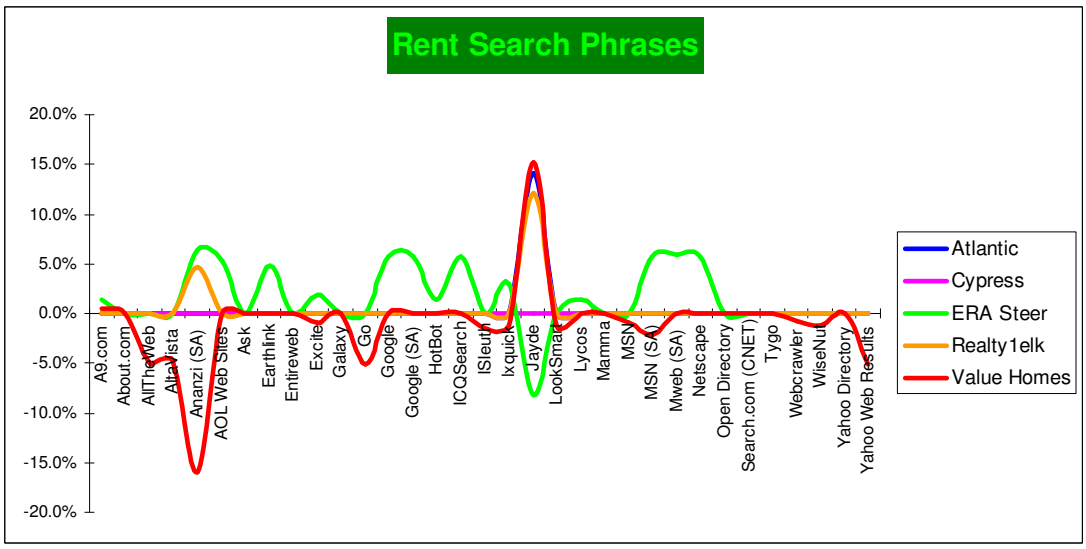


FIGURE 5.3: Graphical representation of Appendix K (**Source:** Own source).

5.3.4 Agent

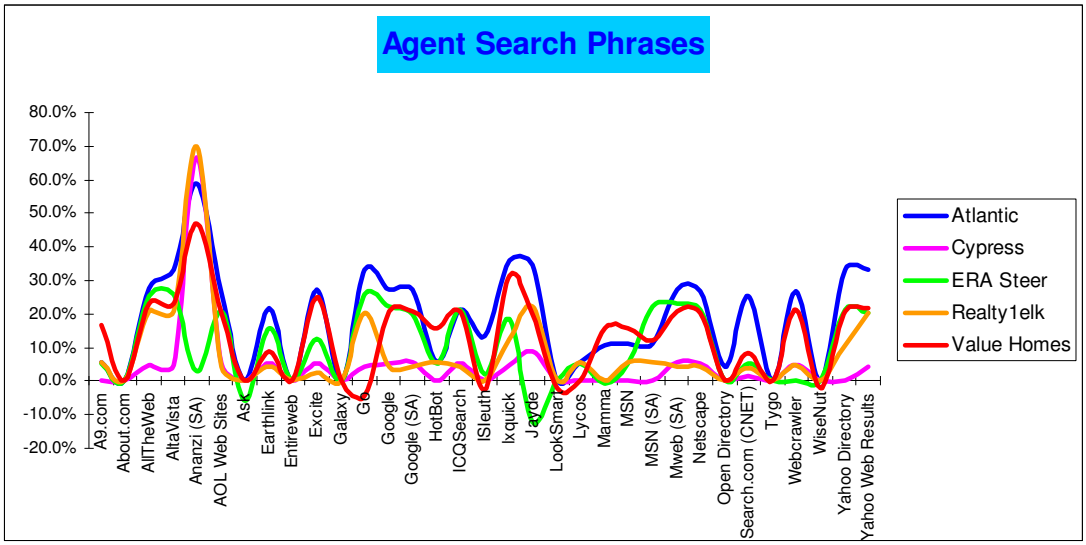


FIGURE 5.4: Graphical representation of Appendix L (**Source:** Own source).

Appendix I ('buy'), J ('sell') and K ('rent'), proved that ERA Steer performed the best with regard to visibility improvements. At the same time, Value Homes was indicated to have attained the highest deterioration figure. With regard to Appendix L ('agent'), Atlantic obtained the best visibility improvement figure and Cypress was reflected to have the highest deterioration figure. Owing to ERA Steer obtaining the best visibility improvements in three of the four categories, it was concluded that ERA Steer was the best optimised website. Value Homes was identified to be the worst optimised website for the same reason.

5.4 ERA STEER BLAAUWBERG VS. VALUE HOMES

Both websites were optimised based on the Chambers model as a basis to improve website visibility. Both were hosted on the Internet for 27 days. In addition, the websites were also registered with the same search engines on the same day. Thus, any differences other than those specified could indicate why the one website improved radically in visibility and others did not.

Both the old websites of ERA Steer and Value Homes have been hosted on the Internet for more than two years. The old Value Homes website experiments, as per Appendix E3, E4, E5 and E6, substantiate this by the ranking positions obtained on search engines, which appear to be relatively high in comparison with the other websites. Similar results were found during the old ERA Steer website experiments (Appendix G3, G4, G5 and G6).

5.4.1 Value Homes real estate (old and new website)

5.4.1.1 Elements present in old website

- A limited number of metatags were used.
- The link structure was predominantly controlled by JavaScript.
- An image covered almost 90% of the website's homepage.
- Frames were incorporated.
- Prominent image headings were present.
- Prominent domain names were present.

5.4.1.2 Elements not present in old website

- No Flash images were present.
- No visible spamming was detected.
- No banner advertisements were detected.
- No prominent naming conventions were used.

5.4.1.3 Elements present in new website

- All relevant metatags were used.
- Well-structured HTML links were used.
- Prominent word headings were incorporated.
- Prominent domain names and naming conventions were used.

5.4.1.4 Elements not present in new website

- No Flash images were used on any of the webpages.
- No intentional spamming was incorporated.
- Frames were omitted.
- No banner advertisements were incorporated.

In summary, the old Value Homes website ranked higher than the new optimised website, indicating that the optimised website deteriorated in visibility. One possible explanation could be that the old Value Homes website contained more text and keywords, in fact 3608 words as opposed to the new optimised website that contained only 492 words. This demonstrates the concept of 'content is king'. The more text and keywords there are, the greater the possibility that those keywords will be indexed.

5.4.2 ERA Steer Blaauwberg real estate (old and new website)

5.4.2.1 Elements present in old website

- A limited number of metatags were used.
- HTML link structure was present.

- Flash images were present including an image that covered approximately 50% of the homepage.

5.4.2.2 Elements not present in old website

- No visible spamming was detected.
- No banner advertisements were detected.
- Frames were not incorporated.
- Link popularity was non-existent.
- No headings were detected.
- No prominent naming conventions were used.

5.4.2.3 Elements present in new website

- All relevant metatags were used.
- Well-structured HTML links were used.
- Minimal images were incorporated.
- Well-structured internal link popularity.
- Prominent headings were present.
- Prominent domain names and naming conventions were used.

5.4.2.4 Elements not present in new website

- No Flash images were incorporated.
- No intentional spamming was incorporated.
- Frames were omitted.
- No banner adverts were incorporated.

In summary, the old ERA Steer homepage (which was the only webpage) contained 279 words as opposed to the new ERA Steer website with 2380 words. The new optimised ERA Steer website ranked higher than the old ERA Steer website. This reinforces the argument regarding the fact that 'content is king'.

5.4.3 The similarities and differences between ERA Steer and Value Homes

The new ERA Steer and Value Homes websites each consists of seven well-structured webpages, which were developed using the Chambers model as a basis. The content of the two websites differs substantially - not only in the information that has been conveyed to searchers on the website, but also in the words used in the content. All five company owners were instructed on the concept of keyword placement, proximity and frequency as elaborated on in Paragraph 2.5.1.1. of Chapter 2. With special consideration regarding keywords, the author requested each company to provide its own content. Value Homes provided content amounting to 492 words, which contained minimal keywords and therefore could not adhere to the concept of keyword placement, proximity and frequency. ERA Steer,

on the other hand, provided 2380 words with good keyword placement, proximity and frequency. This indicates that content is as important as keyword placement, proximity and frequency. In order to triangulate this theory, the author included a third optimised website (Realty1elk), which provided a great deal of content but did not improve much in visibility. Realty1elk consisted of six well-structured webpages. The entire website contained 2935 words, which is almost 600 words more than the ERA Steer website. Unfortunately, the Realty1elk website also contained minimal keywords and therefore did not have any good keyword placements, proximity and frequency. This provides evidence that 'content is king' but without sufficient keyword placements, proximity and frequency, content alone will not ensure that a website will improve in visibility. In addition, metatags, Hypertext / Anchor text, link popularity and headings are of utmost importance and should be used in conjunction with the keywords in the website's content. Flash, images, video, JavaScript and frames should be used with caution, as most search engines are unable to index these elements on webpages. In fact, some of these elements also have a negative impact with regard to usability (broadband and printing). Domain names and HTML naming conventions could possibly provide assistance to searchers in respect of usability. But on the other hand, it alone will not make a website more visible to search engines, especially if those names are not included in the website's content. When creating a website, the developer should avoid any form of spamming as this could be devastating to the website's visibility. It should be noted that all the elements specified in Table 3.1 play a role in improving website visibility, but it is also evident that the order with regard to significance is not 100% reliable.

5.5 SIGNIFICANCE OF THE STUDY

Real estate SMMEs go to great lengths to ensure that their advertisements are correct and provide funding accordingly. Investments are also made into the development of websites without following up how visible these websites are to search engines. The literature review and analysis and data gathered from the questionnaire and experiments, indicate that website visibility could be improved during website development. In addition to this, the author constructed a new search engine optimisation model (Figure 5.5), which could be used to improve website visibility. Real estate company owners can use this model to build their knowledge on the subject and address website visibility before spending time and money on a website that is not visible to searchers.

5.6 FUTURE RESEARCH

- New technologies are developed and applied to search engines on a regular base. This may affect website visibility, in particularly the author's newly developed model (Figure 5.5). For example, search engine representatives provided recent information on the NOODP tag that could affect the update of a website's description on search engines (Weideman 2006). Future research could include implementing

this tag and other metatags in order to determine how often search engines update their index databases.

- Future research could include combining search engine optimisation elements and usability elements to a website, thus testing the combination of search engine and user friendliness. The researcher could develop a model indicating the best of both worlds.
- Many industry experts in the field of SEO have different opinions about the value of meta-tags. In the past, meta-tags appeared to be of immense importance. To date no one can with certainty corroborate the importance of meta-tags in a website. Future research could include the development of basic webpages containing only one type of meta-tag whereby the researcher could monitor the webpage ranking on search engines. This could illustrate the importance of that particular meta-tag as an SEO element.

5.7 FINAL CONCLUSION

It is evident that users are rapidly adapting to technology and that the Internet is fast becoming the communication, commerce and marketing medium that is changing business globally. Owing to a lack of 100% real estate e-commerce capability in South Africa, most real estate agencies have made use of the Internet for e-marketing purposes. Surprisingly, some impressive real estate websites exist with regard to usability, but unfortunately they are sometimes very difficult to find on the Internet.

Many different search engines exist, all with their own algorithms and indexing methods. It is apparent that all search engines endeavour to ensure that searchers benefit from the results presented to them. Unfortunately, search engines are not always able to find what the user is searching for. Two factors play a role, namely the user's search phrase which needs to be interpreted by the search engine, and whether or not the intended website has been indexed by the search engine. If the website has been indexed, is it presented in the top 30 results? This emphasises the argument of why real estate websites should be optimised, especially when considering their competition on the Internet.

Optimising a website is a continuous and time-consuming process, since search engines attempt to improve their algorithms, indexing methods and user friendliness all the time. This is executed in order to improve user satisfaction and reduce unethical website behaviour (spamming). It could be perceived that search engine optimisation and spamming are separated by a very indistinct line. Caution should be taken when implementing search engine optimisation elements as they could easily be treated as spamming if not applied correctly. Ironically, some search engines do not determine whether a website incorporates spam, but instead try to determine 'to what extent' spamming has occurred on the website.

During the implementation of the research methodology and the analysis of the results, some discrepancies were identified in the Chambers model. Figure 5.5 illustrates a new updated model which could be used by website developers as a framework to improve website visibility in general. This model is based on information obtained from recent references in the literature review and analysis and results obtained from the experiments conducted.

Figure 5.5 consists of four headings, namely 'essentials', 'extras', 'cautions' and 'dangers'. Essentials contain the elements that must be present in a website for it to become effectively visible to search engines. Predetermined keywords are the core component that must be present (taking into account their placement, proximity and frequency) in the website's content, meta-tags, hypertext / anchor text and headings. Extras are the additional elements that could assist in improving website visibility, but could achieve this only when they are used in conjunction with the core component.

Dangers comprise the elements that could reduce website visibility. In fact, implementing this element could result in the website being removed entirely from the search engine's result page. The five elements specified in cautions, could reduce website visibility as crawlers are still unable to index these elements.

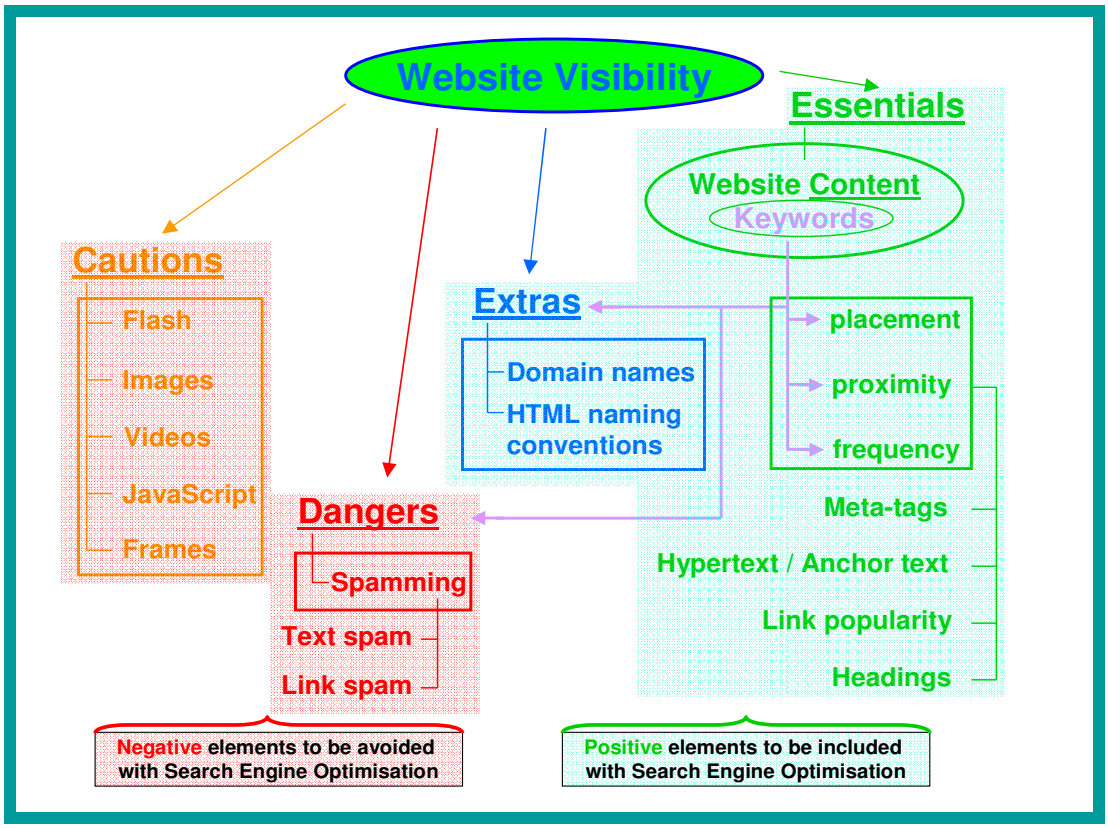


FIGURE 5.5: An improved model of website visibility elements (**Source:** Own source).

The author is of the opinion that the research question – 'Will search engine optimisation elements improve the visibility of real estate SMME websites?' - has been successfully answered. In fact, he identified additional elements and re-evaluated the Chambers model whereby a new model was constructed (Figure 5.5). Even through this model was created using all the recent information obtainable, it does not guarantee visibility improvement when applied to websites in the future. This thesis provides evidence that the model illustrated in Figure 5.5 was operational at the time of writing and requires to be re-evaluated from time to time in order to ensure that it remains relevant.

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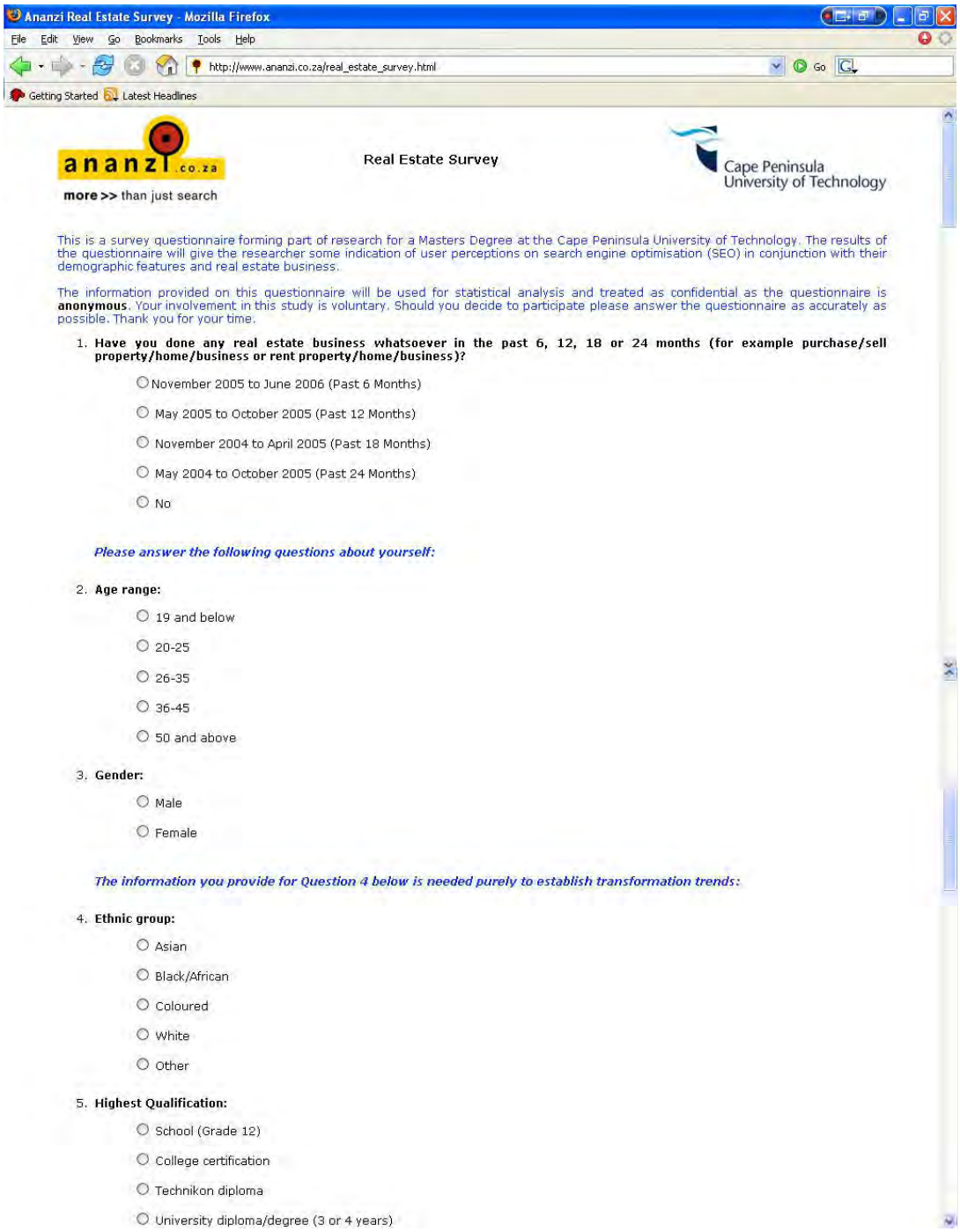
APPENDIX A

Online questionnaire



- ○ Honours degree
- ○ Masters degree
- ○ Doctoral degree
- ○ Other

6. **Approximate income per month:**
   - ○ Less that R3 000
   - ○ From R3 000 to R9 999
   - ○ From R10 000 to R29 999
   - ○ R30 000 and over
   - ○ Other or no income

The following questions are related to the use of the Internet regarding website visibility and real estate business:

7. **Websites can be developed in such a way that they are found more easily by search engines e.g. Ananzi, Google, Yahoo, etc?**
   - ○ Agree
   - ○ Disagree
8. **Have you ever made use of the Internet when looking for a potential property/home/business?**
   - ○ Yes
   - ○ No
9. **Will you consider using the Internet in the future when searching for property/home/business to buy/rent?**
   - ○ Yes
   - ○ No

Buying

10. **Please type in the text box provided below, typical keywords you would use when searching on a search engine for a property/home/business to *buy*:**

Selling

11. **Please type in the test box provided below, typical keywords you would use when searching on a search engine for a property/home/business to *sell*:**

Renting

12. **Please type in the test box provided below, typical keywords you would use when searching on a search engine for a property/home/business to *rent*:**

Estate Agent

13. **Please type in the test box provided below, typical keywords you would use when searching on a search engine for an *estate agent* to sell your property/home/business:**
14. **Please type in the text box provided below, any suggestions you might have to improve Ananzi's search engine user friendliness:**

Submit Reset

APPENDIX B

Letter requesting company participation

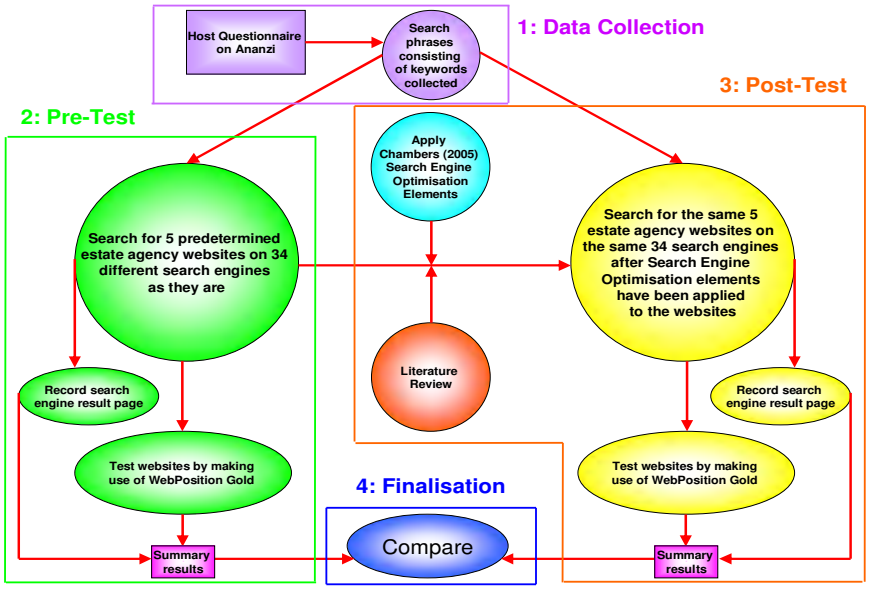
Research & Advanced Studies FACULTY OF INFORMATICS AND DESIGN	PO Box 652 Cape Town 8000 Crnr Roeland and Brandweer str, Zonnebloem Telephone (27) 21 469 1000/1001 Facsimile (27) 21 469 1002

8 May 2006

Dear Sir/Madam

I am currently in the process of undertaking research for my Master's degree at the Cape Peninsula University of Technology, under the supervision of Prof Weideman. The focus of the thesis is determining the effect of search engine optimisation (SEO) elements on website visibility. As part of the overall study the emphasis will be placed on the real estate SMME sector of the Western Cape. In order to thoroughly investigate the effects of SEO elements, it was determined to apply a theoretical model to current real estate SMME websites.

For the purpose of the study you have been identified as a real estate SMME in the Western Cape that owns a website. The entire research process consists of four parts whereby your business will be primarily involved in phase two (pre-test) and three (post-test). Phase two entails the testing of your current website, as is, by making use of specialised software and manual processes. After phase two has been completed, the current website will be optimised. The alterations will have a minimal effect on the visual appearance of the website but will improve its structure and visibility to search engines. The optimised website will again be tested using the exact same software and under identical conditions. The two test results will be compared in order to draw a conclusion. These phases are portrayed in the illustration below.



APPENDIX B1

Acceptance of participation by Atlantic real estate

I would like to invite you to participate, as your contribution to the study is extremely important to ensure the success of this project. At the same time, your website will be improved with the potential of drawing more traffic, at no cost to you. I would also like to make you aware that over and above the thesis, information provided by this study may be used for publication in other research outputs. Furthermore I wish to assure you that any sensitive information received will remain confidential and will not be divulged in the thesis without your permission. Apart from financial responsibilities required from independent website hosting companies, no additional financial compensation is required by me for any website improvements made. I am aware of the possibility that you might currently have an IT professional maintaining you websites and am more than willing to work with such professionals during this project.

Please note that your involvement is voluntary. If you choose to take part, you may terminate your participation at any time you choose. Should you agree to participate in the project please sign and date below, to give me formal permission to continue my research with regards to your company's website.

Should you have any additional questions, please contact:

Eugéne Visser
072 47 99 459
ebvisser@telkomsa.net

or

Prof. M. Weideman
082 88 90 588
meliusw@yahoo.com

Yours sincerely

Signature of Real Estate SMME Owner — Date: 15 JUNE 2006

Eugéne Visser

Prof. M. Weideman

Simply the Best!
ATLANTIC REAL ESTATE

Neels Labuschagne MIR CRS (SA)
Principal
083 763 0461
021 554 4822
021 554 4822
2atlantic@telkomsa.net
33 San Roque,
Sunningdale, 7441

APPENDIX B2

Acceptance of participation by Value Homes real estate

I would like to invite you to participate, as your contribution to the study is extremely important to ensure the success of this project. At the same time, your website will be improved with the potential of drawing more traffic, at no cost to you. I would also like to make you aware that over and above the thesis, information provided by this study may be used for publication in other research outputs. Furthermore I wish to assure you that any sensitive information received will remain confidential and will not be divulged in the thesis without your permission. Apart from financial responsibilities required from independent website hosting companies, no additional financial compensation is required by me for any website improvements made. I am aware of the possibility that you might currently have an IT professional maintaining you websites and am more than willing to work with such professionals during this project.

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Should you have any additional questions, please contact:

Eugéne Visser
072 47 99 459
ebvisser@telkomsa.net

or

Prof. M. Weideman
082 88 90 588
meliusw@yahoo.com

Yours sincerely

Signature of Real Estate SMME Owner

13/06/06
Date

Eugéne Visser

Prof. M. Weideman

VALUE HOMES
Henry Skinner 082 952 9693

T: 021 556 5560 • F: 021 557 0751
henry@valuehomes.co.za • www.valuehomes.co.za

APPENDIX B3

Acceptance of participation by Cypress Projects real estate

I would like to invite you to participate, as your contribution to the study is extremely important to ensure the success of this project. At the same time, your website will be improved with the potential of drawing more traffic, at no cost to you. I would also like to make you aware that over and above the thesis, information provided by this study may be used for publication in other research outputs. Furthermore I wish to assure you that any sensitive information received will remain confidential and will not be divulged in the thesis without your permission. Apart from financial responsibilities required from independent website hosting companies, no additional financial compensation is required by me for any website improvements made. I am aware of the possibility that you might currently have an IT professional maintaining you websites and am more than willing to work with such professionals during this project.

Please note that your involvement is voluntary. If you choose to take part, you may terminate your participation at any time you choose. Should you agree to participate in the project please sign and date below, to give me formal permission to continue my research with regards to your company's website.

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Eugéne Visser
072 47 99 459
ebvisser@telkomsa.net

or

Prof. M. Weideman
082 88 90 588
meliusw@yahoo.com

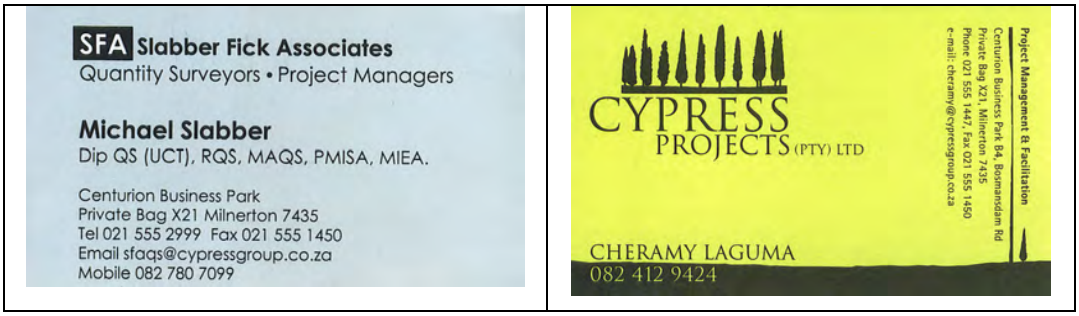
Yours sincerely

Signature of Real Estate SMME Owner

5 June 2006
Date

Eugéne Visser

Prof. M. Weideman



APPENDIX B4

Acceptance of participation by ERA Steer Blaauwberg real estate

I would like to invite you to participate, as your contribution to the study is extremely important to ensure the success of this project. At the same time, your website will be improved with the potential of drawing more traffic, at no cost to you. I would also like to make you aware that over and above the thesis, information provided by this study may be used for publication in other research outputs. Furthermore I wish to assure you that any sensitive information received will remain confidential and will not be divulged in the thesis without your permission. Apart from financial responsibilities required from independent website hosting companies, no additional financial compensation is required by me for any website improvements made. I am aware of the possibility that you might currently have an IT professional maintaining you websites and am more than willing to work with such professionals during this project.

Please note that your involvement is voluntary. If you choose to take part, you may terminate your participation at any time you choose. Should you agree to participate in the project please sign and date below, to give me formal permission to continue my research with regards to your company's website.

Should you have any additional questions, please contact:

Eugéne Visser
072 47 99 459
ebvisser@telkomsa.net

or

Prof. M. Weideman
082 88 90 588
meliusw@yahoo.com

Yours sincerely

Signature of Real Estate SMME Owner

4 June 2006
Date

Eugéne Visser

Prof. M. Weideman

ERA Steer Blaauwberg
Cnr. Porterfield Road & Marine Circle
BLOUBERGRANT, 7441
Office : (27) 021 557 1124
Fax : (27) 021 557 3539
Cell : 082 574 9257
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E-mail : tableview@erasteer.co.za
MULTI MILLION RAND ACHIEVER
ERA REAL ESTATE
Hélene Visser C.E.A.B., M.I.R.S.A., C.R.S.
Principal
TOP GUN Graduate
Each Office is Independently Owned and Operated

APPENDIX B5

Acceptance of participation by Realty1elk real estate

I would like to invite you to participate, as your contribution to the study is extremely important to ensure the success of this project. At the same time, your website will be improved with the potential of drawing more traffic, at no cost to you. I would also like to make you aware that over and above the thesis, information provided by this study may be used for publication in other research outputs. Furthermore I wish to assure you that any sensitive information received will remain confidential and will not be divulged in the thesis without your permission. Apart from financial responsibilities required from independent website hosting companies, no additional financial compensation is required by me for any website improvements made. I am aware of the possibility that you might currently have an IT professional maintaining you websites and am more than willing to work with such professionals during this project.

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ebvisser@telkomsa.net

or

Prof. M. Weideman
082 88 90 588
meliusw@yahoo.com

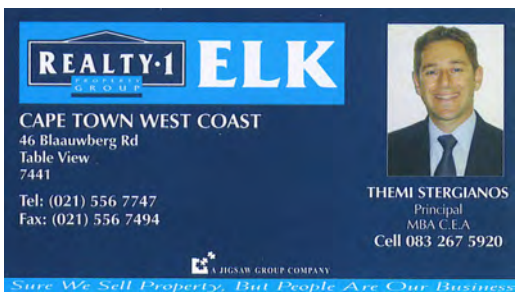
Yours sincerely

Signature of Real Estate SMME Owner

9 June 06.
Date

Eugéne Visser

Prof. M. Weideman



APPENDIX C1

'Buy' category search phrases for all five real estate companies

1	home for sale property for sale
2	"Property in Blouberg"
3	4 bedroom well astablished garden pool double garage security features
4	area low maintenance number of bedrooms number of reception rooms number of garages size of plot
5	buy house Blouberg Bloubergrant Blaauwberg Table View Parklands
6	Buy property
7	For Sale
8	for sale house duplex Blouberg Bloubergrant Blaauwberg Table View Parklands
9	For Sale Property
10	Freehold house Blouberg Bloubergrant Blaauwberg Table View Parklands
11	house for sale
12	house home residential & property
13	houses for sale
14	Houses Property properties Town Houses Flats Empty Stands New Developments
15	land for sale homes for sale
16	Blouberg Bloubergrant Blaauwberg Table View Parklands house
17	PROPERTIES FOR SALE
18	properties for sale or listed properties online
19	Properties for sale properties
20	Property
21	property + "for sale" flat + "for sale" "real estate" + "for sale"
22	property + buy + "Blouberg Bloubergrant Blaauwberg Table View Parklands"
23	property for buy
24	property for sale
25	property for sale
26	property home house
27	property sales buy property property
28	property to buy propertry on sale
29	PROPERTY VACANT land
30	property buy
31	property for sale home houses
32	Propety for sale
33	Purchase/ buy - house/flat
34	Purchasing home buy a home
35	Real estate residential properties properties south africa properties western cape properties houses for sale
36	residential property vacant land Small holding farm
37	Blouberg Bloubergrant Blaauwberg Table View Parklands
38	Blouberg Bloubergrant Blaauwberg Table View Parklands+residential property+view
39	low maintenance price Blouberg Bloubergrant Blaauwberg Table View Parklands

APPENDIX C2

‘Sell’ category search phrases for all five real estate companies

1	low maintenance number of bedrooms number of reception rooms number of garages size of plot
2	business to sell
3	Comfortable and cosy 4 bedroom house
4	for sale
5	For Sale property
6	home selling property selling
7	house for sale
8	house home residential & property
9	house/ flat - for sale
10	house building land
11	House Town House Empty Stand River Estate Golf Estate
12	houses for sale
13	Blouberg Bloubergrant Blaauwberg Table View Parklands house
14	Blouberg Bloubergrant Blaauwberg Table View Parklands
15	property + agent property + sell property + "for sale" "real estate" + "for sale"
16	Properties for sale properties sale
17	property + sell + Blouberg Bloubergrant Blaauwberg Table View Parklands
18	property buyers
19	property for sale
20	Property to sell
21	property to sell buying a home
22	property house flat sell
23	Real estate residential properties properties south africa properties western cape properties houses
24	Blouberg Bloubergrant Blaauwberg Table View Parklands
25	Sel property
26	Sell house Blouberg Bloubergrant Blaauwberg Table View Parklands
27	Sell property
28	selling a property
29	SELLING PROPERTIES
30	Selling property selling
31	Blouberg Bloubergrant Blaauwberg Table View Parklands
32	timber frame homes for sale

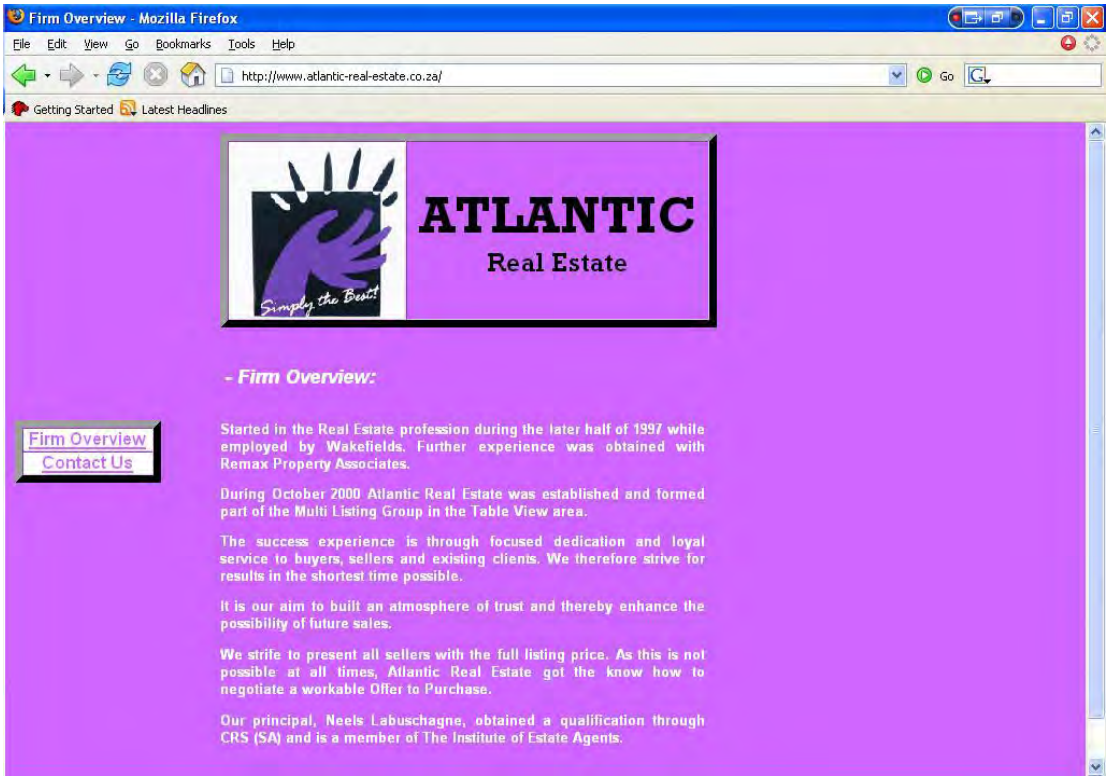
APPENDIX C3

‘Rent’ category search phrases for all five real estate companies

1	"to rent" "rent" flat + "vacant" flat + "to let" "real estate"
2	flat to rent house to rent property rentals
3	flat townhouse house
4	home to rent
5	house for rent letting agent
6	house to let
7	house home residential property rent flat & townhouse
8	Investment opportunity for rent
9	Blouberg Bloubergrant Blaauwberg Table View Parklands house
10	monthly rental
11	Blouberg Bloubergrant Blaauwberg Table View Parklands
12	PROPERTIES FOR RENT
13	Properties for rent properties renting
14	properties to let
15	Property + rent + Blouberg Bloubergrant Blaauwberg Table View Parklands
16	property rentals
17	property to let
18	Property to rent
19	property to rent renting a flat
20	property house flat rent
21	Rent
22	Rent apartments flats house letting
23	Rent flat house
24	rent house
25	Rent house Blouberg Bloubergrant Blaauwberg Table View Parklands
26	rent property
27	Rental
28	Rentals rental properties residential rentals business rentals
29	Blouberg Bloubergrant Blaauwberg Table View Parklands
30	rent Blouberg Bloubergrant Blaauwberg Table View Parklands
31	to let for rent rentals
32	Townhouse for rent Houses For Rent

APPENDIX D1

Old Atlantic website



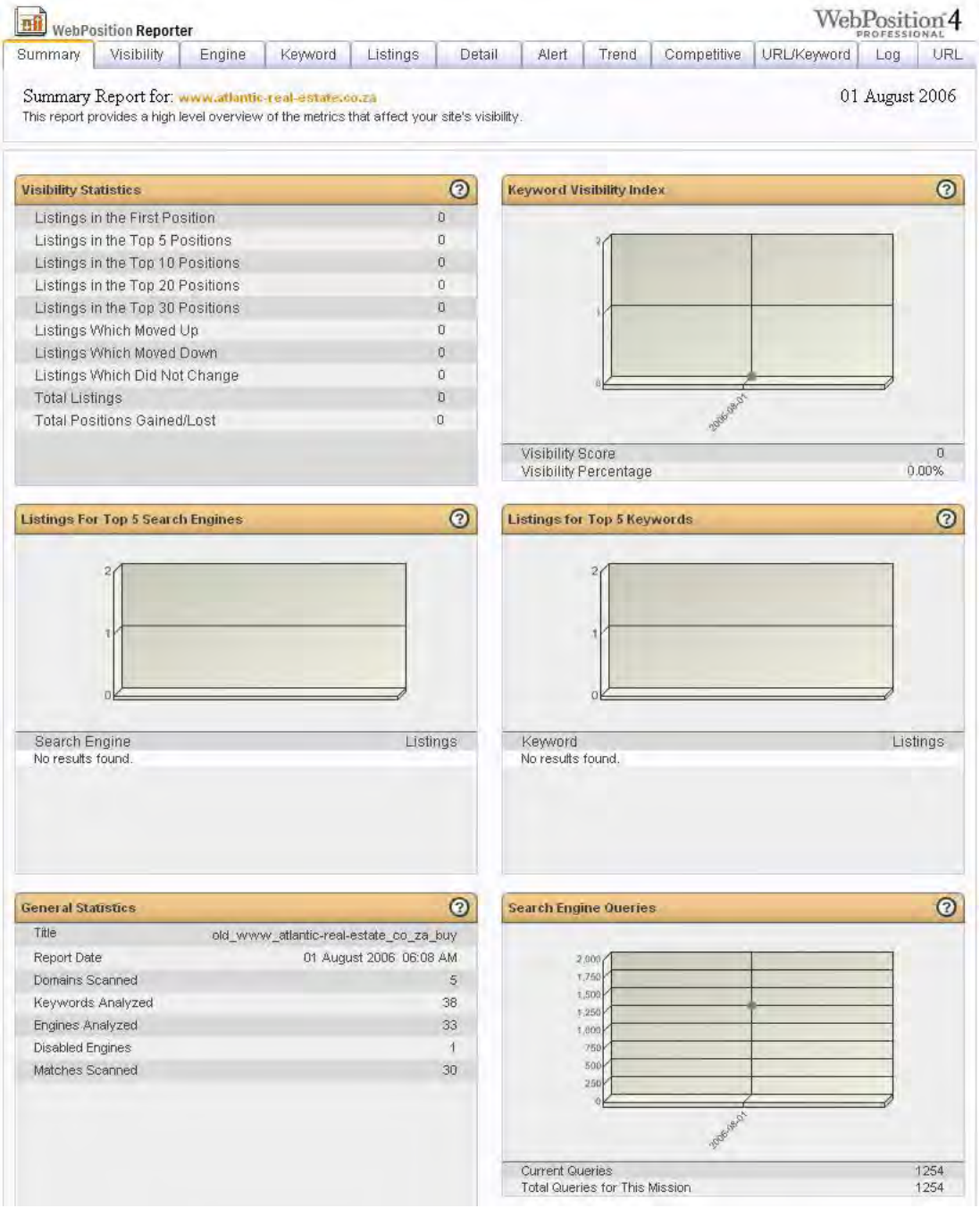
APPENDIX D2

‘Agent’ category search phrases for Atlantic real estate

1	"Neels Labuschagne" + home + sell
2	"Neels Labuschagne" + " Atlantic real estate "
3	Atlantic real estate Neels Labuschagne Property For Sale
4	Atlantic real estate
5	Neels Labuschagne Blouberg Bloubergrant Blaauwberg Table View Parklands
6	Neels Labuschagne
7	Neels Labuschagne home brokers
8	low commission
9	property investments Blouberg Bloubergrant Blaauwberg Table View Parklands
10	properties estates Blouberg Bloubergrant Blaauwberg Table View Parklands
11	property + Neels Labuschagne property + sell property + "for sale" "real estate" + "for sale"
12	property agent Neels Labuschagne
13	Property hourse flat Neels Labuschagne estate
14	Real estate agent Neels Labuschagne selling of property
15	real estate Neels Labuschagne cape town
16	real estate consultants Neels Labuschagne
17	real estate Neels Labuschagne
18	Blouberg Bloubergrant Blaauwberg Table View Parklands

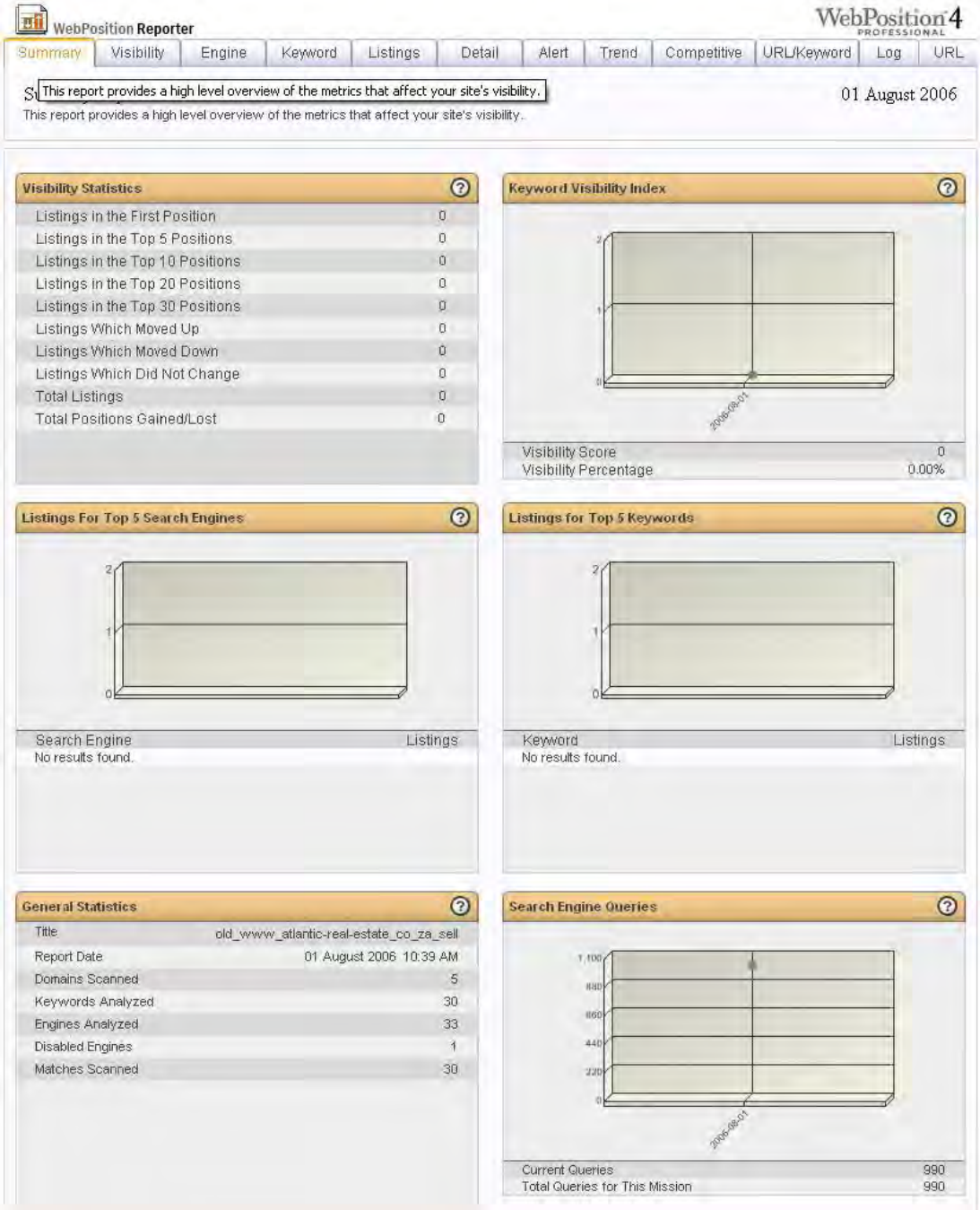
APPENDIX D3

Experiment: Old Atlantic website with regard to 'buy'



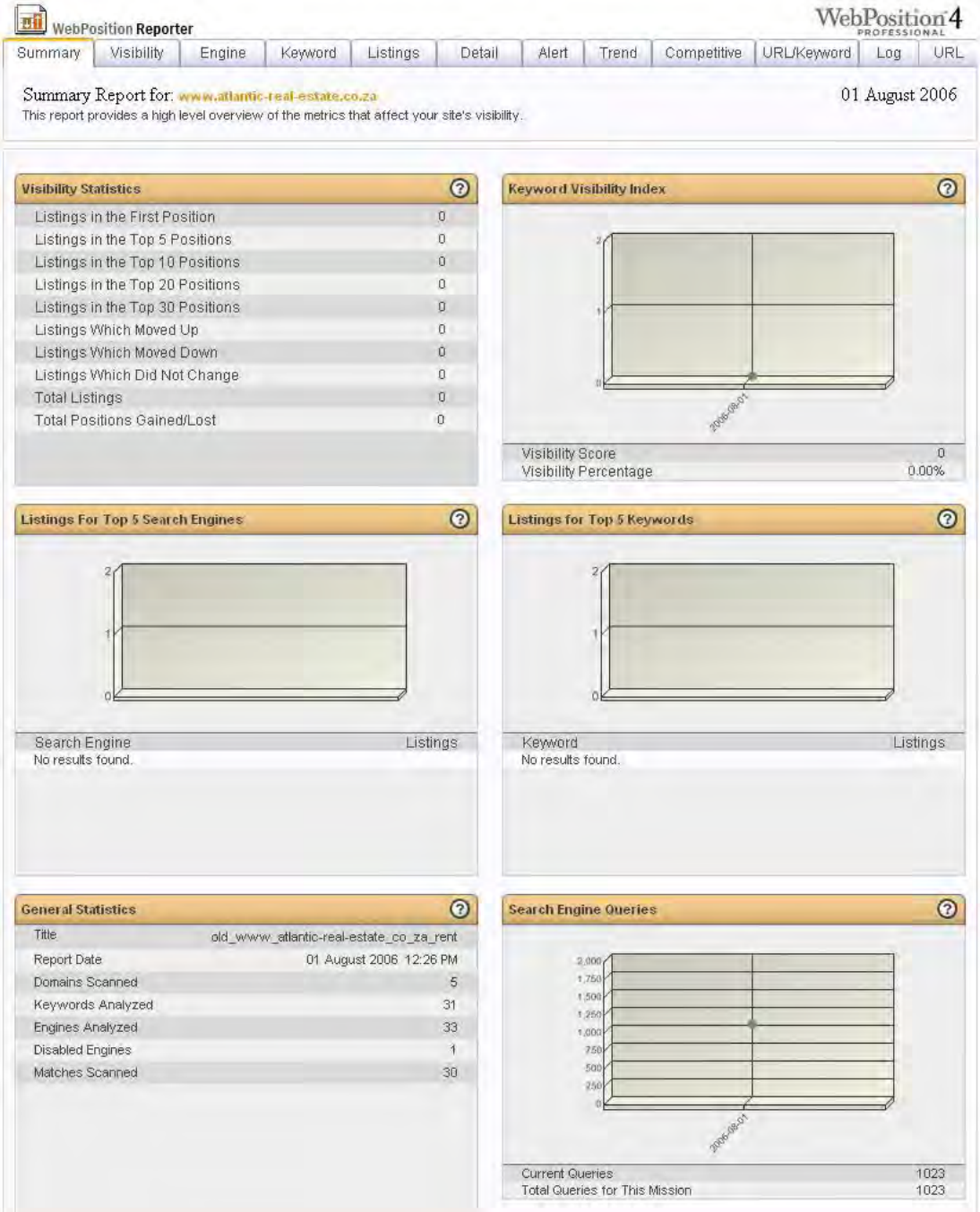
APPENDIX D4

Experiment: Old Atlantic website with regard to 'sell'



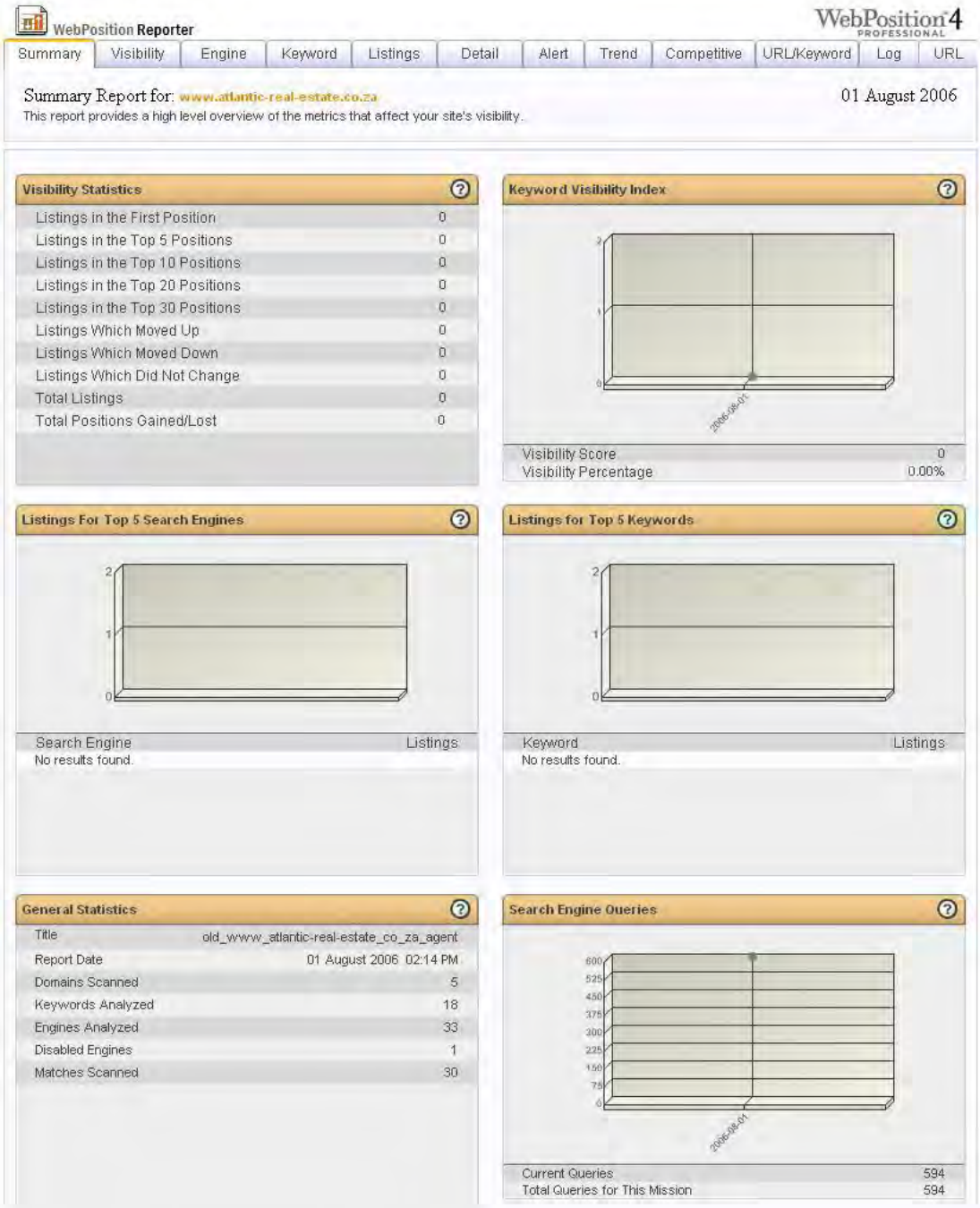
APPENDIX D5

Experiment: Old Atlantic website with regard to 'rent'



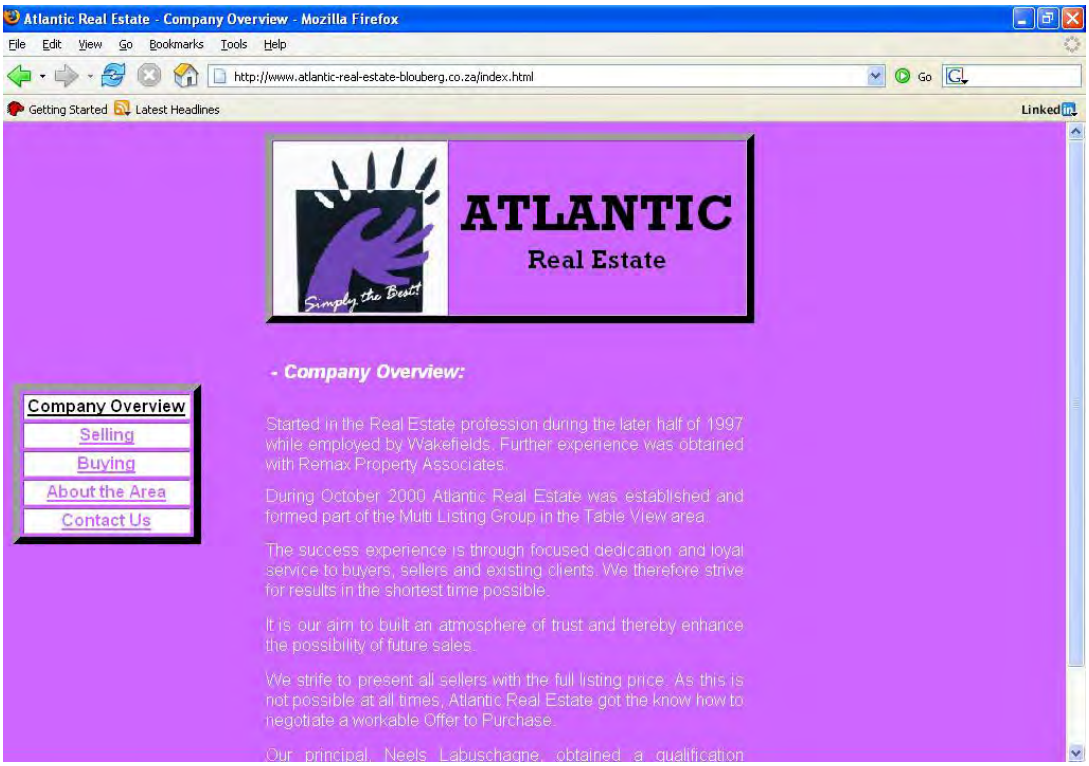
APPENDIX D6

Experiment: Old Atlantic website with regard to 'agent'



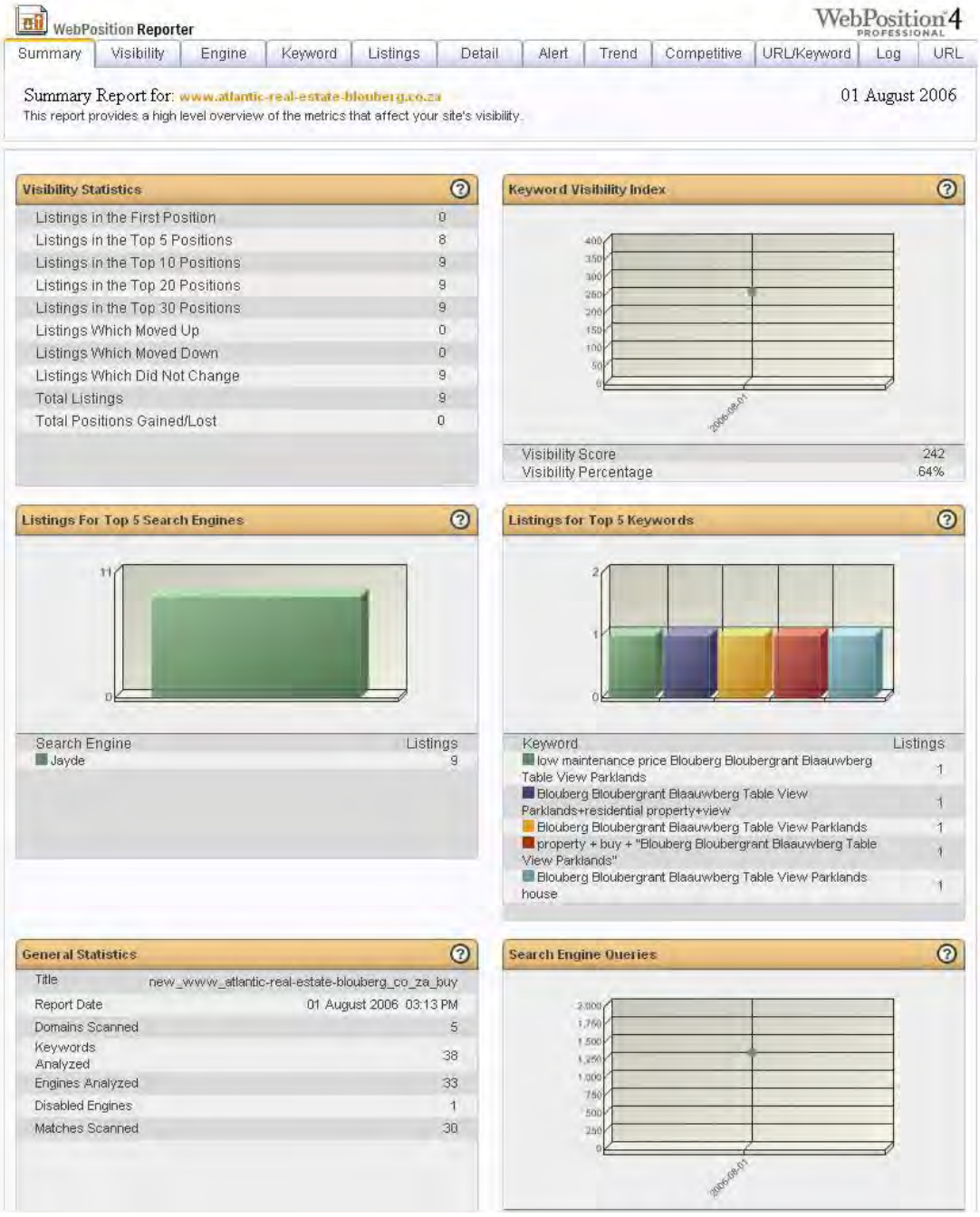
APPENDIX D7

New Atlantic website



APPENDIX D8

Experiment: New Atlantic website with regard to 'buy'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.atlantic-real-estate-blouberg.co.za

01 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	0
Listings in the Top 5 Positions	8
Listings in the Top 10 Positions	9
Listings in the Top 20 Positions	9
Listings in the Top 30 Positions	9
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	9
Total Listings	9
Total Positions Gained/Lost	0

Keyword Visibility Index

400 350 300 250 200 150 100 50 0

2006-08-01

Visibility Score	242
Visibility Percentage	64%

Listings For Top 5 Search Engines

11 0

Search Engine	Listings
Jayde	9

Listings for Top 5 Keywords

2 1 0

Keyword	Listings
low maintenance price Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Blouberg Bloubergrant Blaauwberg Table View Parklands+residential property+view	1
Blouberg Bloubergrant Blaauwberg Table View Parklands	1
property + buy + "Blouberg Bloubergrant Blaauwberg Table View Parklands"	1
Blouberg Bloubergrant Blaauwberg Table View Parklands house	1

General Statistics

Title	new_www_atlantic-real-estate-blouberg_co_za_buy
Report Date	01 August 2006 03:13 PM
Domains Scanned	5
Keywords Analyzed	38
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

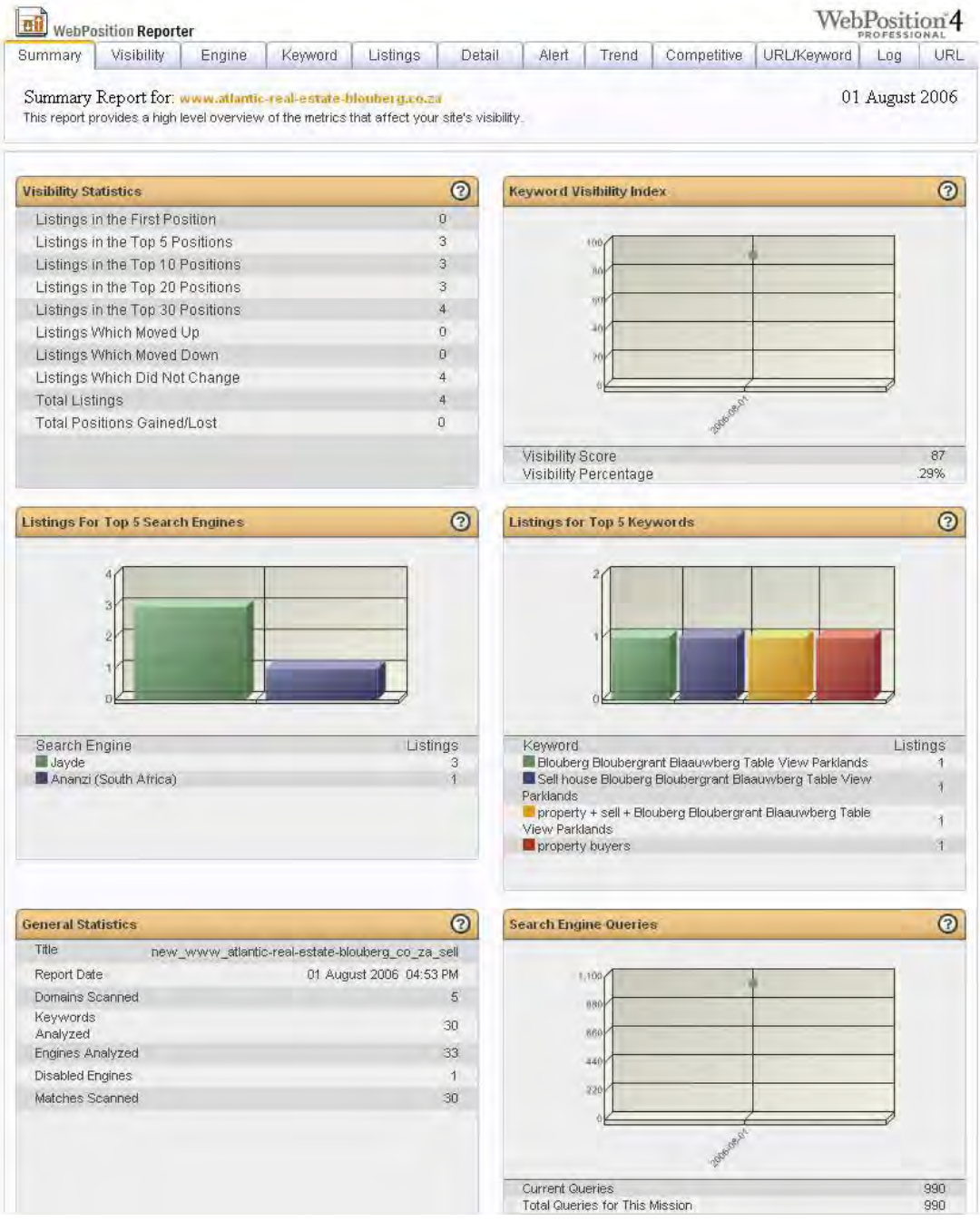
Search Engine Queries

2,000 1,750 1,500 1,250 1,000 750 500 250 0

2006-08-01

APPENDIX D9

Experiment: New Atlantic website with regard to 'sell'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.atlantic-real-estate-blouberg.co.za — 01 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	0
Listings in the Top 5 Positions	3
Listings in the Top 10 Positions	3
Listings in the Top 20 Positions	3
Listings in the Top 30 Positions	4
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	4
Total Listings	4
Total Positions Gained/Lost	0

Keyword Visibility Index

Visibility Score	87
Visibility Percentage	29%

Listings For Top 5 Search Engines

Search Engine	Listings
Jayde	3
Ananzi (South Africa)	1

Listings for Top 5 Keywords

Keyword	Listings
Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Sell house Blouberg Bloubergrant Blaauwberg Table View Parklands	1
property + sell + Blouberg Bloubergrant Blaauwberg Table View Parklands	1
property buyers	1

General Statistics

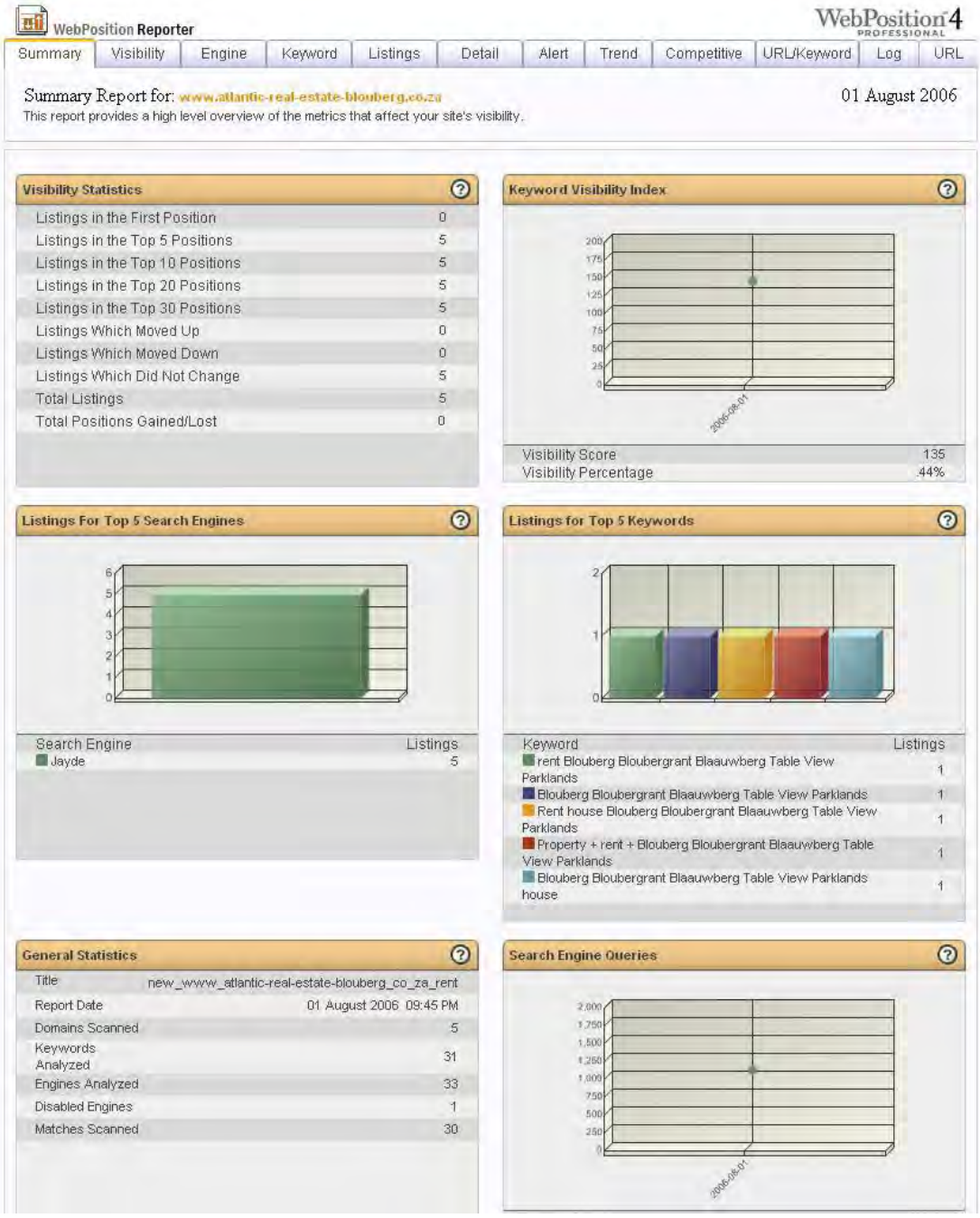
Title	new_www_atlantic-real-estate-blouberg_co_za_sell
Report Date	01 August 2006 04:53 PM
Domains Scanned	5
Keywords Analyzed	30
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

Current Queries	990
Total Queries for This Mission	990

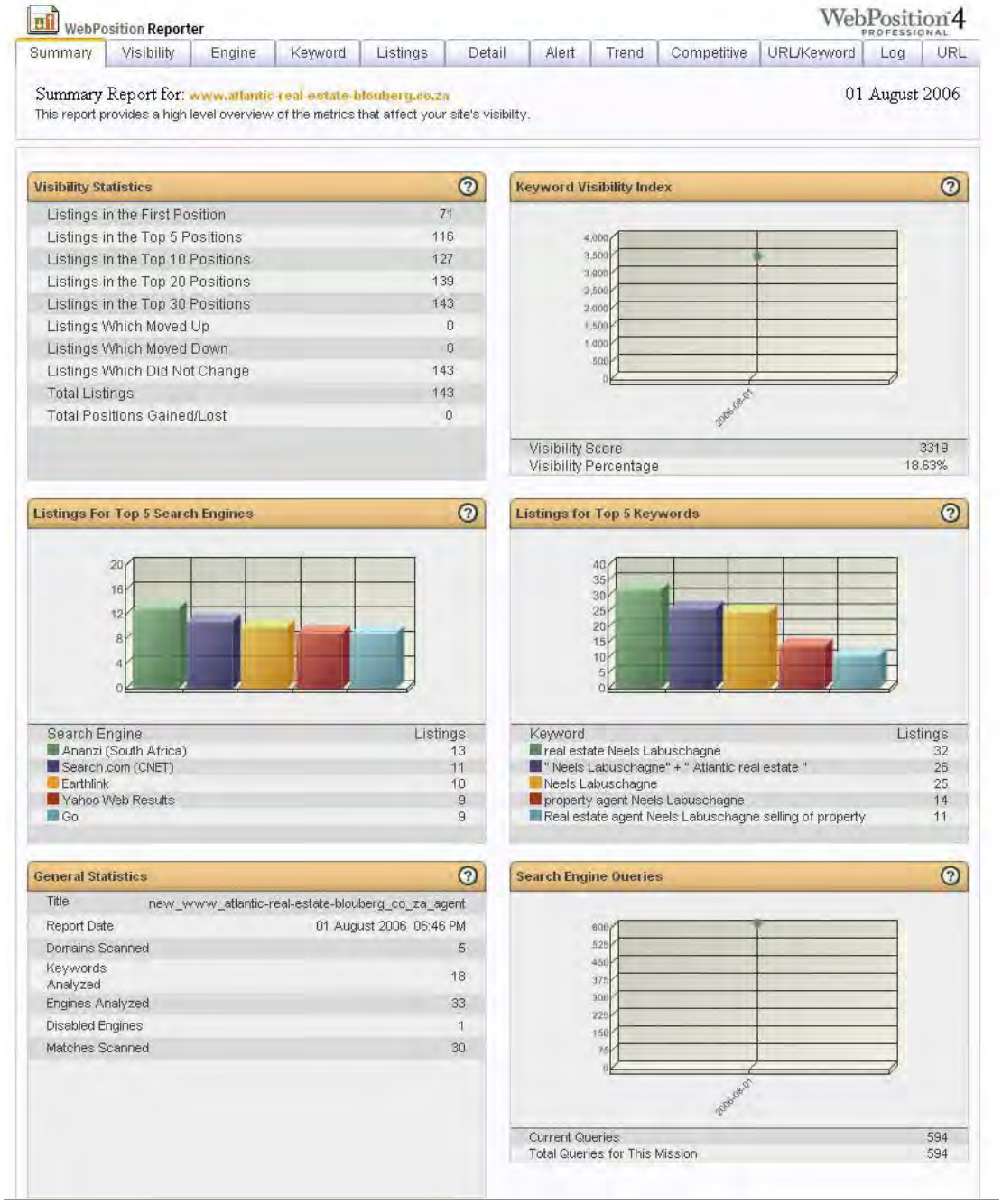
APPENDIX D10

Experiment: New Atlantic website with regard to 'rent'



APPENDIX D11

Experiment: New Atlantic website with regard to 'agent'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.atlantic-real-estate-blouberg.co.za

01 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	71
Listings in the Top 5 Positions	116
Listings in the Top 10 Positions	127
Listings in the Top 20 Positions	139
Listings in the Top 30 Positions	143
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	143
Total Listings	143
Total Positions Gained/Lost	0

Keyword Visibility Index

4,000 3,500 3,000 2,500 2,000 1,500 1,000 500 0

2006-08-01

Visibility Score	3319
Visibility Percentage	18.63%

Listings For Top 5 Search Engines

20 16 12 8 4 0

Search Engine	Listings
Ananzi (South Africa)	13
Search.com (CNET)	11
Earthlink	10
Yahoo Web Results	9
Go	9

Listings for Top 5 Keywords

40 35 30 25 20 15 10 5 0

Keyword	Listings
real estate Neels Labuschagne	32
" Neels Labuschagne" + " Atlantic real estate "	26
Neels Labuschagne	25
property agent Neels Labuschagne	14
Real estate agent Neels Labuschagne selling of property	11

General Statistics

Title	new_www_atlantic-real-estate-blouberg_co_za_agent
Report Date	01 August 2006 06:46 PM
Domains Scanned	5
Keywords Analyzed	18
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

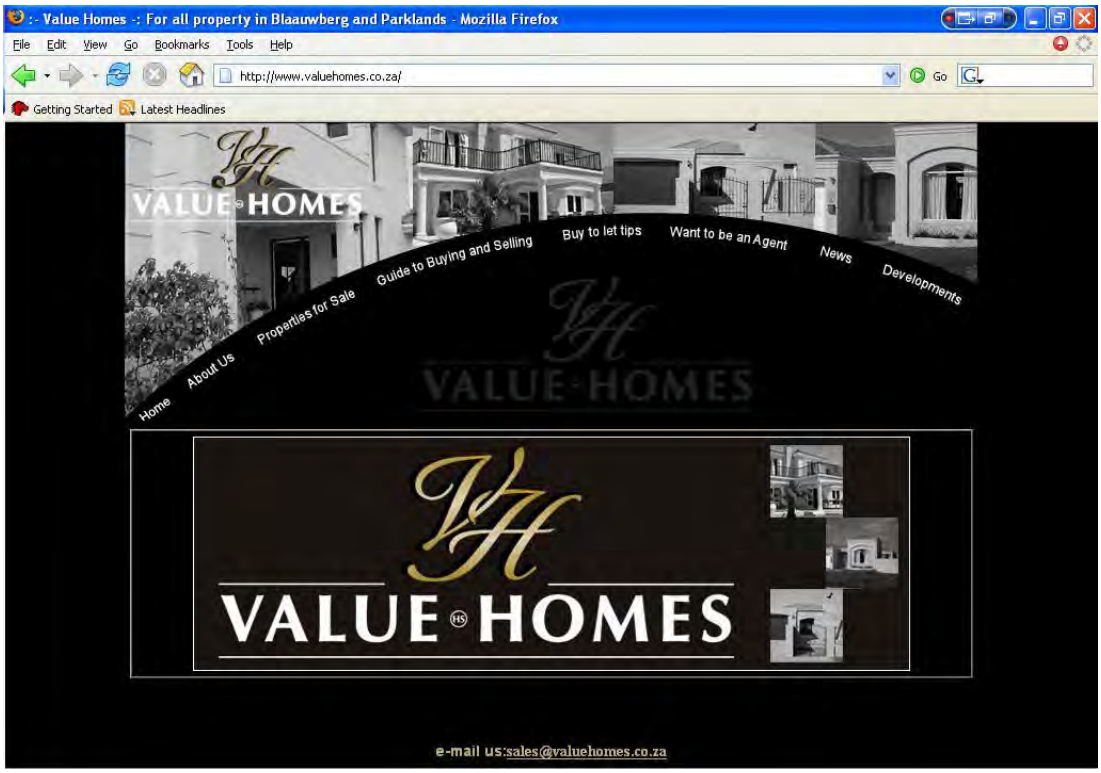
600 525 450 375 300 225 150 75 0

2006-08-01

Current Queries	594
Total Queries for This Mission	594

APPENDIX E1

Old Value Homes website



VALUE HOMES

Henry Skinner 082 952 9693

T: 021 556 5560 • F: 021 557 0751
henry@valuehomes.co.za • www.valuehomes.co.za

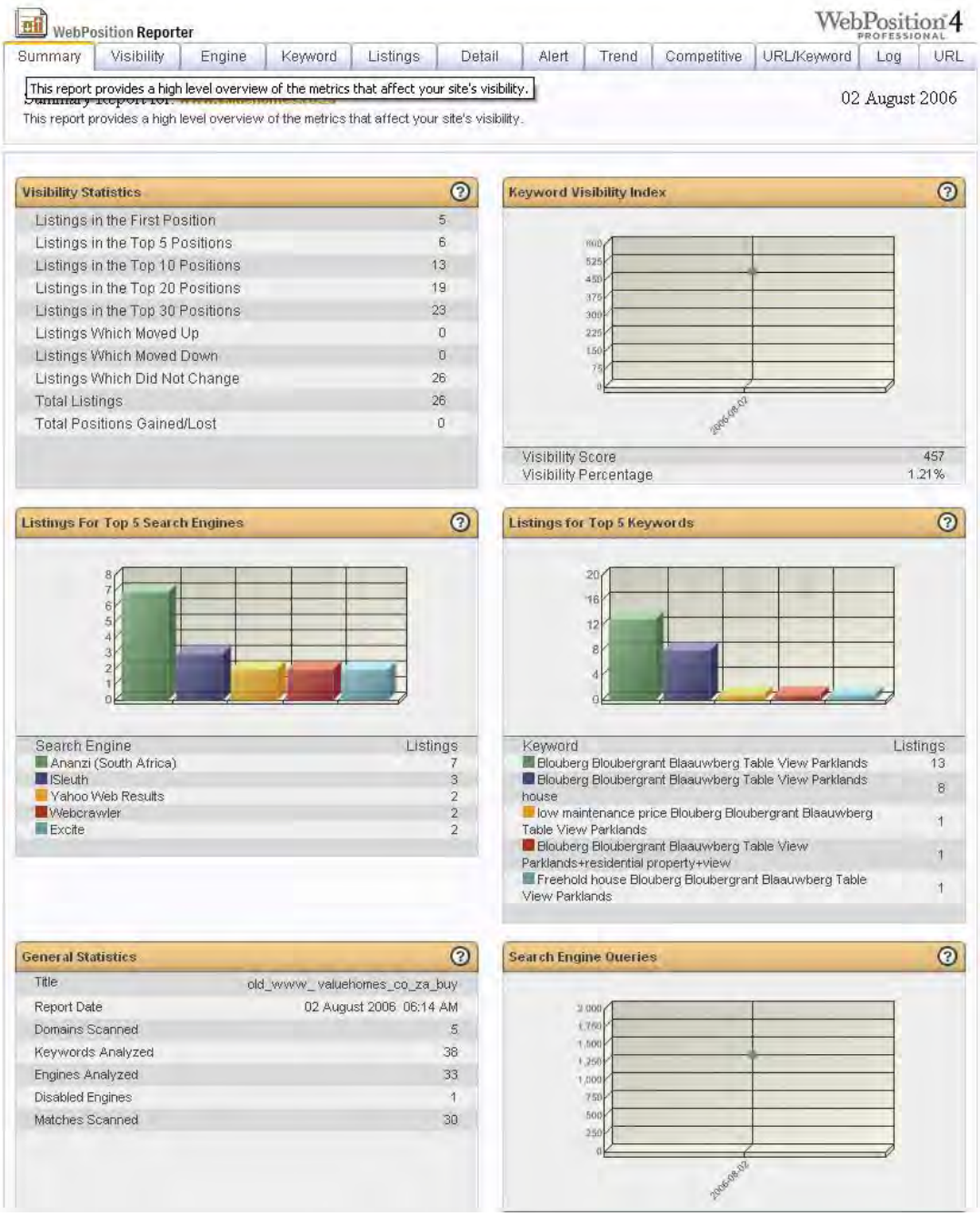
APPENDIX E2

‘Agent’ category search phrases for Value Homes real estate

1	"Helena Schüssel" “Henry Skinner” + home + sell
2	"Helena Schüssel" “Henry Skinner” + "Value Homes real estate"
3	Helena Schüssel+Henry Skinner
4	Value Homes real estate Helena Schüssel Henry Skinner Property For Sale
5	Value Homes real estate
6	Helena Schüssel Henry Skinner Blouberg Bloubergrant Blaauwberg Table View Parklands
7	Helena Schüssel Henry Skinner home brokers
8	low commission
9	property investments Blouberg Bloubergrant Blaauwberg Table View Parklands
10	properties estates Blouberg Bloubergrant Blaauwberg Table View Parklands
11	property + Helena Schüssel Henry Skinner property + sell property + "for sale" "real estate" + "for sale"
12	property agent Helena Schüssel Henry Skinner
13	Property hourse flat Helena Schüssel Henry Skinner estate
14	Real estate agent Helena Schüssel Henry Skinner selling of property
15	real estate Helena Schüssel Henry Skinner cape town
16	real estate consultants Helena Schüssel Henry Skinner
17	real estate Helena Schüssel Henry Skinner
18	Blouberg Bloubergrant Blaauwberg Table View Parklands

APPENDIX E3

Experiment: Old Value Homes website with regard to 'buy'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

This report provides a high level overview of the metrics that affect your site's visibility.

02 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	5
Listings in the Top 5 Positions	6
Listings in the Top 10 Positions	13
Listings in the Top 20 Positions	19
Listings in the Top 30 Positions	23
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	26
Total Listings	26
Total Positions Gained/Lost	0

Keyword Visibility Index

Visibility Score	457
Visibility Percentage	1.21%

Listings For Top 5 Search Engines

Search Engine	Listings
Ananzi (South Africa)	7
ISleuth	3
Yahoo Web Results	2
Webcrawler	2
Excite	2

Listings for Top 5 Keywords

Keyword	Listings
Blouberg Bloubergrant Blaauwberg Table View Parklands	13
Blouberg Bloubergrant Blaauwberg Table View Parklands house	8
low maintenance price Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Blouberg Bloubergrant Blaauwberg Table View Parklands+residential property+view	1
Freehold house Blouberg Bloubergrant Blaauwberg Table View Parklands	1

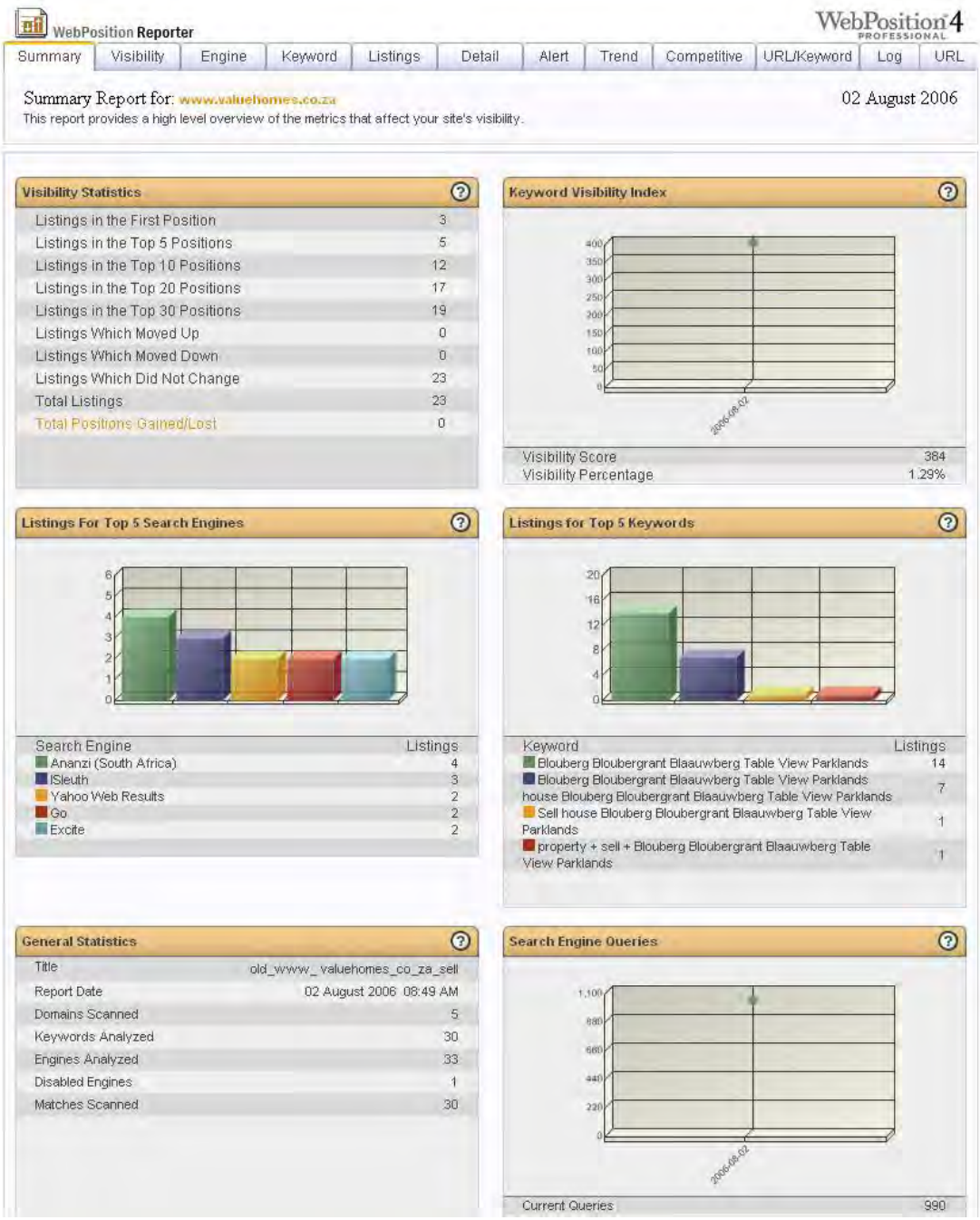
General Statistics

Title	old_www._valuehomes_co_za_buy
Report Date	02 August 2006 06:14 AM
Domains Scanned	5
Keywords Analyzed	38
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

APPENDIX E4

Experiment: Old Value Homes website with regard to 'sell'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.valuehomes.co.za — 02 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	3
Listings in the Top 5 Positions	5
Listings in the Top 10 Positions	12
Listings in the Top 20 Positions	17
Listings in the Top 30 Positions	19
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	23
Total Listings	23
Total Positions Gained/Lost	0

Keyword Visibility Index

Visibility Score	384
Visibility Percentage	1.29%

Listings For Top 5 Search Engines

Search Engine	Listings
Ananzi (South Africa)	4
iSleuth	3
Yahoo Web Results	2
Go	2
Excite	2

Listings for Top 5 Keywords

Keyword	Listings
Blouberg Bloubergrant Blaauwberg Table View Parklands	14
Blouberg Bloubergrant Blaauwberg Table View Parklands house Blouberg Bloubergrant Blaauwberg Table View Parklands	7
Sell house Blouberg Bloubergrant Blaauwberg Table View Parklands	1
property + sell + Blouberg Bloubergrant Blaauwberg Table View Parklands	1

General Statistics

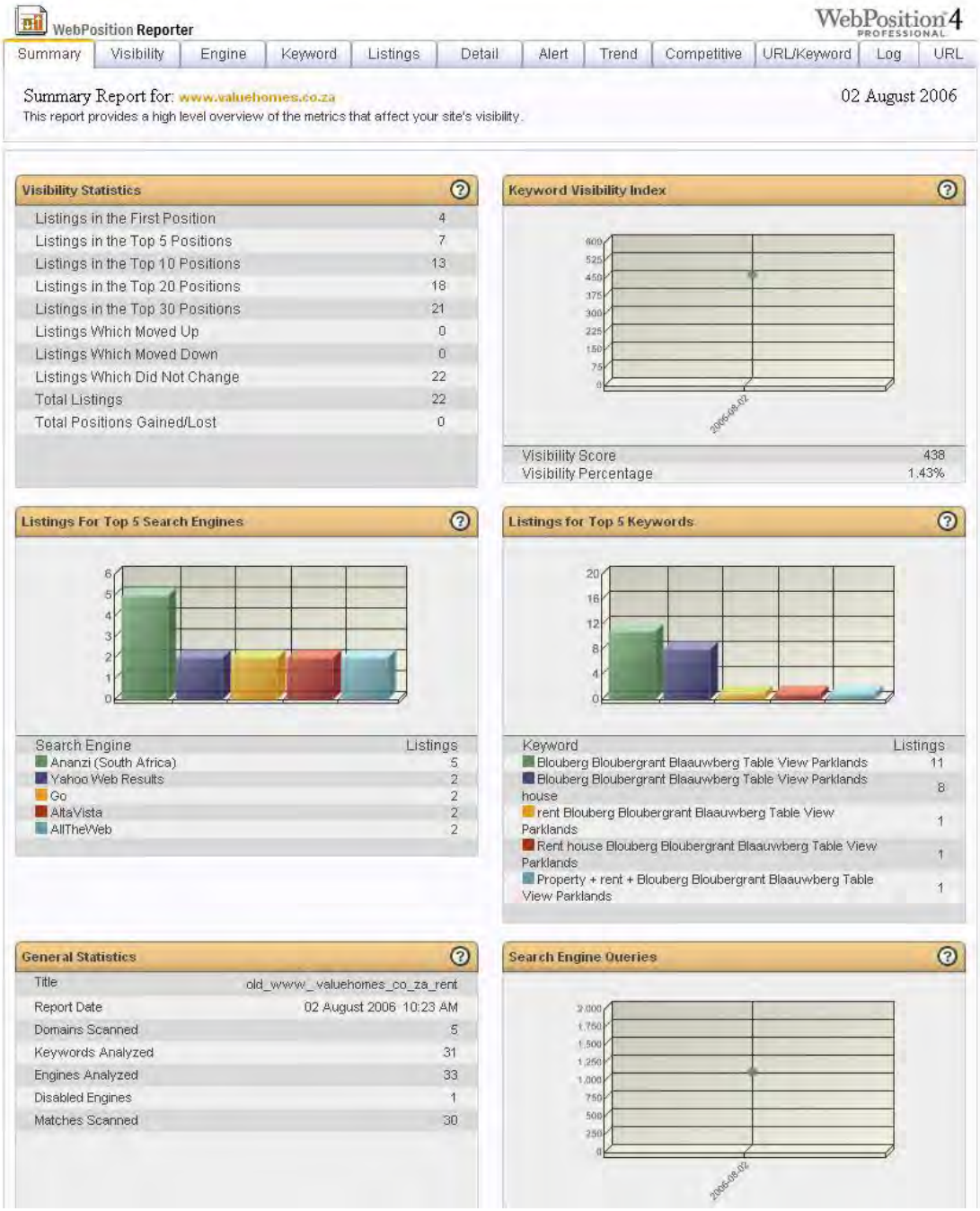
Title	old_www_valuehomes_co_za_sell
Report Date	02 August 2006 08:49 AM
Domains Scanned	5
Keywords Analyzed	30
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

Current Queries	990

APPENDIX E5

Experiment: Old Value Homes website with regard to 'rent'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.valuehomes.co.za

02 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	4
Listings in the Top 5 Positions	7
Listings in the Top 10 Positions	13
Listings in the Top 20 Positions	18
Listings in the Top 30 Positions	21
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	22
Total Listings	22
Total Positions Gained/Lost	0

Keyword Visibility Index

Visibility Score	438
Visibility Percentage	1.43%

Listings For Top 5 Search Engines

Search Engine	Listings
Ananzi (South Africa)	5
Yahoo Web Results	2
Go	2
AltaVista	2
AllTheWeb	2

Listings for Top 5 Keywords

Keyword	Listings
Blouberg Bloubergrant Blaauwberg Table View Parklands	11
Blouberg Bloubergrant Blaauwberg Table View Parklands house	8
rent Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Rent house Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Property + rent + Blouberg Bloubergrant Blaauwberg Table View Parklands	1

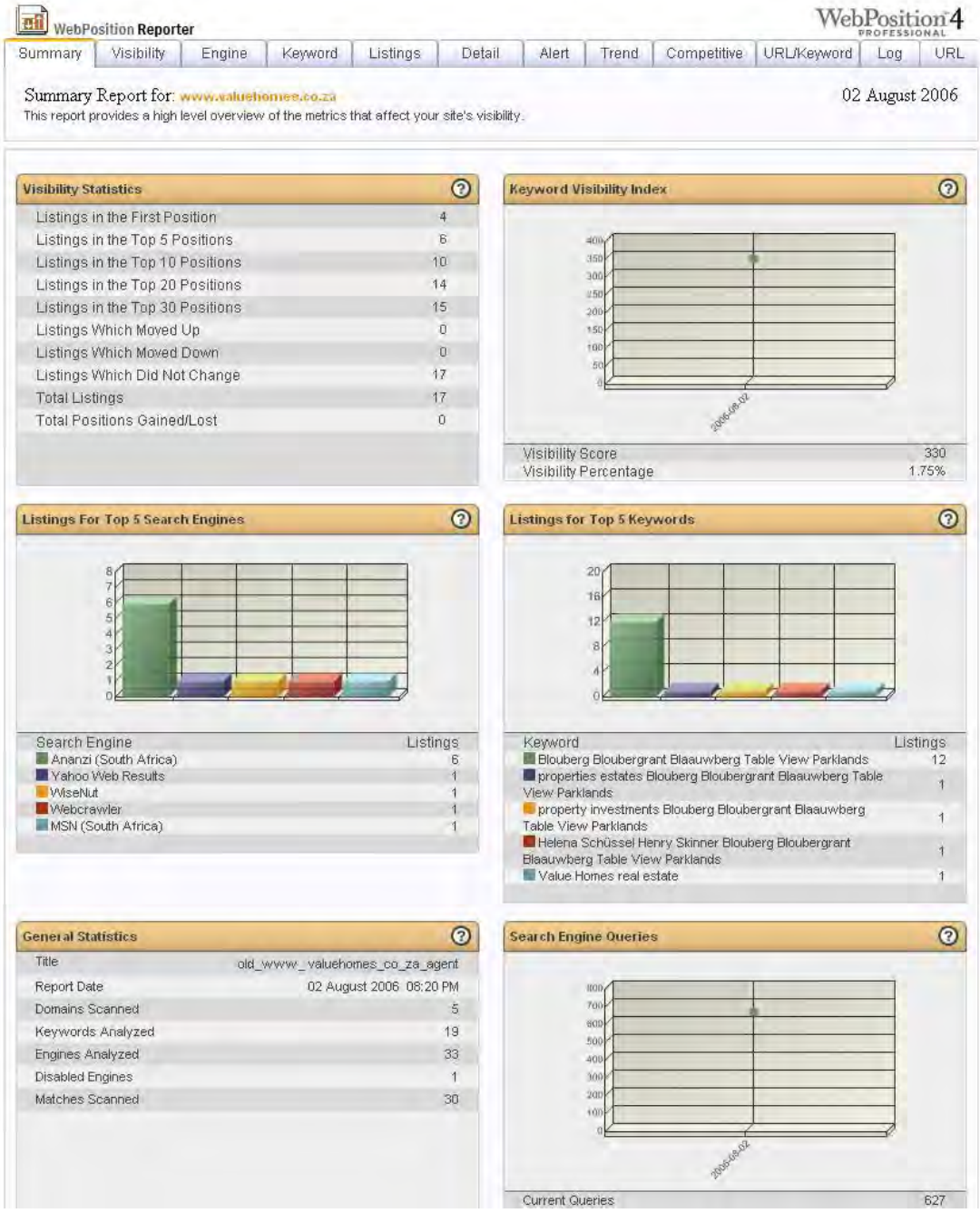
General Statistics

Title	old_www_valuehomes_co_za_rent
Report Date	02 August 2006 10:23 AM
Domains Scanned	5
Keywords Analyzed	31
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

APPENDIX E6

Experiment: Old Value Homes website with regard to 'agent'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.valuehomes.co.za — 02 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	4
Listings in the Top 5 Positions	6
Listings in the Top 10 Positions	10
Listings in the Top 20 Positions	14
Listings in the Top 30 Positions	15
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	17
Total Listings	17
Total Positions Gained/Lost	0

Keyword Visibility Index

Visibility Score	330
Visibility Percentage	1.75%

Listings For Top 5 Search Engines

Search Engine	Listings
Ananzi (South Africa)	6
Yahoo Web Results	1
WiseNut	1
Webcrawler	1
MSN (South Africa)	1

Listings for Top 5 Keywords

Keyword	Listings
Blouberg Bloubergrant Blaauwberg Table View Parklands	12
properties estates Blouberg Bloubergrant Blaauwberg Table View Parklands	1
property investments Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Helena Schüssel Henry Skinner Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Value Homes real estate	1

General Statistics

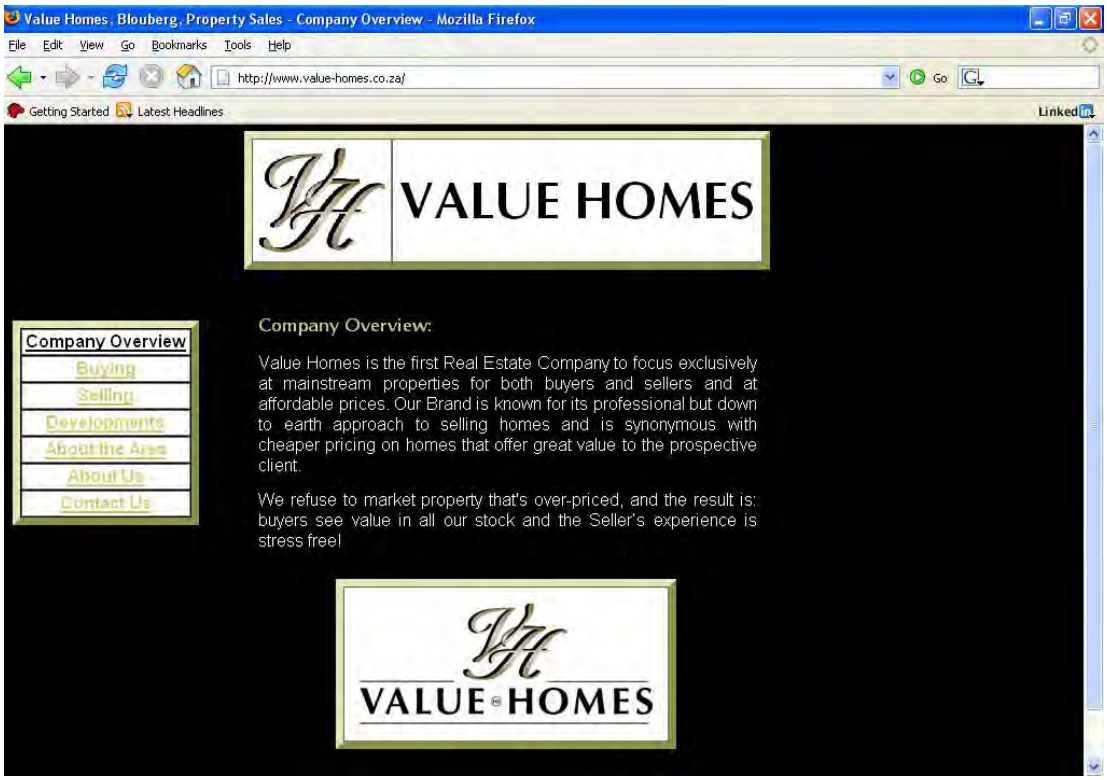
Title	old_www_valuehomes_co_za_agent
Report Date	02 August 2006 08:20 PM
Domains Scanned	5
Keywords Analyzed	19
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

Current Queries	627

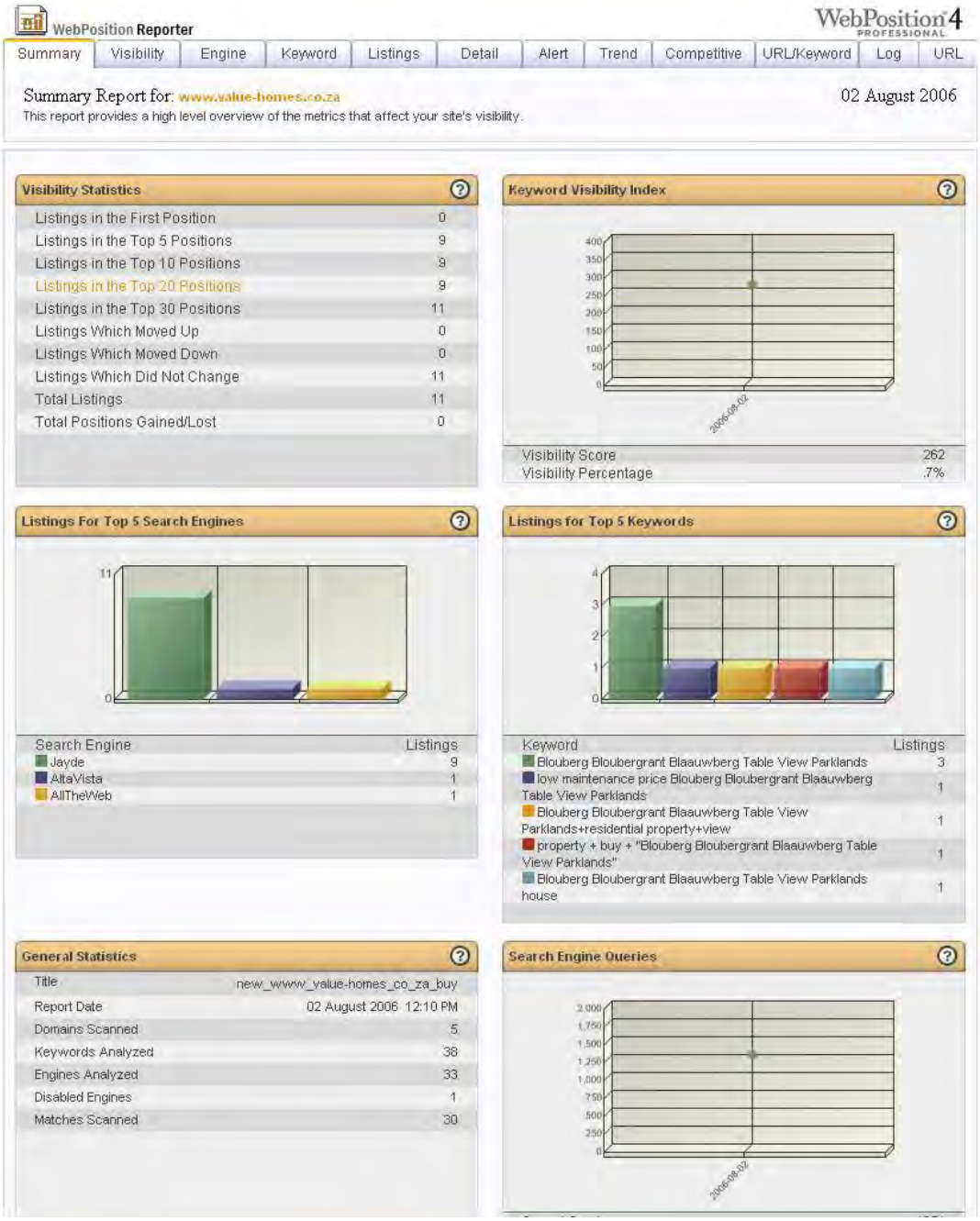
APPENDIX E7

New Value Homes website



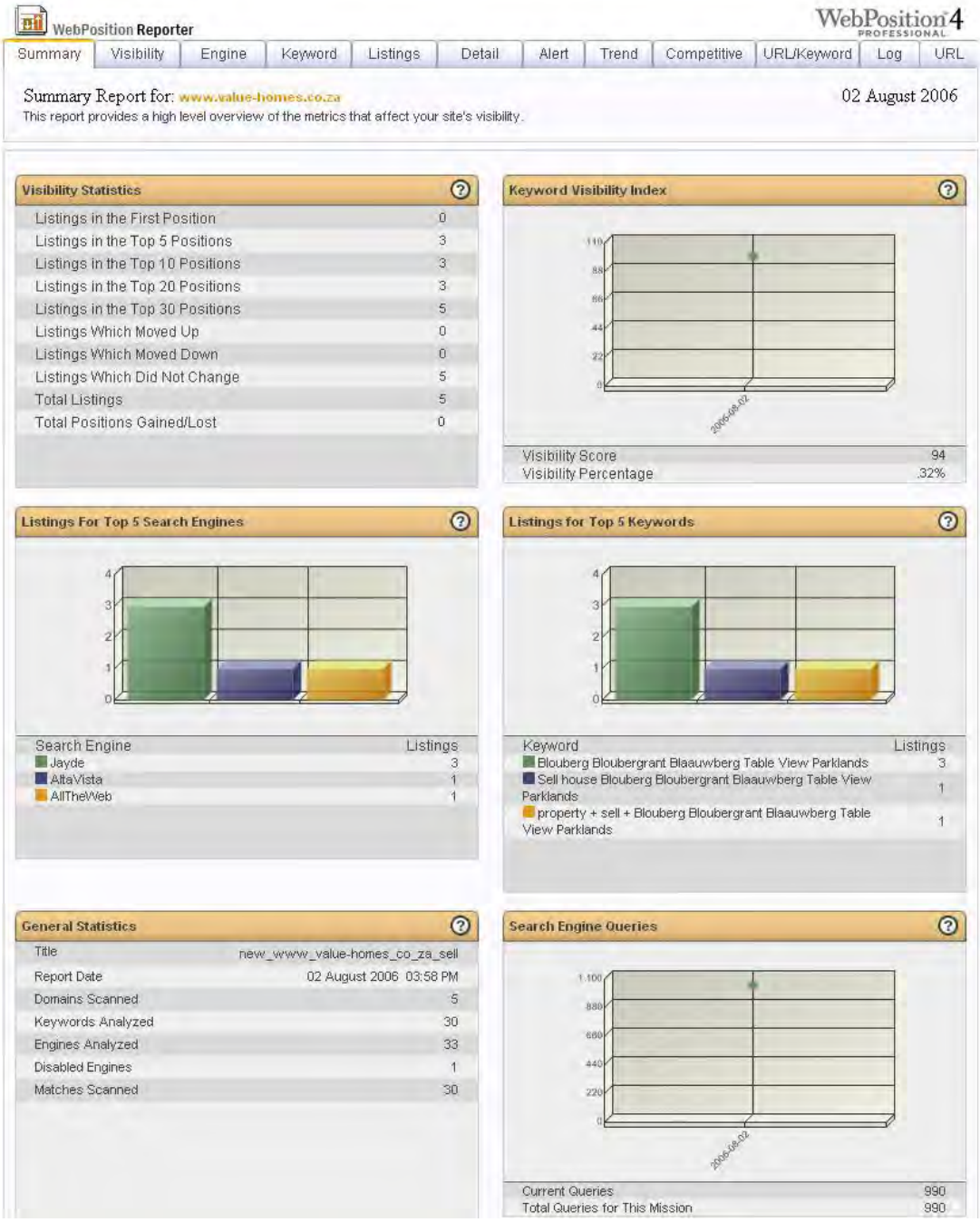
APPENDIX E8

Experiment: New Value Homes website with regard to 'buy'



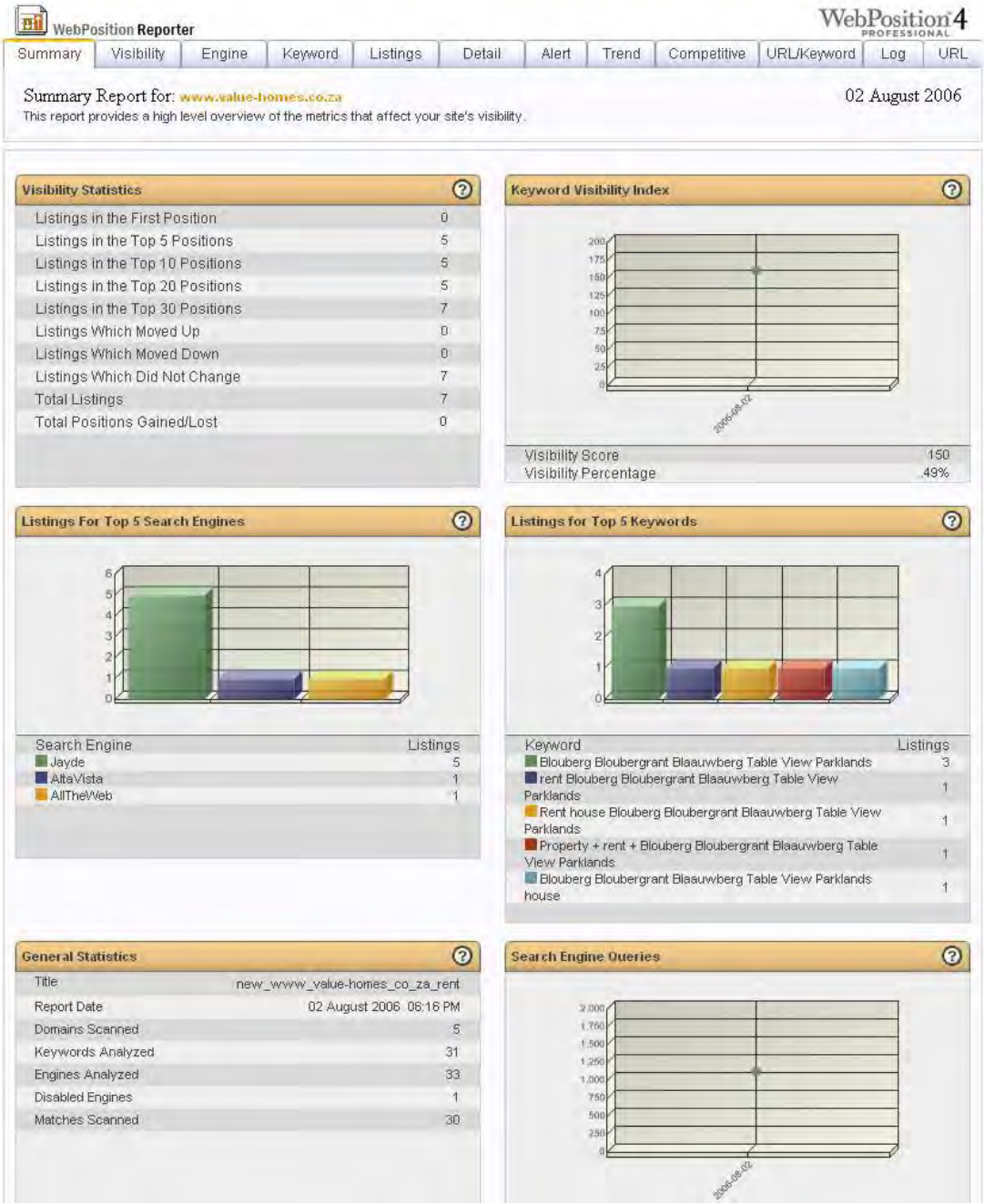
APPENDIX E9

Experiment: New Value Homes website with regard to 'sell'



APPENDIX E10

Experiment: New Value Homes website with regard to 'rent'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.value-homes.co.za

02 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	0
Listings in the Top 5 Positions	5
Listings in the Top 10 Positions	5
Listings in the Top 20 Positions	5
Listings in the Top 30 Positions	7
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	7
Total Listings	7
Total Positions Gained/Lost	0

Keyword Visibility Index

Visibility Score	150
Visibility Percentage	49%

Listings For Top 5 Search Engines

Search Engine	Listings
Jayde	5
AltaVista	1
AllTheWeb	1

Listings for Top 5 Keywords

Keyword	Listings
Blouberg Bloubergrant Blaauwberg Table View Parklands	3
rent Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Rent house Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Property + rent + Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Blouberg Bloubergrant Blaauwberg Table View Parklands house	1

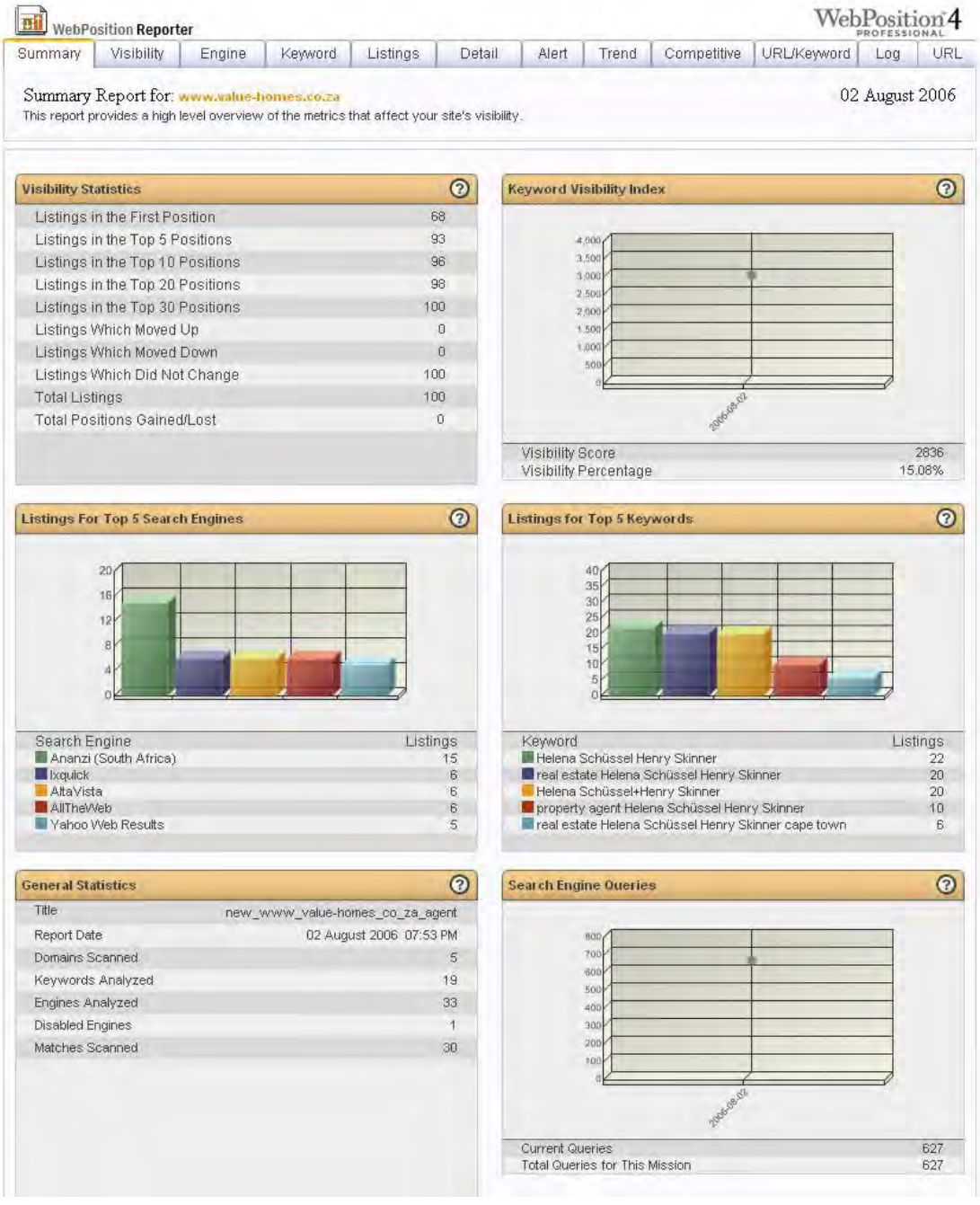
General Statistics

Title	new_www_value-homes_co_za_rent
Report Date	02 August 2006 06:16 PM
Domains Scanned	5
Keywords Analyzed	31
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

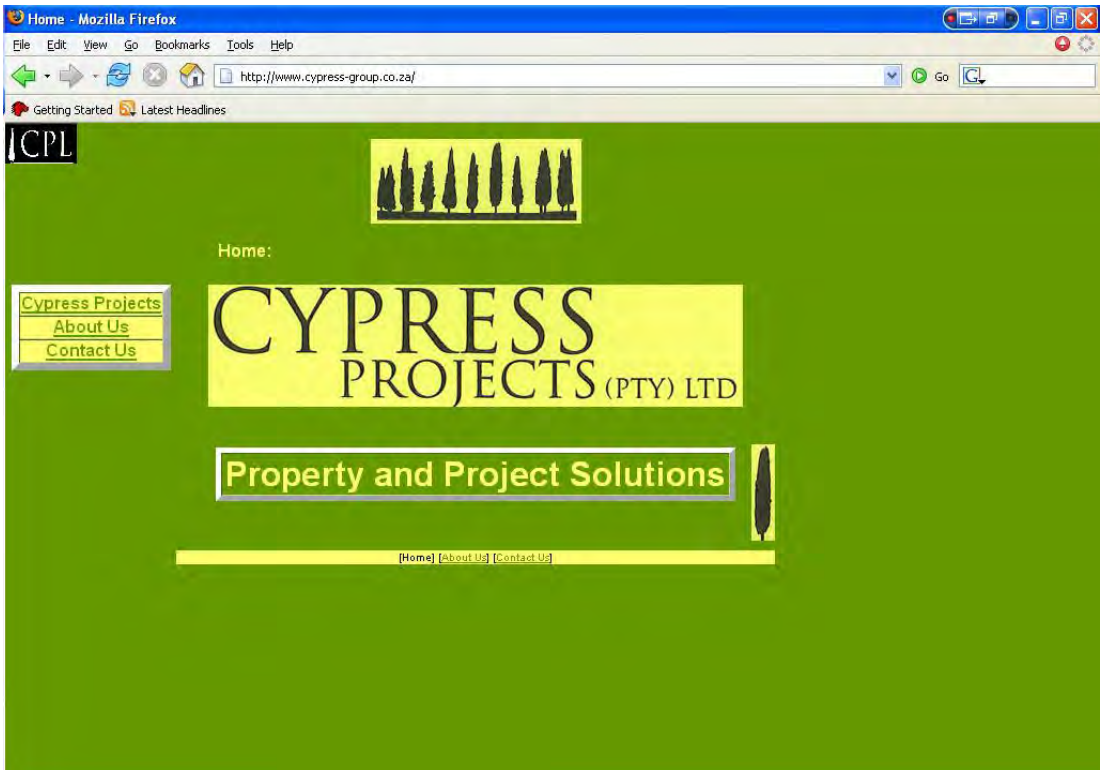
APPENDIX E11

Experiment: New Value Homes website with regard to 'agent'



APPENDIX F1

Old Cypress Projects website



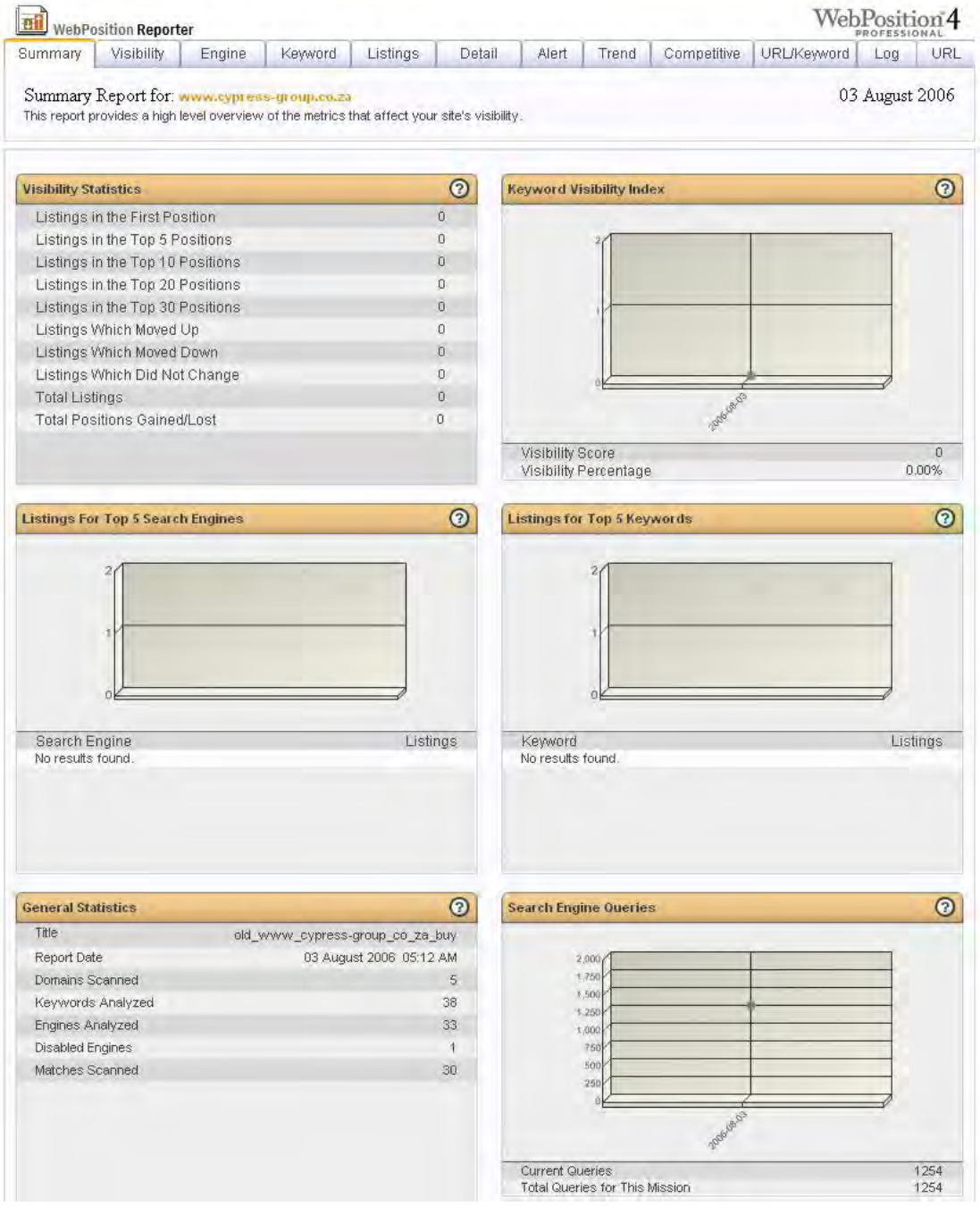
APPENDIX F2

‘Agent’ category search phrases for Cypress Projects real estate

1	"Mike Slabber"+ home + sell
2	"Mike Slabber” + "cypress projects real estate"
3	cypress projects real estate Mike Slabber Property For Sale
4	cypress projects real estate
5	Mike Slabber
6	Mike Slabber Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton
7	Mike Slabber home brokers
8	low commission
9	property investments Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton
10	properties estates Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton
11	property + Mike Slabber property + sell property + "for sale" "real estate" + "for sale"
12	property agent Mike Slabber
13	Property hourse flat Mike Slabber estate
14	Real estate agent Mike Slabber selling of property
15	real estate Mike Slabber cape town
16	real estate consultants Mike Slabber
17	real estate Mike Slabber
18	Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton

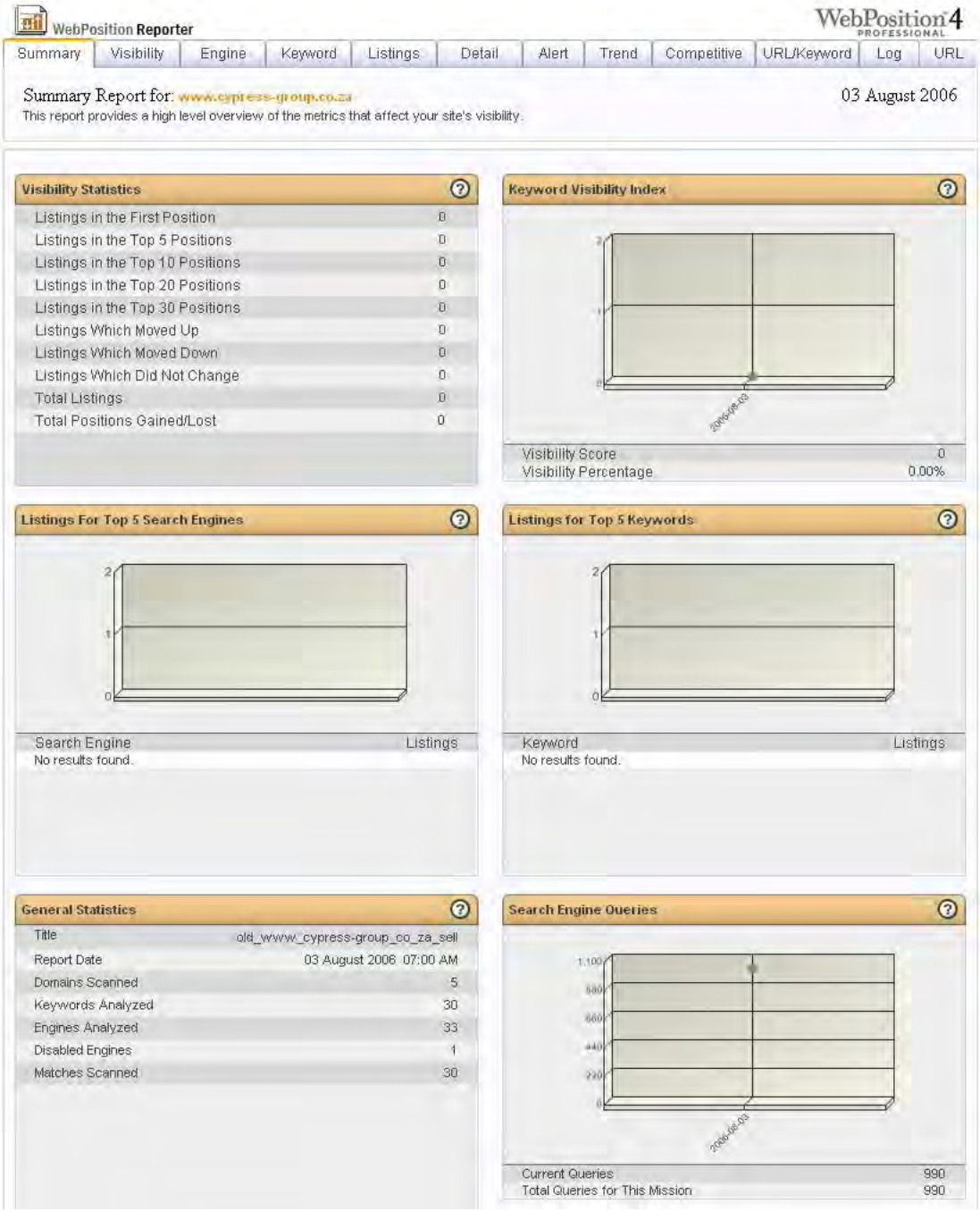
APPENDIX F3

Experiment: Old Cypress Projects website with regard to 'buy'



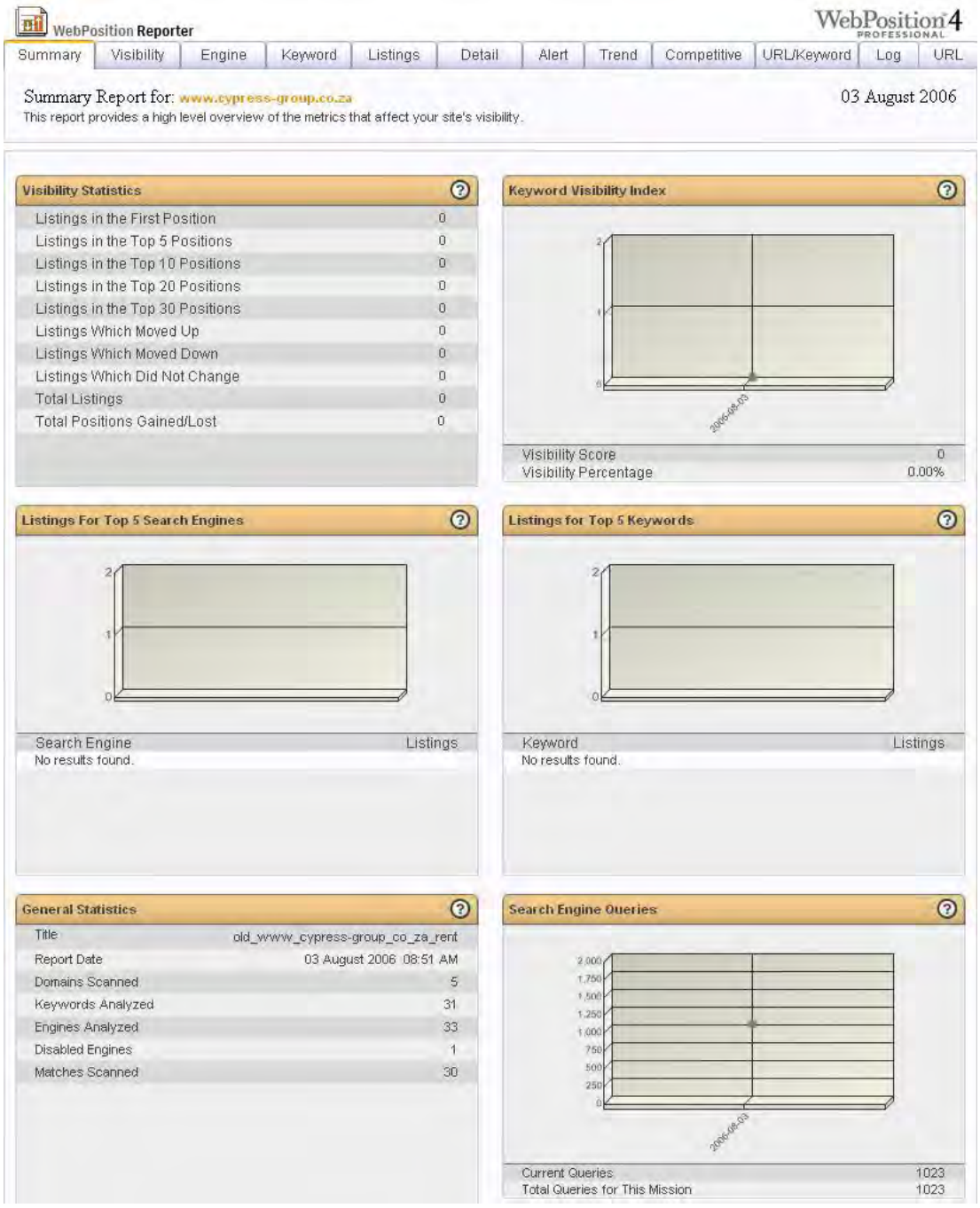
APPENDIX F4

Experiment: Old Cypress Projects website with regard to 'sell'



APPENDIX F5

Experiment: Old Cypress Projects website with regard to 'rent'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.cypress-group.co.za — 03 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	0
Listings in the Top 5 Positions	0
Listings in the Top 10 Positions	0
Listings in the Top 20 Positions	0
Listings in the Top 30 Positions	0
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	0
Total Listings	0
Total Positions Gained/Lost	0

Keyword Visibility Index

2
1
0
2006-08-03

Visibility Score	0
Visibility Percentage	0.00%

Listings For Top 5 Search Engines

2
1
0

Search Engine	Listings
No results found.	

Listings for Top 5 Keywords

2
1
0

Keyword	Listings
No results found.	

General Statistics

Title	old_www_cypress-group_co_za_rent
Report Date	03 August 2006 08:51 AM
Domains Scanned	5
Keywords Analyzed	31
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

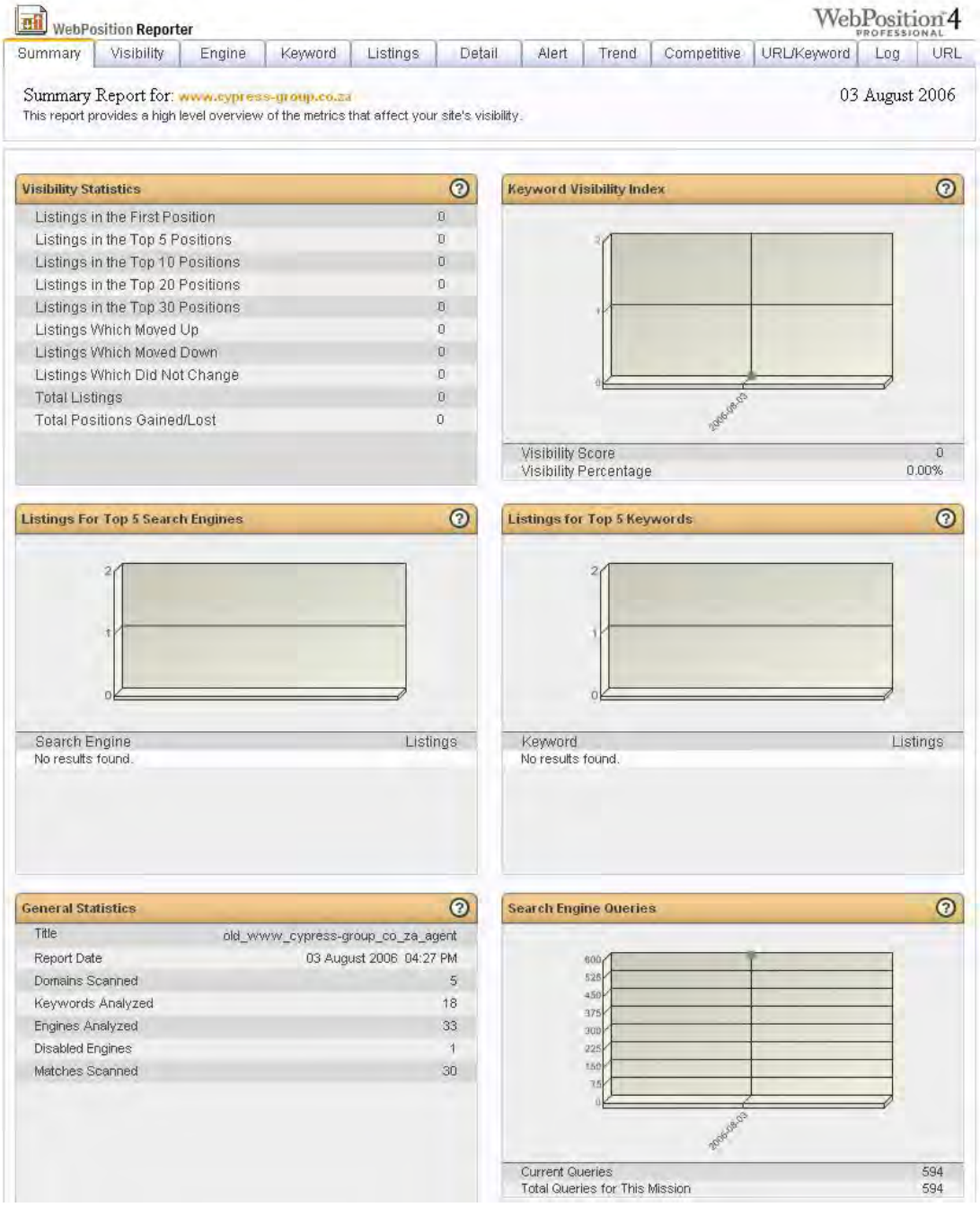
Search Engine Queries

2,000
1,750
1,500
1,250
1,000
750
500
250
0
2006-08-03

Current Queries	1023
Total Queries for This Mission	1023

APPENDIX F6

Experiment: Old Cypress Projects website with regard to 'agent'

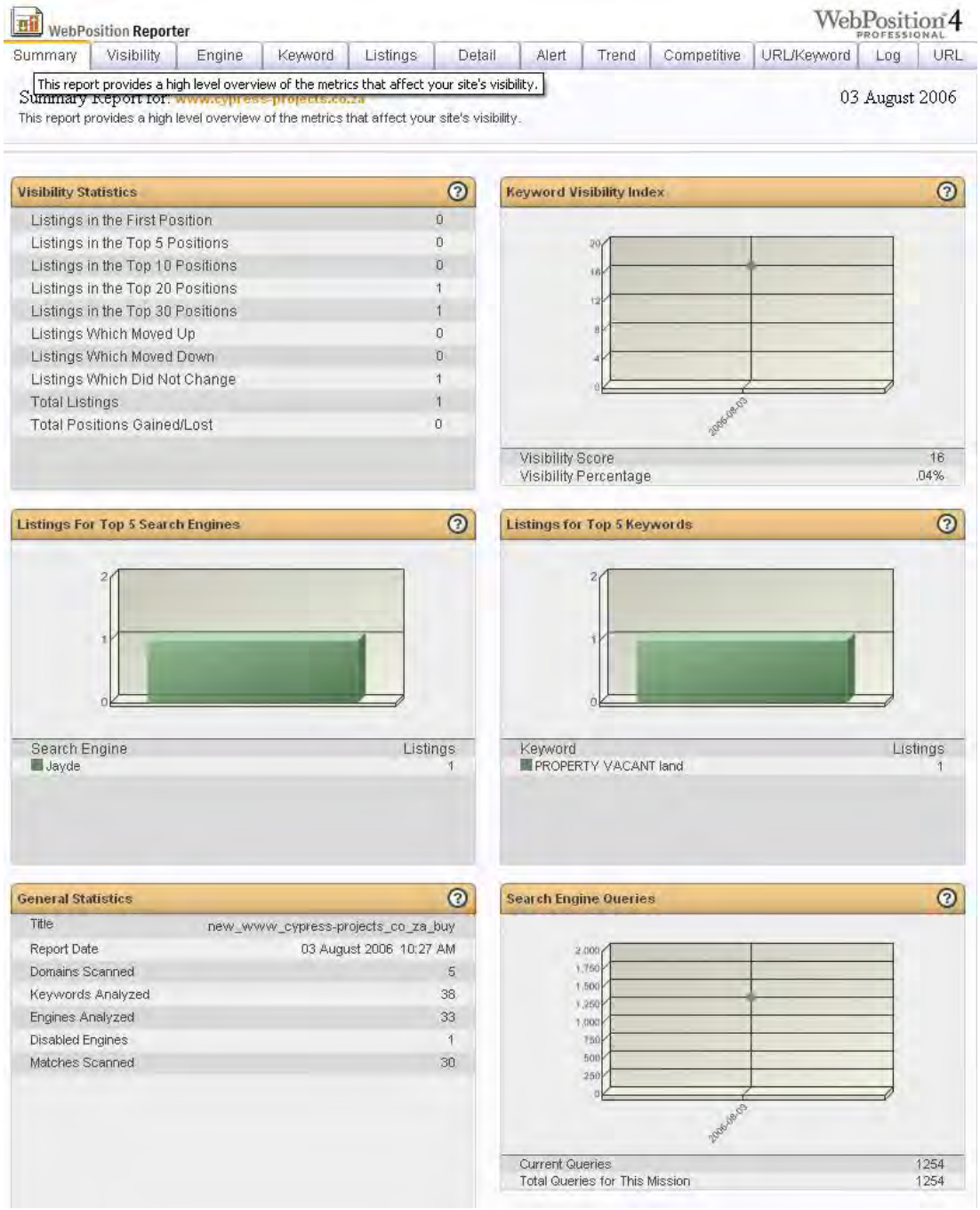


APPENDIX F7

New Cypress Projects website

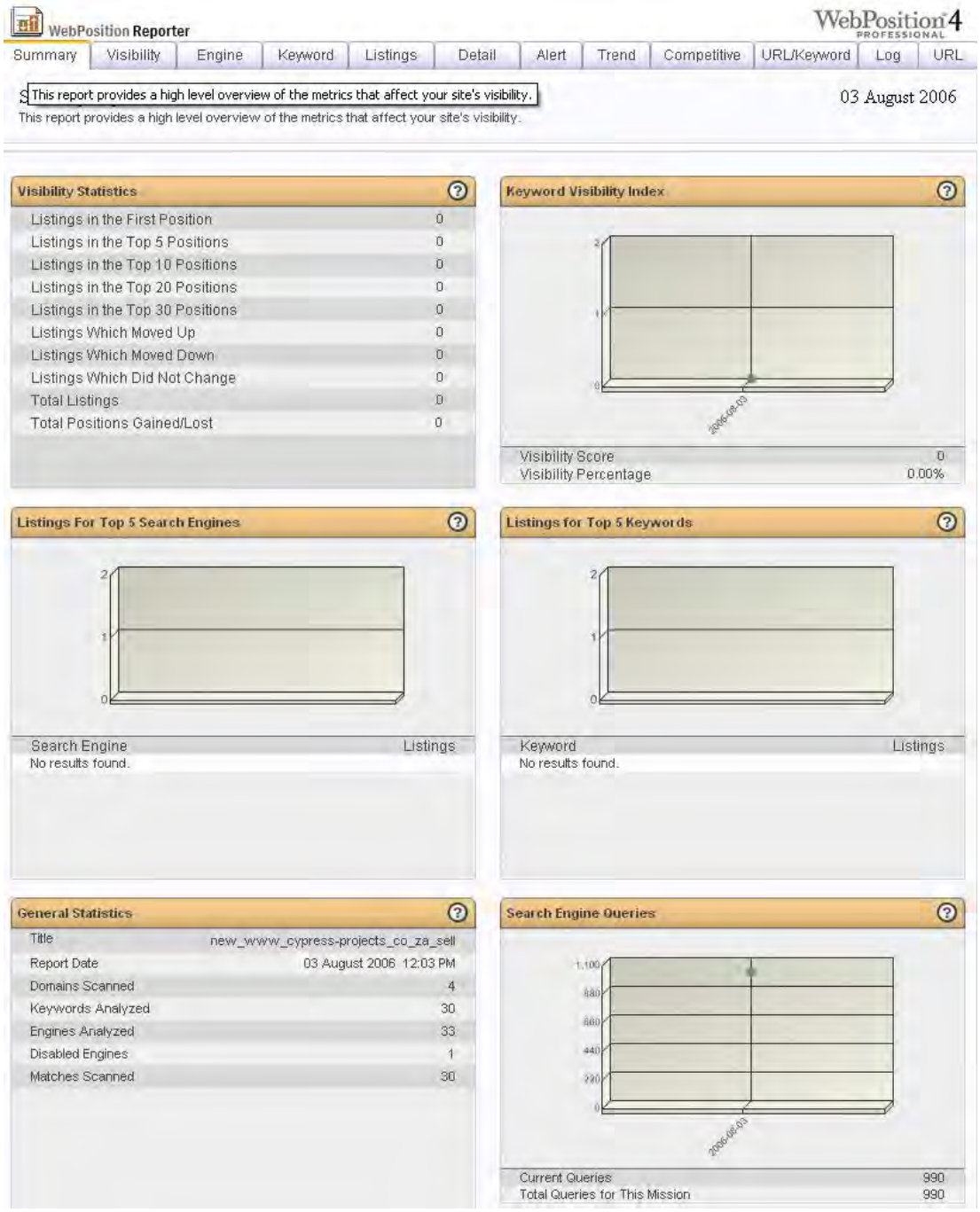
APPENDIX F8

Experiment: New Cypress Projects website with regard to 'buy'



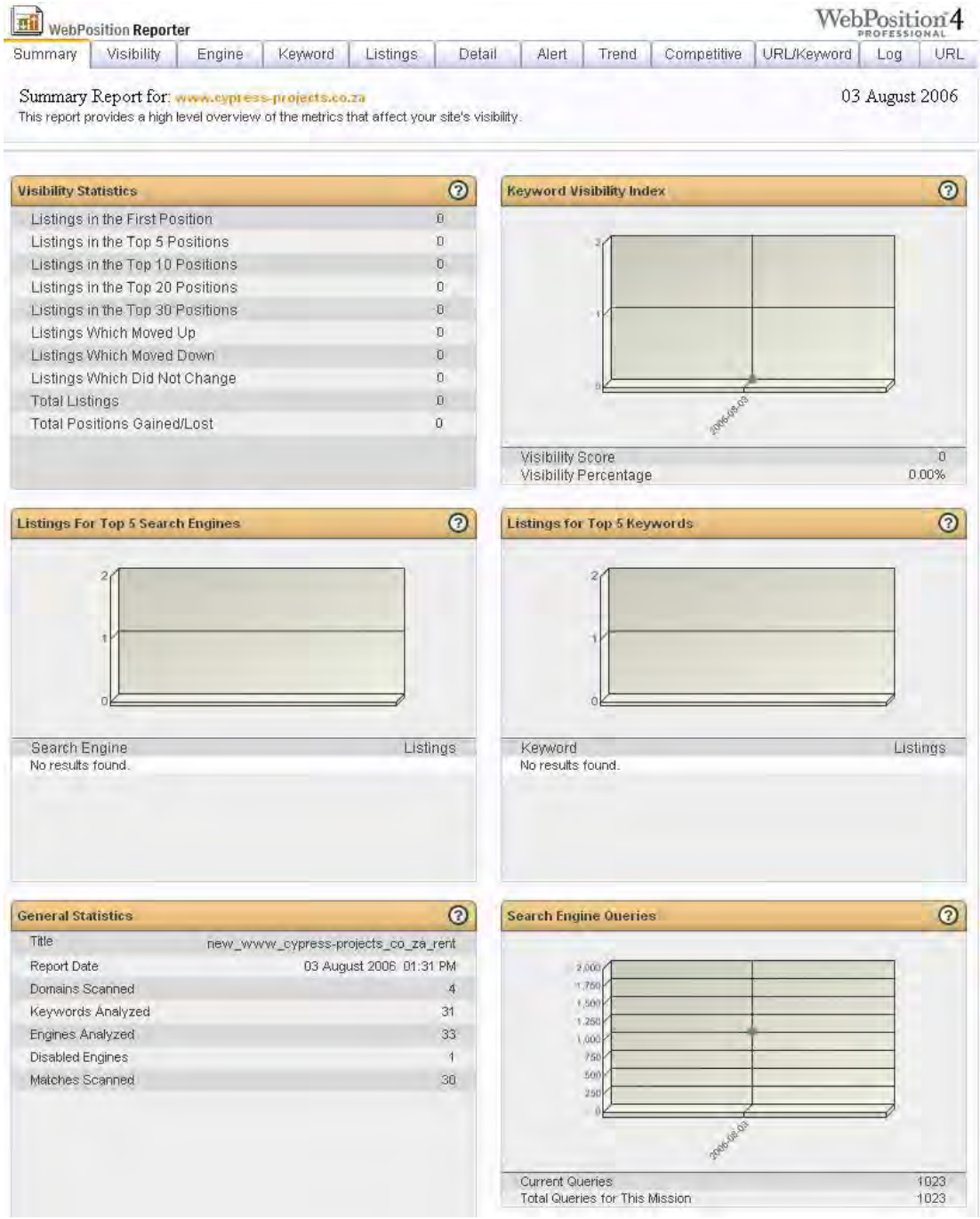
APPENDIX F9

Experiment: New Cypress Projects website with regard to 'sell'



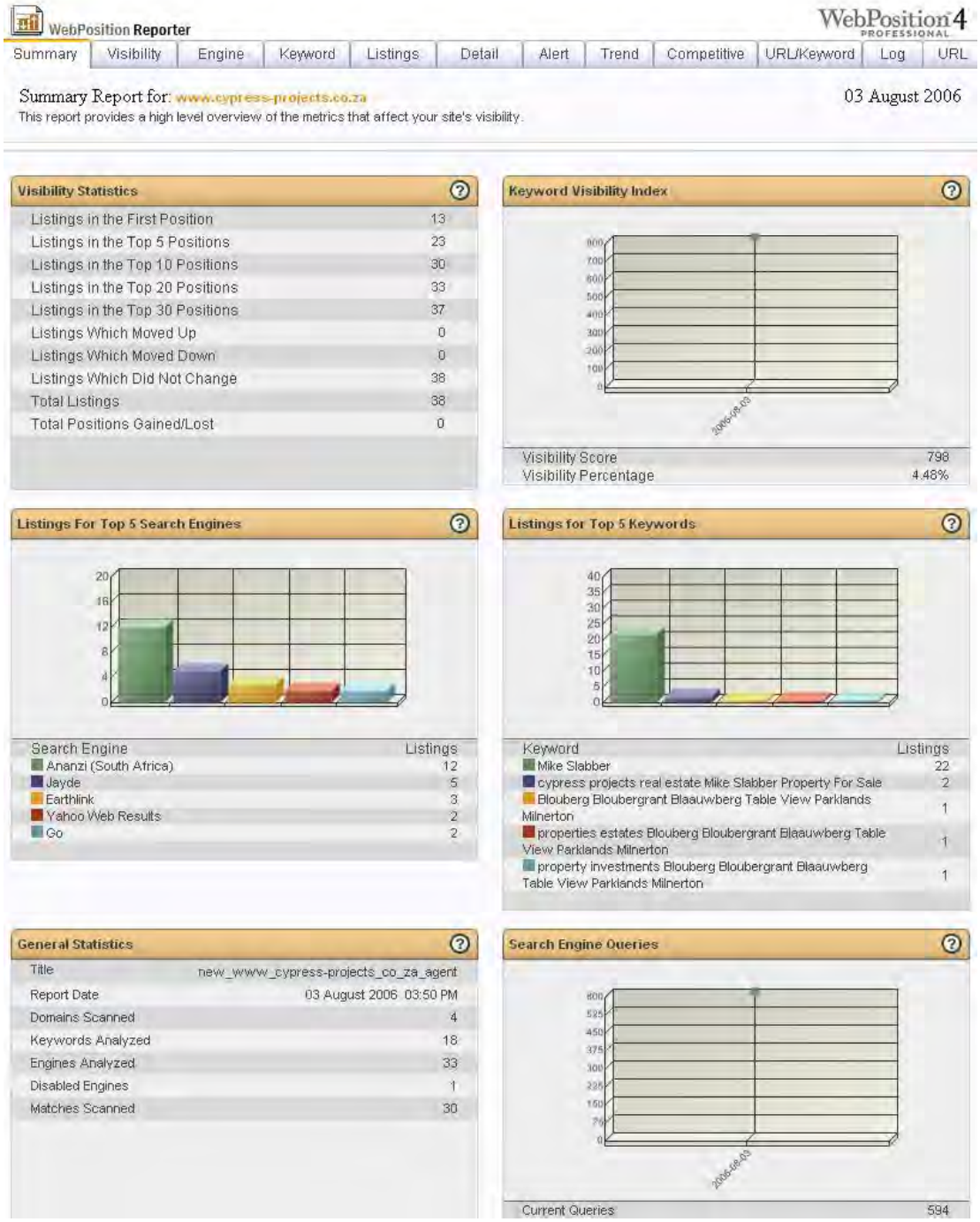
APPENDIX F10

Experiment: New Cypress Projects website with regard to 'rent'



APPENDIX F11

Experiment: New Cypress Projects website with regard to 'agent'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.cypress-projects.co.za

03 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	13
Listings in the Top 5 Positions	23
Listings in the Top 10 Positions	30
Listings in the Top 20 Positions	33
Listings in the Top 30 Positions	37
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	38
Total Listings	38
Total Positions Gained/Lost	0

Keyword Visibility Index

Visibility Score	798
Visibility Percentage	4.48%

Listings For Top 5 Search Engines

Search Engine	Listings
Ananzi (South Africa)	12
Jayde	5
Earthlink	3
Yahoo Web Results	2
Go	2

Listings for Top 5 Keywords

Keyword	Listings
Mike Slabber	22
cypress projects real estate Mike Slabber Property For Sale	2
Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton	1
properties estates Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton	1
property investments Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton	1

General Statistics

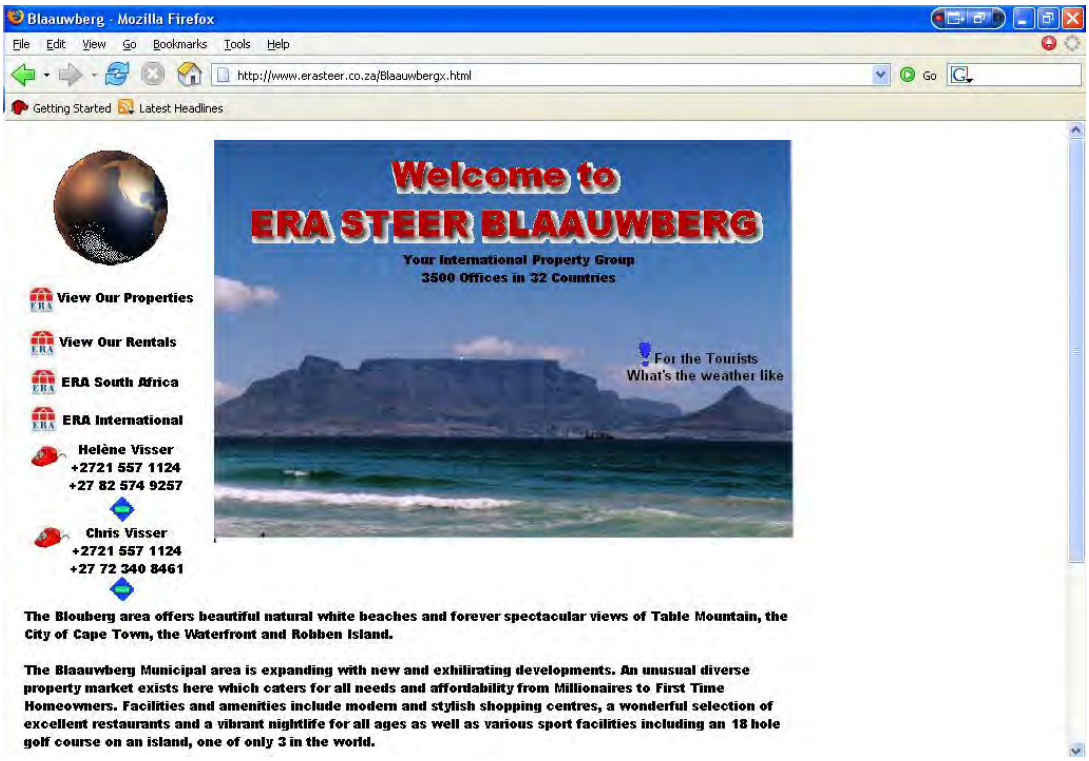
Title	new_www_cypress-projects_co_za_agent
Report Date	03 August 2006 03:50 PM
Domains Scanned	4
Keywords Analyzed	18
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

Current Queries	594

APPENDIX G1

Old ERA Steer Blaauwberg website



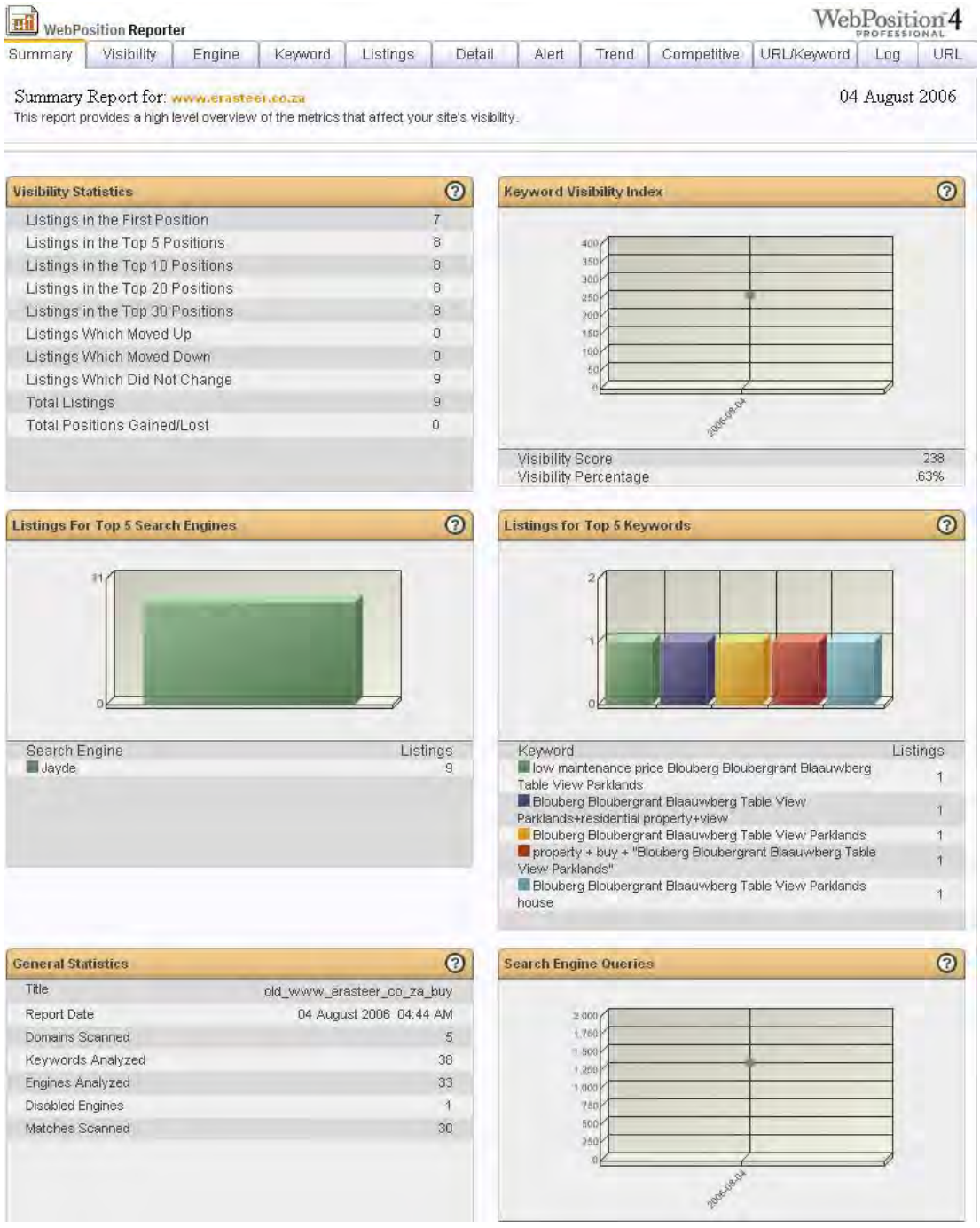
APPENDIX G2

'Agent' category search phrases for ERA Steer Blaauwberg real estate

1	"Helene Visser"+ home + sell
2	"Helene Visser" + "ERA Steer Blaauwberg real estate"
3	ERA Steer Blaauwberg real estate Helene Visser Property For Sale
4	ERA Steer Blaauwberg real estate
5	Helene Visser
6	Helene Visser Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton
7	Helene Visser home brokers
8	low commission
9	property investments Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton
10	properties estates Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton
11	property + Helene Visser property + sell property + "for sale" "real estate" + "for sale"
12	property agent Helene Visser
13	Property hourse flat Helene Visser estate
14	Real estate agent Helene Visser selling of property
15	real estate Helene Visser cape town
16	real estate consultants Helene Visser
17	real estate Helene Visser
18	Blouberg Bloubergrant Blaauwberg Table View Parklands Milnerton

APPENDIX G3

Experiment: Old ERA Steer Blaauwberg website with regard to 'buy'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.erasteer.co.za

04 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	7
Listings in the Top 5 Positions	8
Listings in the Top 10 Positions	8
Listings in the Top 20 Positions	8
Listings in the Top 30 Positions	8
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	9
Total Listings	9
Total Positions Gained/Lost	0

Keyword Visibility Index

400 350 300 250 200 150 100 50 0

2006-08-04

Visibility Score	238
Visibility Percentage	63%

Listings For Top 5 Search Engines

1 0

Search Engine	Listings
Jayde	9

Listings for Top 5 Keywords

2 1 0

Keyword	Listings
low maintenance price Blouberg Bloubergrant Blaauwberg Table View Parklands	1
Blouberg Bloubergrant Blaauwberg Table View Parklands+residential property+view	1
Blouberg Bloubergrant Blaauwberg Table View Parklands	1
property + buy + "Blouberg Bloubergrant Blaauwberg Table View Parklands"	1
Blouberg Bloubergrant Blaauwberg Table View Parklands house	1

General Statistics

Title	old_www_erasteer_co_za_buy
Report Date	04 August 2006 04:44 AM
Domains Scanned	5
Keywords Analyzed	38
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

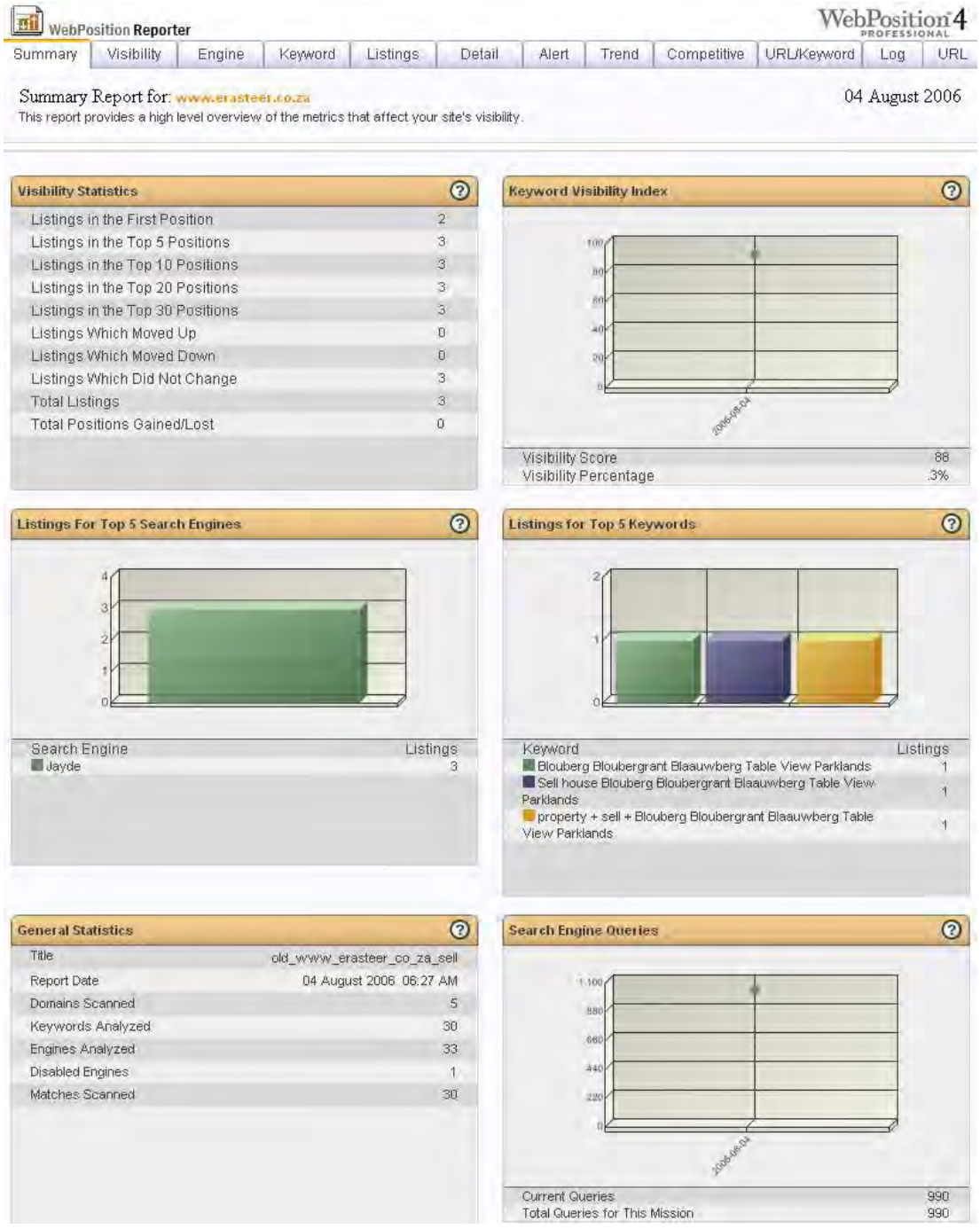
Search Engine Queries

2,000 1,750 1,500 1,250 1,000 750 500 250 0

2006-08-04

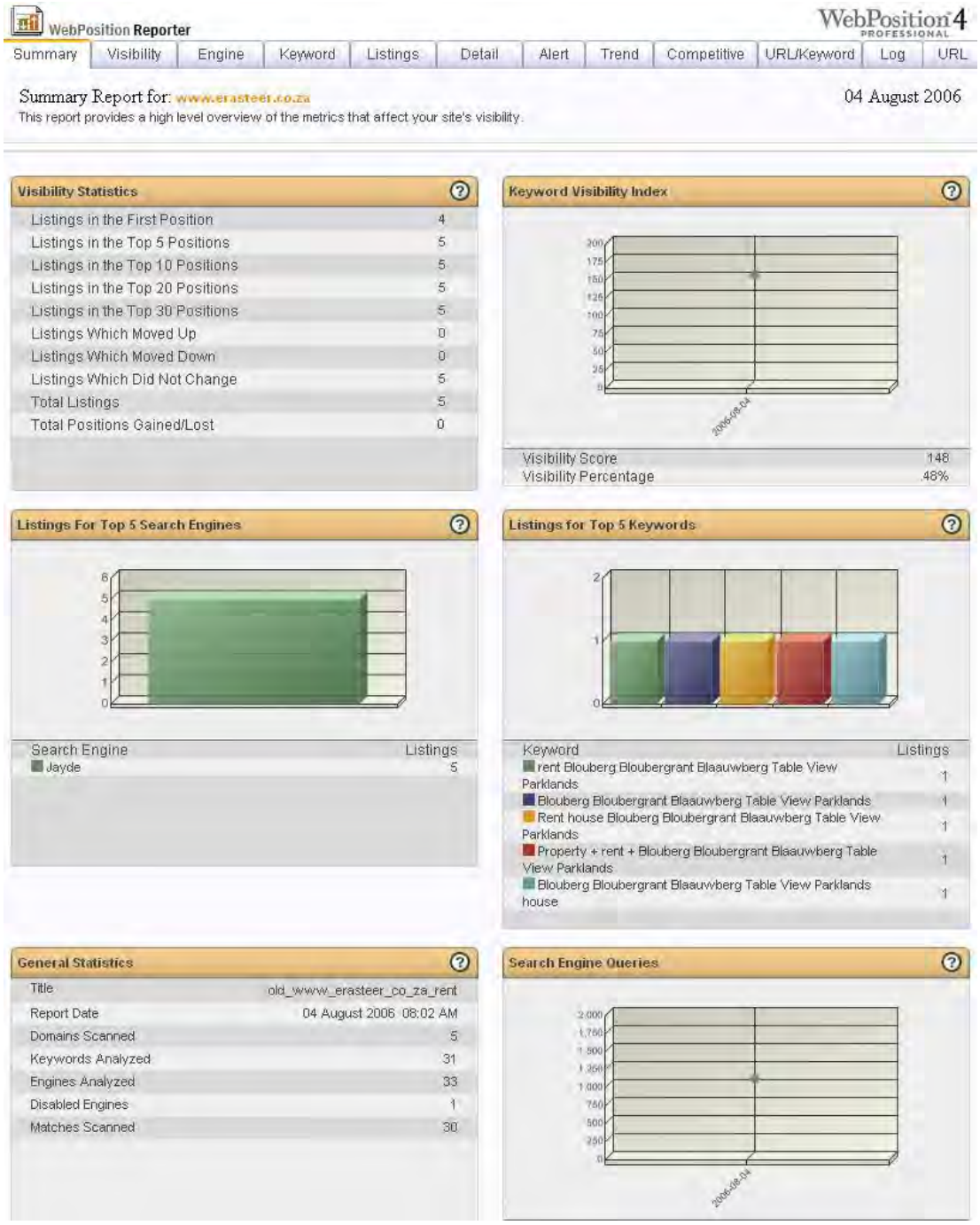
APPENDIX G4

Experiment: Old ERA Steer Blaauwberg website with regard to 'sell'



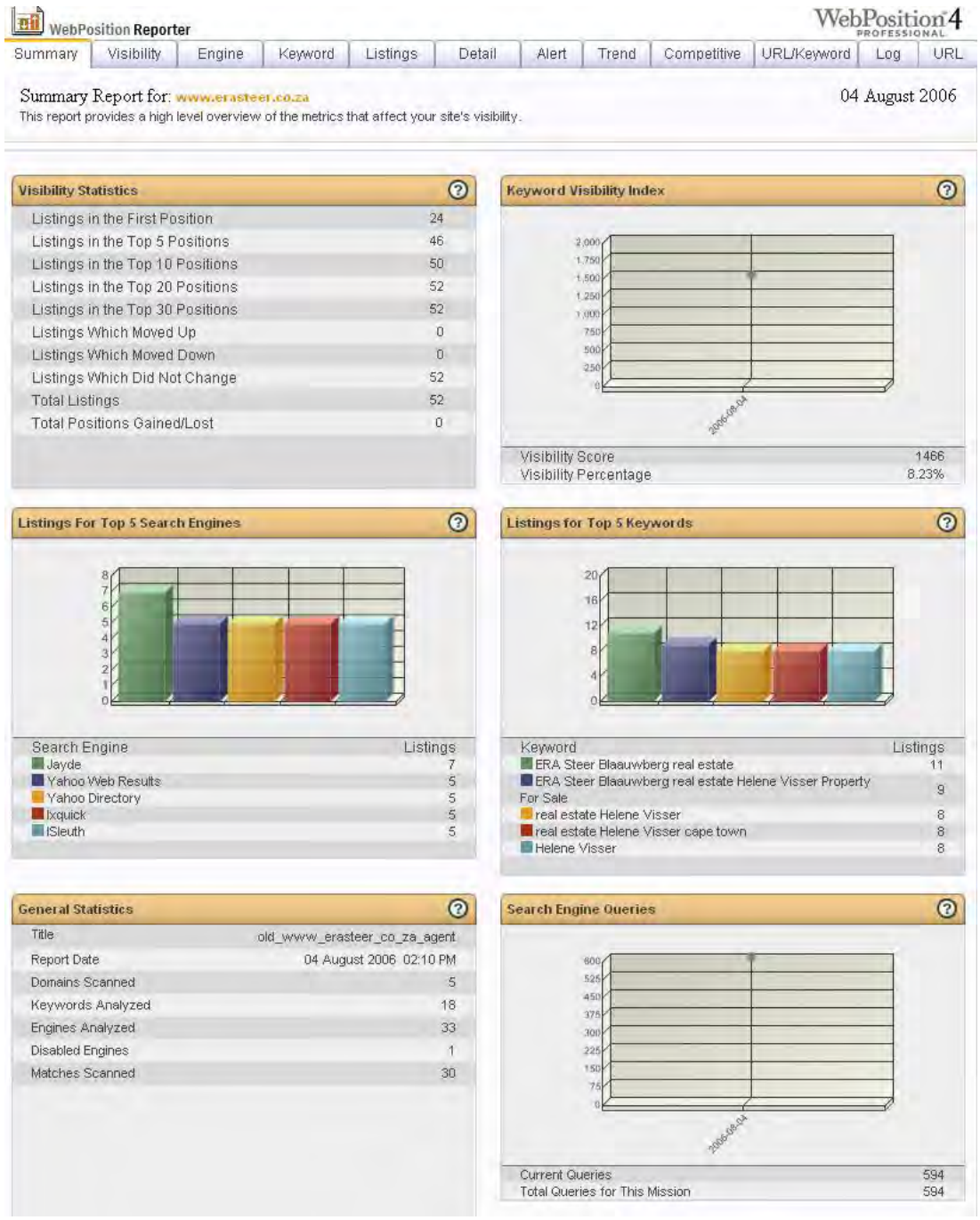
APPENDIX G5

Experiment: Old ERA Steer Blaauwberg website with regard to 'rent'



APPENDIX G6

Experiment: Old ERA Steer Blaauwberg website with regard to 'agent'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.erasteer.co.za

04 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	24
Listings in the Top 5 Positions	46
Listings in the Top 10 Positions	50
Listings in the Top 20 Positions	52
Listings in the Top 30 Positions	52
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	52
Total Listings	52
Total Positions Gained/Lost	0

Keyword Visibility Index

2,000 1,750 1,500 1,250 1,000 750 500 250 0

2006-08-04

Visibility Score	1466
Visibility Percentage	8.23%

Listings For Top 5 Search Engines

8 7 6 5 4 3 2 1 0

Search Engine	Listings
Jayde	7
Yahoo Web Results	5
Yahoo Directory	5
Ixquick	5
iSleuth	5

Listings for Top 5 Keywords

20 16 12 8 4 0

Keyword	Listings
ERA Steer Blaauwberg real estate	11
ERA Steer Blaauwberg real estate Helene Visser Property For Sale	9
real estate Helene Visser	8
real estate Helene Visser cape town	8
Helene Visser	8

General Statistics

Title	old_www_erasteer_co_za_agent
Report Date	04 August 2006 02:10 PM
Domains Scanned	5
Keywords Analyzed	18
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

600 525 450 375 300 225 150 75 0

2006-08-04

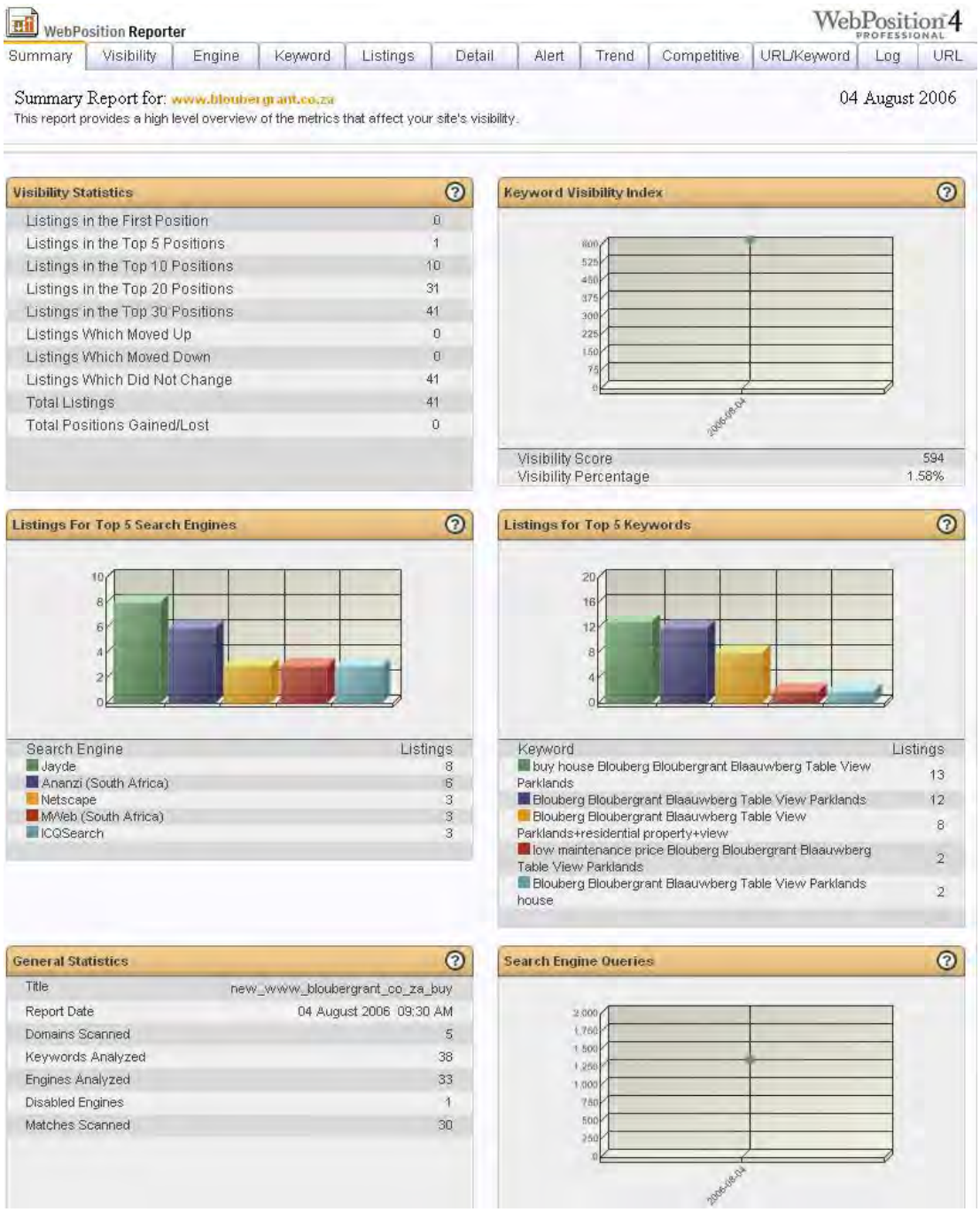
Current Queries	594
Total Queries for This Mission	594

APPENDIX G7

New ERA Steer Blaauwberg website

APPENDIX G8

Experiment: New ERA Steer Blaauwberg website with regard to 'buy'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.bloubergrant.co.za

04 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	0
Listings in the Top 5 Positions	1
Listings in the Top 10 Positions	10
Listings in the Top 20 Positions	31
Listings in the Top 30 Positions	41
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	41
Total Listings	41
Total Positions Gained/Lost	0

Keyword Visibility Index

Visibility Score	594
Visibility Percentage	1.58%

Listings For Top 5 Search Engines

Search Engine	Listings
Jayde	8
Ananzi (South Africa)	6
Netscape	3
MWeb (South Africa)	3
ICQSearch	3

Listings for Top 5 Keywords

Keyword	Listings
buy house Blouberg Bloubergrant Blaauwberg Table View Parklands	13
Blouberg Bloubergrant Blaauwberg Table View Parklands	12
Blouberg Bloubergrant Blaauwberg Table View Parklands+residential property+view	8
low maintenance price Blouberg Bloubergrant Blaauwberg Table View Parklands	2
Blouberg Bloubergrant Blaauwberg Table View Parklands house	2

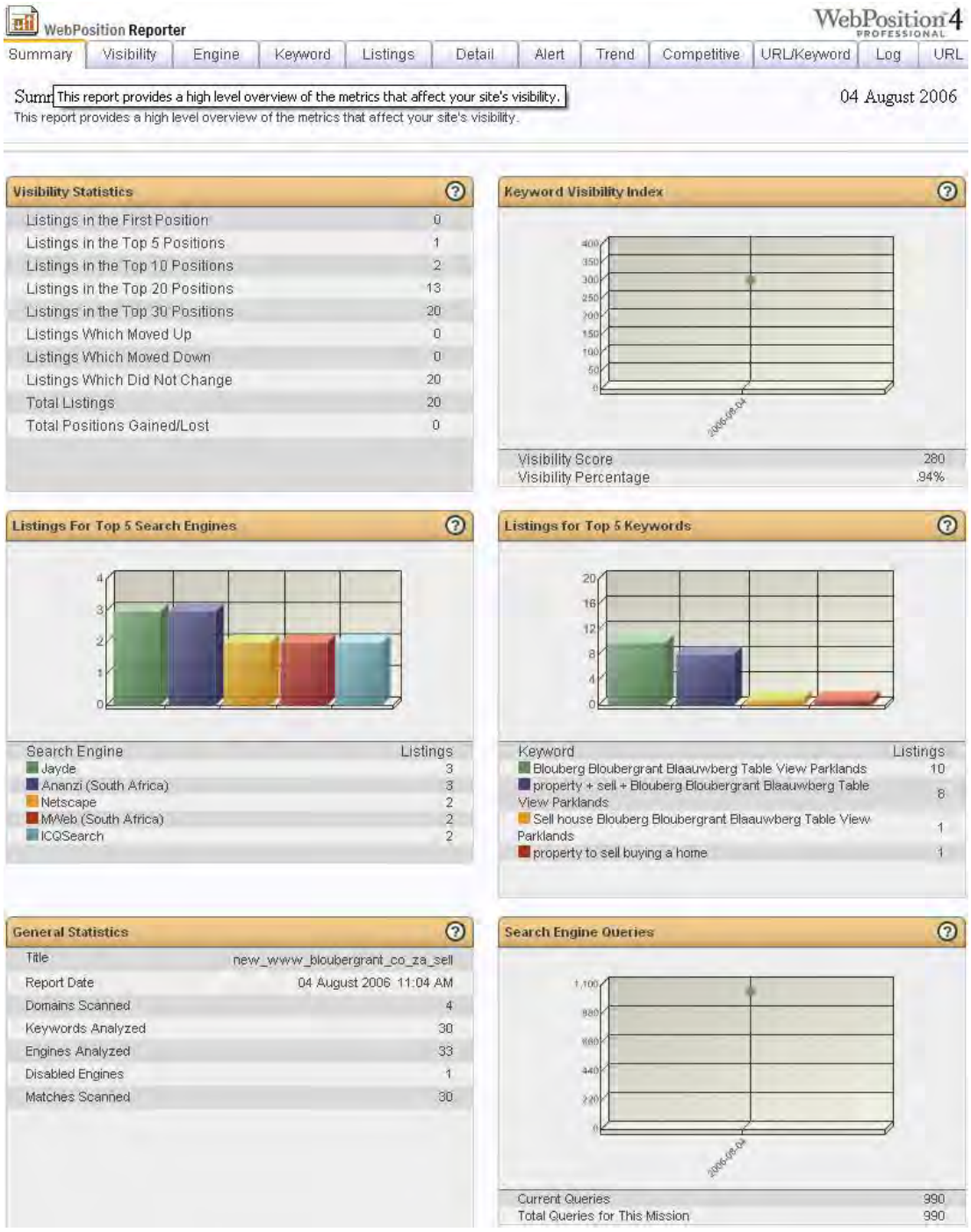
General Statistics

Title	new_www_bloubergrant_co_za_buy
Report Date	04 August 2006 09:30 AM
Domains Scanned	5
Keywords Analyzed	38
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

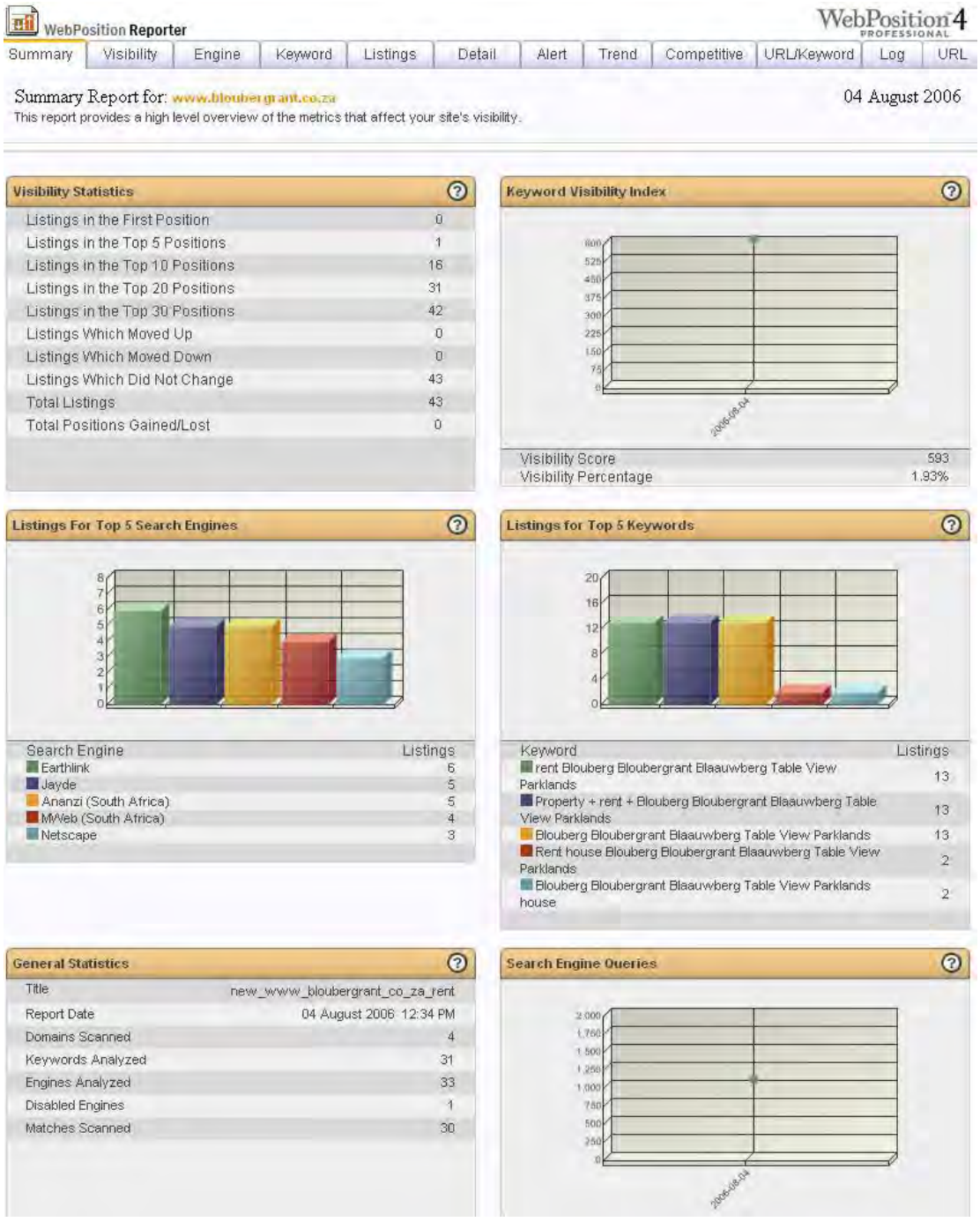
APPENDIX G9

Experiment: New ERA Steer Blaauwberg website with regard to 'sell'



APPENDIX G10

Experiment: New ERA Steer Blaauwberg website with regard to 'rent'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.bloubergrant.co.za

04 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	0
Listings in the Top 5 Positions	1
Listings in the Top 10 Positions	16
Listings in the Top 20 Positions	31
Listings in the Top 30 Positions	42
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	43
Total Listings	43
Total Positions Gained/Lost	0

Keyword Visibility Index

Visibility Score	593
Visibility Percentage	1.93%

Listings For Top 5 Search Engines

Search Engine	Listings
Earthlink	6
Jayde	5
Ananzi (South Africa)	5
MWeb (South Africa)	4
Netscape	3

Listings for Top 5 Keywords

Keyword	Listings
rent Blouberg Bloubergrant Blaauwberg Table View Parklands	13
Property + rent + Blouberg Bloubergrant Blaauwberg Table View Parklands	13
Blouberg Bloubergrant Blaauwberg Table View Parklands	13
Rent house Blouberg Bloubergrant Blaauwberg Table View Parklands	2
Blouberg Bloubergrant Blaauwberg Table View Parklands house	2

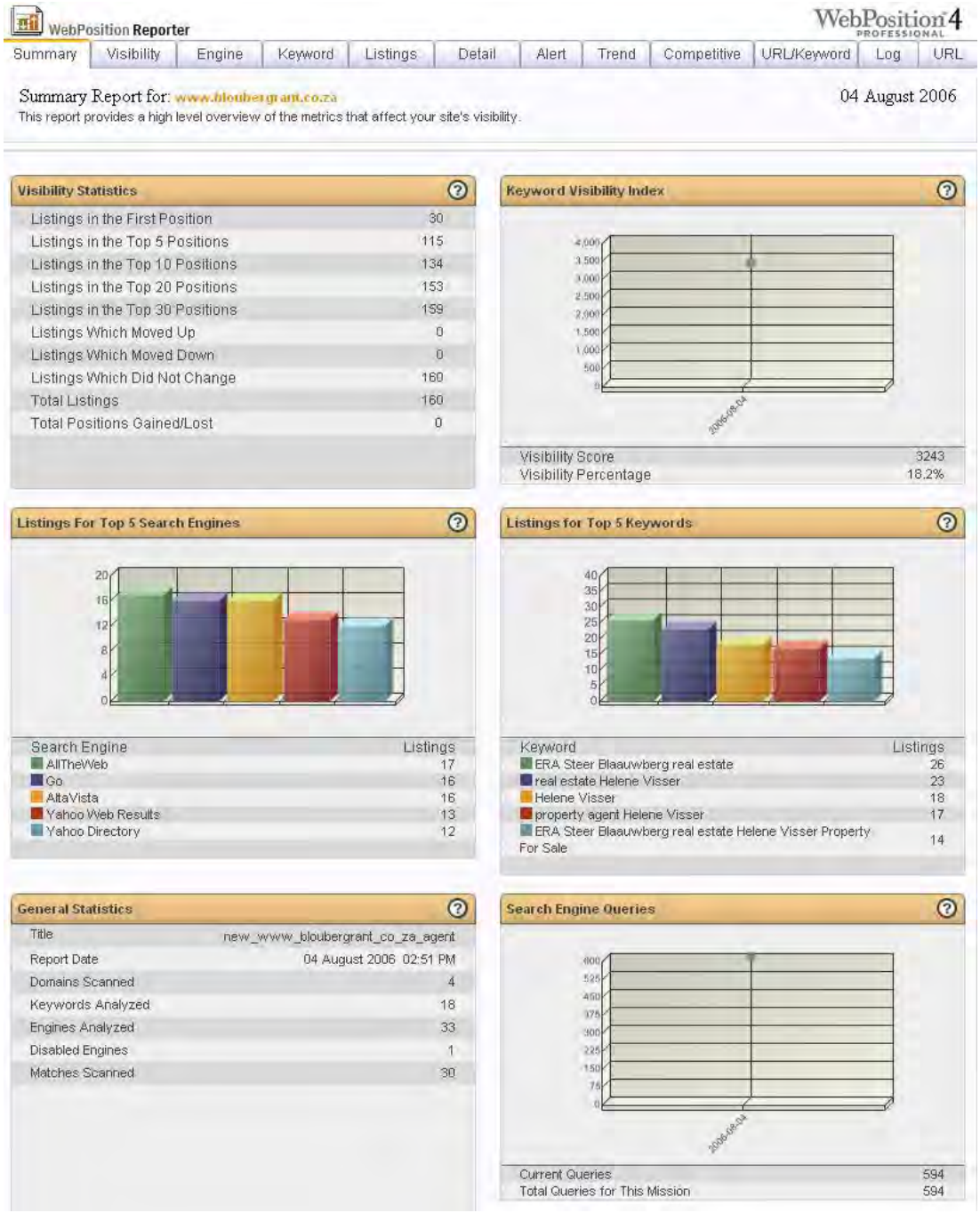
General Statistics

Title	new_www_bloubergrant_co_za_rent
Report Date	04 August 2006 12:34 PM
Domains Scanned	4
Keywords Analyzed	31
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

APPENDIX G11

Experiment: New ERA Steer Blaauwberg website with regard to 'agent'



WebPosition Reporter

WebPosition 4 PROFESSIONAL

Summary | Visibility | Engine | Keyword | Listings | Detail | Alert | Trend | Competitive | URL/Keyword | Log | URL

Summary Report for: www.bloubergrant.co.za

04 August 2006

This report provides a high level overview of the metrics that affect your site's visibility.

Visibility Statistics

Listings in the First Position	30
Listings in the Top 5 Positions	115
Listings in the Top 10 Positions	134
Listings in the Top 20 Positions	153
Listings in the Top 30 Positions	159
Listings Which Moved Up	0
Listings Which Moved Down	0
Listings Which Did Not Change	160
Total Listings	160
Total Positions Gained/Lost	0

Keyword Visibility Index

Visibility Score	3243
Visibility Percentage	18.2%

Listings For Top 5 Search Engines

Search Engine	Listings
AllTheWeb	17
Go	16
AltaVista	16
Yahoo Web Results	13
Yahoo Directory	12

Listings for Top 5 Keywords

Keyword	Listings
ERA Steer Blaauwberg real estate	26
real estate Helene Visser	23
Helene Visser	18
property agent Helene Visser	17
ERA Steer Blaauwberg real estate Helene Visser Property For Sale	14

General Statistics

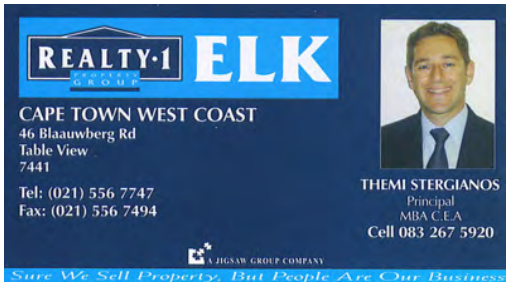
Title	new_www_bloubergrant_co_za_agent
Report Date	04 August 2006 02:51 PM
Domains Scanned	4
Keywords Analyzed	18
Engines Analyzed	33
Disabled Engines	1
Matches Scanned	30

Search Engine Queries

Current Queries	594
Total Queries for This Mission	594

APPENDIX H1

Old Realty1elk website



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ERROR: stackunderflow
OFFENDING COMMAND: ~

STACK:
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