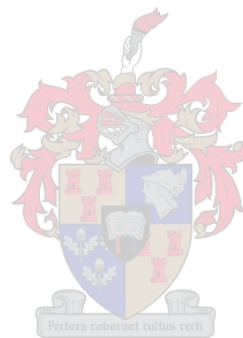Utilising Competitive Intelligence, a key component of Knowledge Management, To Formulate A Strategy To Develop And Manage International Markets.

Jose Javier Marsal

Supervisor: Dr MS van der Walt

April 2006

Declaration

I, the undersigned, hereby declare that the work contained in this assignment is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Signature: ……………………………………..   Date: …………………………..

Abstract

Research Problem: Research commences at the point where within our department we begin to reflect on penetrating a new market. At first this reflection can be a very unstructured thought, a conjecture, a question, or hypothesis. In our case, it was about entering the Brazilian telematics or more commonly known the 'tracking' market. One of the most competitive markets in the world in terms of lower margins and a high number of competitors.

Thus, the need to conduct research and CI analysis was paramount; this was because we had no idea about the Brazilian Telematics market. Therefore, we used research primarily to identify key issues relating to telematics (segment, competitors, customers etc) in Brazil. Like most companies however, our resources was limited in terms of investment and manpower. Apart from commissioning a very specific research, a great deal of desk, or secondary research was undertaken, this proved very valuable when formulating our strategy and achieving actionable results.

Overall Objectives: The aim was to utilise mostly Competitive Intelligence and Market Research, two key components within Knowledge Management, to obtain and analyse competitive information from multiple sources to aid DigiCore's international expansion. For the International team Competitive Intelligence was more than analyzing competitors - it was about making DigiCore more competitive relative to its existing set of competitors and potential competitors in international markets.

Predictive analysis - analysing and documenting the likely moves of foreign markets and competitors was a key objective, especially in aiding our final strategy in Brazil. Various aspects of CI and Knowledge Management became indispensable to formulate and implement our strategy in Brazil.

Research Design/Methodology: sampling, representativeness and data collection, CI, analysis and interpretation were key activities we conducted. In essence, for DigiCore a well-defined research problem is a precondition for our Brazilian project. The development of a research design thus follows logically from the research problem. A set of guidelines and instructions needed to be followed in order to address our research problem.

Main Results: there is the misconception that CI and market research duplicate activities, whilst there may be some truth, for DigiCore CI was undertaken to understand our environment better – beyond percentages, graphs and statistic analysis. CI helped us to forecast, validate industry rumours and ultimately make effective decisions and thus being able to act rather than react.

In fact, beginning any competitive intelligence project is a daunting task, but the end results made the whole process worth it.

A further component was ***Managing Information Systems*** - Our technology is based on 'complicated' internal and external environments that need to be considered. So whilst, market research and competitive analysis may aid in the final decision making and ongoing strategies, without juxtaposing these efforts within an information systems environment, the whole project would be futile.

Conclusion: there is no doubt in our minds, that by using CI, Market Research, and Knowledge Management in all of our key stages and activities we came closer to our overall objective of penetrating the Brazilian telematics market. Whilst it is too soon to evaluate our success and overall long-term growth, without the above tools we know for certain that there would not have been any success at all.
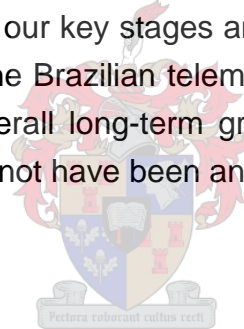
Opsomming

Navorsingsprobleem: Navorsing begin in ons department met besinning aangaande die penetrasie van 'n nuwe mark. Hierdie besinning kan die vorm aanneem van 'n ongestruktureerde gedagte, 'n veronderstelling, 'n vraag of 'n hipotese. In ons geval, was dit aangaande die ontwikkeling van die Brasiliaanse telemetrie mark, of soos meer wyd bekend, die "tracking" mark. Dit is een van die mees kompeterende markte in die wereld in terme van laer winsgrense en 'n groot aantal mededingers.

Aangesien ons geen kennis van die Brasiliaanse mark gehad het nie, was die behoefte aan navorsing en Mededinger Intelligensie (competitor intelligence) van uiterste belang. Navorsing is primer gebruik om kern strydvrae aangaande die telemetrie (segmentasie, kompetisie, kliente ens.) in Brasilië te antwoord. Soos in meeste ander gevalle, was ons navorsing beperk in terme van belegging en mannekrag. Afgesien van die feit dat daar 'n spesialis navorsingsmaatskappy aangestel is, was self-onderneemde sekondêre navorsing waardevol in die formulering van strategie en die bereiking van uitvoerbare resultate.

Oorhoofse doelwitte: Die doel was om hoofsaaklik Mededinger Intelligensie en marknavorsing, twee van die belangrikste komponente van Kennisbestuur, te gebruik om mededinger-inligting vanuit verskillende bronne in te win, te analiseer en aan te wend om by te dra tot DigiCore se internasionale ontwikkeling. Vir die internasionale span behels Mededinger Intelligensie meer as bloot die analise van mededingers – dit het bygedra om DigiCore meer kompeterend te maak teen bestaande en potensiële mededingers in internasionale markte.

Voorspellende analise – die analise en dokumentering van die moontlike bewegings in buitelandse markte en mededingers daar, was 'n sleuteldoelwit, bydraend tot ons finale strategie met betrekking tot ontwikkeling in Brasilië. Verskeie aspekte van Mededinger Intelligensie en Kennisbestuur is onmisbaar in die formulering en implementering van ons strategie in Brasilië.

Navorsingsontwerp/metodologie: Sleutelaktiwiteite sluit in: steekproewe, verteenwoordigendheid en data-insameling, Mededinger Intelligensie, analise en interpretasie van die data. Die sleutel tot 'n suksesvolle Brasiliaanse projek is 'n goed-gedefinieerde navorsingsprobleem.

Die ontwikkeling van 'n navorsingsontwerp vloei logies vanuit die navorsingsprobleem. Riglyne en instruksies word gevolg om die navorsingsprobleem effektief aan te spreek.

Hoofresultate: Daar bestaan 'n miskonsepsie dat Mededinger Intelligensie en marknavorsingsaktiwiteite dupliseer, en alhoewel daar tog waarheid in steek, vir DigiCore was dit belangrik om die omgewing beter te verstaan – verder as persentasies, grafieke en statistiese analise. Mededinger Intelligensie stel ons in staat om te voorspel, industriegerugte te ondersoek en effektiewe besluite te neem om sodoende proaktief, eerder as reaktief, op te tree.
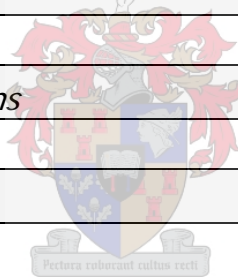
Om 'n Mededinger Intelligensie projek te begin, is 'n omvattende taak, maar die eindresultate maak die hele proses die moeite werd.

Bestuur van Informasie sisteme: Ons tegnologie is gebaseer op gekompliseerde interne en eksterne omgewings wat in ag geneem moet word. Terwyl marknavorsing en mededinger analise mag bydra tot die finale besluitneming en voortdurende strategieë, sonder die teenstel van hierdie werk met 'n informasie-sisteem omgewing, kan die hele projek vergeefs wees.

Gevolgtrekking: Daar is geen twyfel dat deur die gebruik van Mededinger Intelligensie, marknavorsing en Kennisbestuur in al ons sleutelstrategieë en aktiwiteite het ons nader aan ons oorkoepelende doelwit beweeg, om die Brasiliaanse telemetrie mark te betree. Dit is nog te gou om ons sukses en langtermyngroei te evalueer, maar sonder bogenoemde tegnieke weet ons dat daar geen sukses hoegenaamd sou wees nie..

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Introduction

In 2003 I registered for the Master's degree in Information and Knowledge Management offered by the University of Stellenbosch. The masters covered relevant topics such as Competitive Intelligence, Dynamics Knowledge Society, Info Analysis, Information Management, Information Policy, Law and Ethics, Information Systems Management, Knowledge Management and Research Methodology; culminating in a thesis that would 'require' to put into practice the knowledge amassed during a three year period. The main goal was to obtain a degree that can be juxtaposed in terms of relevancy, usefulness and practicality with my day-to-day activities. Simply put, would I be able to do my job better?

Drucker (1993: 8) stated that the means of production is no longer capital, natural resources or labour, but value is now created by productivity and innovation, two paramount applications for knowledge to work. Thus knowledge is the new resource of the next society; which can mean the difference between success and failure in today's fast changing and competitive business environment.

The objective, therefore, was to utilize the knowledge gain. As an International Channel Manager my main priority is to develop the business of the Group internationally. What makes this project even more relevant is that the company I work for, places a great deal of importance and value on knowledge. If a may paraphrase from one of our corporate brochures, "The business of the Group is to provide and disseminate pertinent management information to its customers, both commercial and industrial, for the efficient and effective management of mobile assets such as vehicles and their cargo for both logistic and security purposes, utilising cutting edge telematics information technology".

Thus, this document will focus on:
- **Increasing productivity**: integrating Knowledge Management into my duties to make my job easier.
- **Fostering innovation**: apply Knowledge Management as a tool to reengineer my job and expand its boundaries.

As recommended by Dr Martin Van Der Walt, a discussion of literature that is relevant to the study such as the application of Knowledge Management to strategy development and on the management of international markets is necessary to be included, even if only as a theoretical background, related to this field. This will help in delimiting the investigation and focusing on the important issues.

Whilst I could make the focus of this thesis generic, in other words focus on various activities and challenges in international marketing, I preferred to apply it to one specific project. This project will focus on successfully targeting the Brazilian telematics market – this is because Brazil is a sizeable economy with many parallels to South Africa's socio-economic environment and thus an important opportunity and challenge.
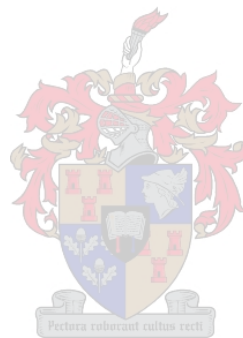
Chapter 1: *What is Telematics?*

1.1 Introduction

Telematics in broad terms is the convergence of wireless communication systems, global positioning, onboard automotive electronics, mapping and reporting information via the Internet, mobile phone or internal computer networks. Historically telematics services have been aimed at the vehicle sector, primarily heavy goods vehicles. There is huge opportunity however to provide telematics not just to the vehicle sector as a whole but also to 'non traditional' markets such as trailers, boats, caravans and motorbikes. DigiCore, with its focused core products and expertise, is extremely well placed to take advantage of the significantly growing interest in the area of telematics in Brazil, particularly the aftermarket (i.e. not installed at time of vehicle manufacture). Traditionally telematics has been thought of simply as a 'track and trace' technology – however, it has a much wider potential to improve operational efficiency, streamline business processes and deliver demonstrable, measurable business benefit. In the traditional markets telematics systems can reduce fleet costs and help increase worker safety. Cost reduction tools include:

- Checking employee **efficiency** by remotely monitoring their locations and checking timesheets;
- **Reduced** fuel and vehicle wear and tear costs as a result of drivers using the vehicle unnecessarily;
- More **efficient** routing and the ability to check whether all assets are being used effectively;
- Being able to **check** drivers' speed and driving habits significantly increases safety. In the event of an accident, the unit can also record the previous 60 seconds of vehicle usage, to help prove liability.

There are many other useful applications of the telematics unit, including improving servicing effectiveness and accurately checking mileage. In many instances, the cost benefit of a system can be justified on fuel savings alone, typically yielding fuel cost savings of 18%. With global oil prices increasing by 40% in only one year, this type of solution can offer clear advantages in terms of achieving desired efficiencies and controls.

Figure 1: A typical Telematics System
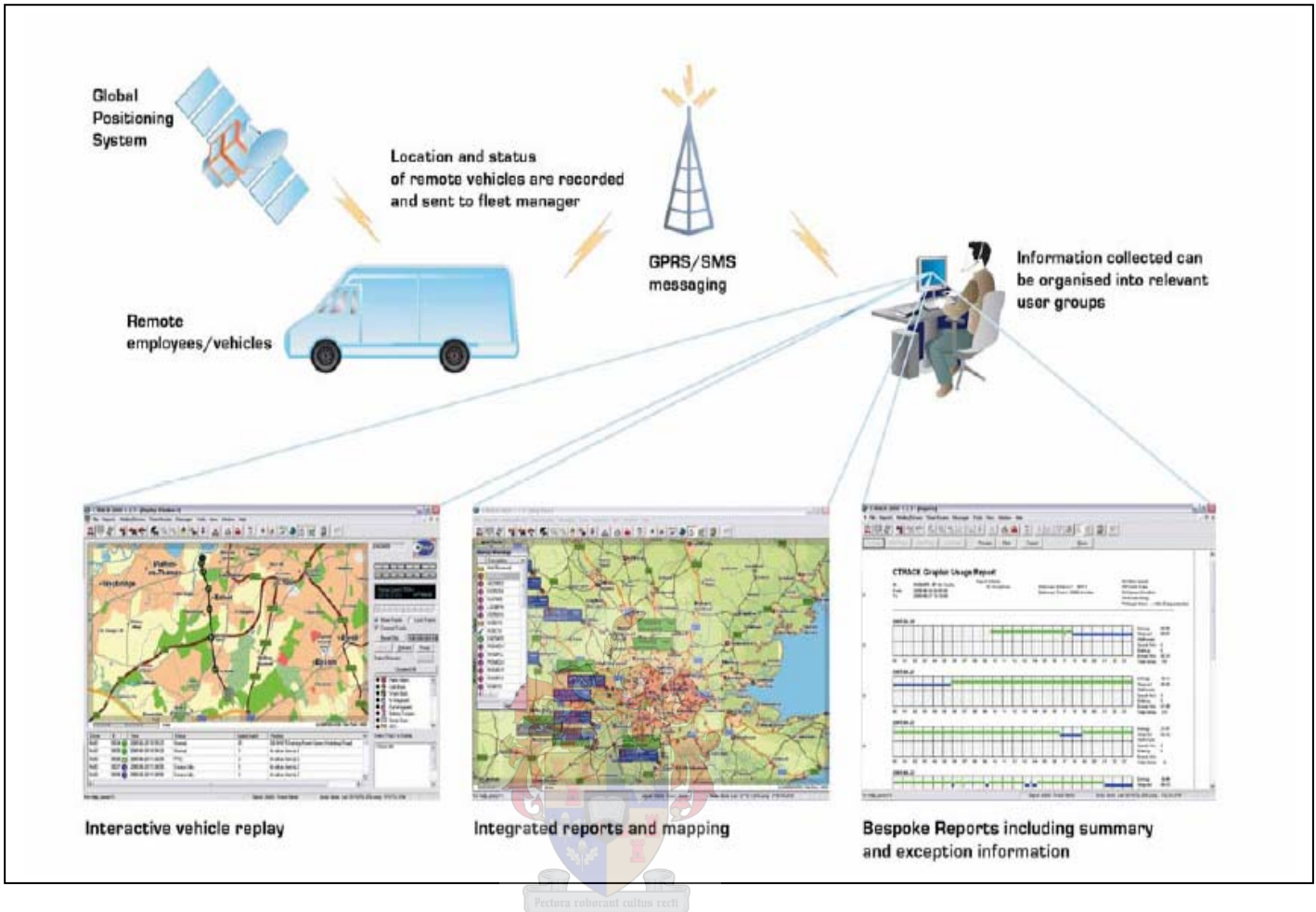
Figure 2: Typical Telematics functionalities

This table is a typical example of all the functionalities a typical telematics system will perform when tracking and managing a vehicle.

With the growth in telecommunications, a fleet manager can at any instant establish the location, status and performance of any one of his vehicles.

Moreover these systems are proactive and will inform dedicated users information based on exceptions. For example if a vehicle leaves a major highway an SMS warning a specified operator anywhere in the world will be informed and necessary action like immobilising the vehicle can be taken.

1.2 Global Trends: Factors Stimulating Interest In Telematics

Telematics offerings have been available for almost 20 years - the real barrier to take up within most markets to date has been lack of awareness, not just of the term "telematics" but of what and how telematics can deliver benefits. However, a number of new initiatives and developments are starting to stimulate an avalanche of telematics opportunities globally and especially Brazil.   Global trends that are promoting the expansion and implementation of telematics:

1.2.1 Government interest

- **Taxation** – due to high energy costs, urban traffic congestion and stricter environmental initiatives there is a global trend worldwide by governments to explore the idea of a road user-charging scheme. The proposal is to charge all road users a fee per kilometer, which will be variable depending on the time of travel and road type. In order to affect such a Scheme it will necessitate telematics boxes to be fitted within all vehicles.

- **Congestion Charging** – similarly major global cities are introducing congestion charging – setting up a zone around a major city such as Kuala Lumpur and charging vehicle entrance to the zone on a daily basis. It is interesting to note that London & Stockholm have introduced congestion charging. The administration and logistics of managing the charge for companies incurring a liability should not be underestimated. Failure to pay the congestion charge results in significant fines. Telematics can assist companies in alerting users to crossing into such congestion zones.

- **Safety** – There is a European drive to reduce current road fatalities by 50% by the year 2010. In 2000 there were approximately 3,600 road fatalities in the UK. This compares to just over 8,000 and 5,800 in France and Spain respectively. In particular the EU has set up an e-Safety working group to coordinate safety initiatives and awareness across the EU. In Latin America there are ongoing initiatives to track public service vehicles, such as school buses, that transport minors on a daily basis.

- **Legislation** – There is growing concern that employees are working excessive hours and legislation was brought in a number of years ago to limit the number of hours that truck and coach drivers were able to work – on the grounds of safety.

- The Working Time Directive has been introduced to restrict the number of hours individuals outside the transport industry should work. In addition there is an increasing appetite by the Health & Safety Executive to make use of Corporate Manslaughter legislation and to push and police the Duty of Care companies towards their employees. Telematics is able to measure working hours of mobile workers and company car drivers.

1.2.2 Technology

- *Electronics* – Electronic components have increasingly become cheaper, smaller and most importantly more reliable. As electronic reliability ceases to become an issue customers are more willing to consider making use of telematics solutions in their businesses.

- As reliability standards and the area of coverage improve these factors will facilitate the development and the delivery of full supply chain logistics from the supply of raw materials through to the purchase of goods by consumers from retail outlets. Telematics will increasingly be adopted by organisations in Logistics as it facilitates 'smarter' supply chain logistics

- *Communications* – Over the past several years communications have become cheaper, more reliable and the geographic coverage is almost universal. There is an increasing choice of mobile provider, which has facilitated a growth in mobile communication. New technologies relating to both voice and data (fiber optics, GSM, SMS, 3G, and GPRS) are widely available. Cheaper communication costs make the wide-scale adoption of telematics very attractive for potential customers. In addition organisations are increasingly looking to consolidate and control costs of mobile devices for field workers and there are significant opportunities for utilising telematics boxes as communications hubs for all data sent and received by field based employees.

1.2.3 Location Based Services

- **Satellite navigation** – TomTom have revolutionised the satellite navigation market – making portable and in car devices much more affordable over the past couple of years. 97% of cars in Europe do not have a navigation device at present and demand in the next couple of years is anticipated to be huge.

- In 2003 a typical satellite navigation system would cost £1,200. Systems are available now for below £250. The European market will be flooded with portable SatNav devices before the end of 2005 with 15 Far Eastern companies set to launch products in time for Christmas. In addition mobile phones are increasingly being sold with Global positioning as standard.

- As users become familiar with these devices and terminology it is only a short step for consumers to become more aware of and purchase traditional telematics devices.

- *Mapping* - It is widely anticipated that there will be a revolution in mapping services during the next three years. Currently available mapping is in two dimensions and in some cases details house numbers at street level. Three-dimensional mapping is starting to become available and will shortly be followed by interrelated satellite navigation photographs with pictures of offices and buildings. This is available in the Far East on a pilot basis. It is widely thought that advances in mapping will lead to wide scale adoption of telematics as organisations strive to link smarter working and navigation.

- It is widely recognised that Location Based Services (LBS) will lead a revolution in the provision of services and sales. Organisations and consumers will be provided with a choice of services – depending on their locations – special offers or reminders of the need to take action and telematics has the ability to facilitate the delivery of LBS.

1.2.4 Other

- *Insurance companies* – The insurance industry is leading the exploration of utilisation telematics to provide a pay as you drive service. Norwich Union are currently piloting a system and other insurance companies are exploring this sector of their market to offer pay as you drive insurance which will require telematics boxes to be fitted within vehicles. In addition Insurance companies offer discounts to customers with telematics devices fitted in vehicles. In some countries such as Italy, discounts can be as high as 85%. As insurance premiums rise, global terrorism and crime increases insurance premiums will increase and such companies will either insist on telematics boxes being fitted to vehicles or they will offer significantly more discount to customers with telematics boxes fitted to vehicles.

- *Corporate innovation* – Businesses have a reputation of being innovative and earlier adopters of new techniques and technologies. They also have a tradition of challenging the way their businesses are run. In addition the Utility government sectors are opening up its markets to competition and each business needs to be able to work smarter and more efficiently. In this particular sector there is also regulatory pressure to reduce costs. Telematics is able to deliver business process re-engineering for the Utility sector.

- *Automotive Manufacturers* – It is worth noting that approximately seven years ago there were about 35 car manufacturers offering basic telematics services. This has now fallen to a handful of car manufacturers including BMW, Mercedes and Volvo. Telematics services have been withdrawn from Audi, VW, Ford and Renault amongst others. As demand for telematics services increases there will be significant scope for aftermarket telematics and we are well placed to deliver solutions for customers.

- *Contracts* – Historically telematics contracts have been for a period of 36 months. Early adopters of telematics technology in 2002 are increasingly now looking to replace existing services with more feature rich and reliable telematics services now that their contracts have come to an end.

- *Strategic Alliances* - It is our belief that whilst telemetry solutions have historically been limited to niche markets such as fleet managers, with the introduction of new and affordable technologies, telemetry services are on the verge of 'mass adoption' by enterprises as well as the public at large. It is DigiCore's belief that by strategically positioning itself (with an alliance partner) it will benefit from this explosion as well as being able to introduce its benefits to numerous new sectors.

# Chapter 2: *Utilising Knowledge Management & Competitive Intelligence To Succeed In International Markets*

In an article in the GIBS Review (Binedell, N; 4th Quarter 2005), the following applicable comments were made: Most South African companies are preoccupied with regional African markets. SABMiller, MTN, Nando's and Tiger Wheels are notable exceptions. SAB realised early in the 1990s that an exclusive focus on our region would never take it to the big league. By focusing on large international markets, and through a set of acquisitions and mergers, today SABMiller is the number one brewer in global markets. In a borderless world, a regional view of strategy can seriously stunt a firm's potential.

However whilst managing commercial challenges is a necessity, which was discussed at length, managing information needs provides a whole new set of challenges. According to an article by David Beaty (2005) a professor at GIBBS, the power of information to help succeed in the competitive world of business is self-evident. Yet, how do you know that the information you get, often supplied by government agencies, subject matter experts and others is accurate - particularly when you need to understand the real attitudes and opinions of people from different cultures. And more importantly, what mechanism are in place to digest all this information and ensure that key stakeholders obtain relevant and key information at all times that has been priory studied, analysed and presented.

In competitive intelligence there is a critical stage, and that is ensuring that collected information is correctly analysed into intelligence that will meet the business needs at various levels and that is disseminated via the right channels reaching the intended key stakeholders. This information needs to address marketing, engineering, financial issues and aid in the decision making process so that the right strategy is identified, developed and implemented. A further important aspect is to act on this intelligence, if the information is accurate and well analysed there is not much point to the whole exercise if no decisions are going to be made. Lack of management direction based on competitive intelligence means that resources are wasted. In order to avoid this, management has to agree and formulate strategies and make decisions around competitive data – even if it means doing nothing.

Choo's (Reader: Competitive Intelligence) view of information management is viewed as a wide concept embracing the totality of information processes, resources, technologies, standards and policies. Information management and environmental scanning are interpreted as vital activities in a learning process of an intelligent organisation. Environmental scanning is seen through the prism of usage of the data by people for gaining benefits and advantage for an organisation.

Figure 3: A Complete Model – DigiCore's Environment
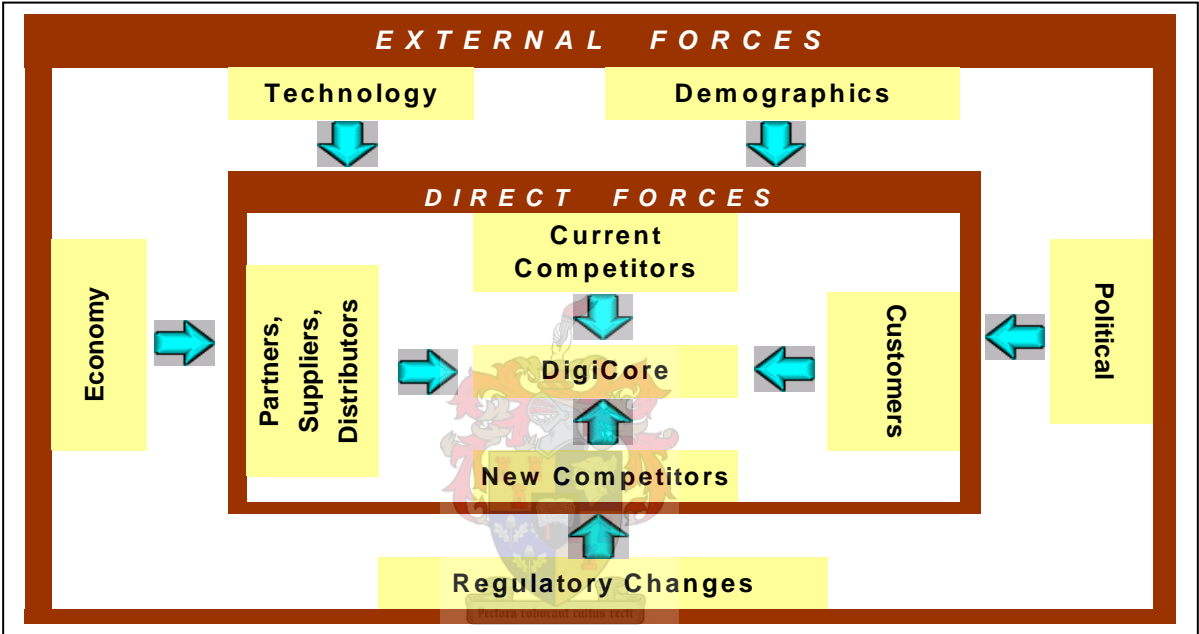
Choo argues that the intelligent organization bridges the knowledge of its domain experts, information content experts and information technology experts. Choo believes that the knowledge and skills of these information experts is an indispensable cornerstone of the intelligent organization's knowledge pyramid. The problem is that one does not get the sense what the end result will be – in other words – what does implementing an effective information management system ultimately do for your organization.

Choo describes becoming more competitive and gives a few actual examples of various companies. But one is not clear on what these success measures actually are. Will implementing an effective IM process increase sales, profits, employee satisfaction, market share? Choo comments on becoming more competitive but not what the actual result is – it is rather vague and there is a feeling that an IT manager may be successful in implementing and running this process but not actually know it.

It is generally accepted that Information Technology is not a panacea for ensuring greater company performance. Choo makes this point. However, his viewpoint is to ensure more efficient processes, systems and technology whereby the individual and organization play a role, although at times confusing. Choo also focuses his information management cycle internally within the organization with limited explanation on the importance external sources play.

Going international can be an exciting and rewarding process for growing technology companies such as DigiCore. When it is done properly it will lead to higher profit margins, wider recognition of the company's technology, and ultimately a higher market value for the enterprise.

It has been said that when technology companies go international they do it three times. The first time is when they develop a channel that does not perform as well as expected; the second is when they learn from their mistakes and improve the performance of their distribution network; and the third time is when they establish their own offices to sell direct.

2.1   The Path to International Success:

For DigiCore, utilising KM, the following path was designed:

Before Getting Started	▪ Thinking through the rationale for going international
Getting Started	▪ Deciding on a strategy and putting the right processes in place
Implementation	▪ Implementing the selected strategy
Improving Operations	▪ Maximizing the results
Direct Operations	▪ Setting up company-owned subsidiaries
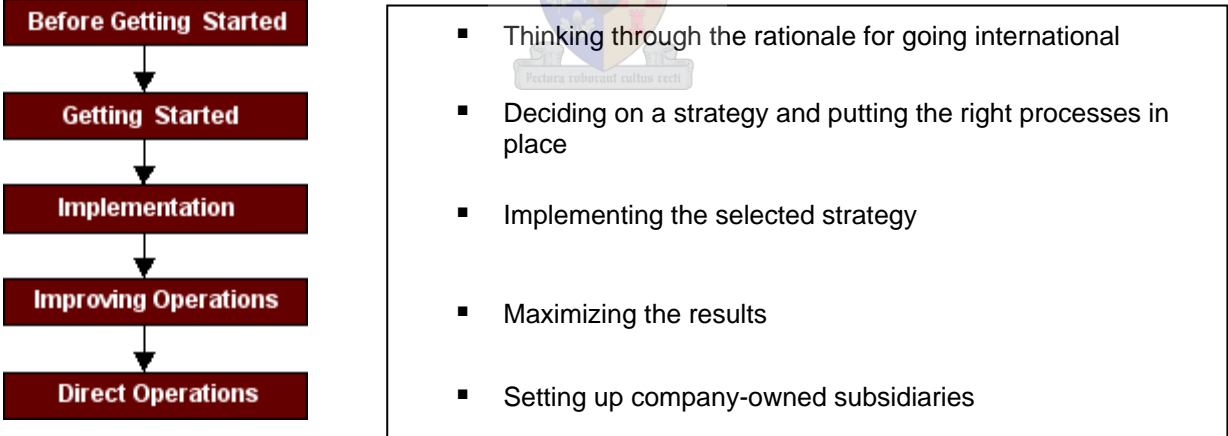
By utilising Knowledge Management, we aimed to reduce our learning curve, whilst reducing effort and capital by having a better foundation for success.

2.2   Why Go International?

According to The Yankee Group, a consultancy, "technology companies with an international presence have higher revenues and increased market values". The answer as to why DigiCore should expand its international presence is: to increase revenues. However, going international will take time and resources. According to the Yankee Group: Developing a superior distribution network is the key to a successful international program. Everything else being equal, superior distribution will always beat a superior product, and there are many examples of well-known software companies that have become dominant players without having the best technology.

For DigiCore there were many methods for creating international sales. Options can include: selling direct, engaging marketing partners, using local resellers, finding distribution partners, or establishing a relationship with existing companies. While some methods tend to be more successful than others - a great deal depends on the type of technology being sold, the nature of the market where it's going to be sold and, of course, the company itself. One mistake that we wanted to avoid was to underestimate the time, cost and/or internal resources needed to successfully implement our strategy.

Thus, utilising the Yankee Group's experience in this field processes and procedures to prepare DigiCore for the challenges of selling in Brazil were undertaken:

- **Channel options**: How are you going to get your product to the target markets? Are you going to sell direct? Use resellers and distributors? Systems integrators? OEM partners?

- **Revenue objectives**: How important is your international program? Are you more interested in just being able to say that you are "international", or do you want international to be 30% or 40% of your revenues? How large are the target markets compared to your domestic market, and how much can you reasonably expect to make from each of them?

- **Pricing, payments and discounts**: Will your international pricing be the same as your domestic pricing? Which currency will you use? What payment methods will you accept? What discounts will you offer to channel partners? Will you offer price protection? What about credit terms? Will you be impacted by withholding taxes?

- ***Ordering, shipping and returns***: Working with international clients and channel partners will have an impact on many of your operating procedures. Make sure they are fully developed, so that orders can be placed and processed.

Having said that, our expansion into Brazil could not be implemented unless we had internal support and approval at an EXCO level. Thus in the following internal structures there had to be a general consensus:

- **Management buy-in**: Going to Brazil had to be a priority at the top level of the company. An international push without widespread acceptance elsewhere in the organization runs the risk that other departments will not support the effort, because it is not part of their responsibilities, and if the person running the international effort leaves the company, there is no one else to take over. This will almost always lead to wasted time, money and resources.

- **Marketing support**: A marketing kit for each product was needed to make it as easy as possible for our Brazilian partner to sell the product. The key elements of marketing support include marketing materials, a company & product profile, an ROI analysis, documentation of the sales process, a competitive matrix, and a pre-designed website that can be replicated by channel partners.

- **Translation and localization**: All of our products had to be translated into Portuguese in order to be successfully sold and installed. In some cases a simple translation of screen messages, drop down menus and help files were sufficient.

- **Integration issues**: Our product resides in a complex environment with multiple platforms and network protocols. To the extent the product has published APIs that facilitate integration with other technologies, for others to install and support.

- ***Technical support***: Issues such as structuring long distance tech support, the dedicated support team, operating hours and a searchable database needed to be considered.

- ***Lastly, legal implications***: had to be considered, as proper documentation is always the basis for relationships with both end users and channel partners. Documents that we needed to considered and updated for the Brazilian market were:

  o Trademark Registration: ensuring that the DigiCore trademark was not already in use in Brazil and registering.

  o End-user License: A license with the Brazilian communications body, ANATEL had to be obtained.

  o Non-disclosure Agreements: Non-disclosure agreements are notoriously difficult to enforce, especially overseas, but they do serve an important purpose as we were planning to share confidential information about our product.

  o Reseller & Distribution Agreements: This is an essential document, as stated earlier, that will define the relationship with a channel partner. It describes the duties and obligations for each party, and under what terms and conditions the relationship can be terminated. Again, it can be important to have the agreement reviewed by an attorney licensed to practice law in the target market to make sure that it can be enforced.

Chapter 3: *The Market Research Process*

As we wanted to conduct an extensive (and costly) market research study in Brazil, a preliminary meeting with a local research house, Plus 94 Harris was conducted. The objective was to understand the market research process as well as align our expectations within realistic parameters. In other words in business, demand is always changing and therefore it is essential to know how things are changing. However, whilst Market research companies require a special form of skill because they have the necessary experience and also because market research takes up a lot of time they cannot provide absolute outcomes but merely provide direction and highlight potential hurdles.

3.1 Methods Used in Market Research: Primary Research

According to Plus 94 Harris, Market Research would be involved in collecting as much information as possible about the Brazilian telematics market, before any further steps are taken. Research would rely on desk research and field research. Also, data is divided into primary and secondary categories. Primary data are collected in the field. Secondary data are gathered from all the material that is at present available on the subject, and is always studied first when doing desk research.

Moreover, market research, like other components of marketing such as advertising, can be quite simple or very complex. You might conduct simple market research such as including a questionnaire in your customer bills to gather demographic information about your customers. On the more complex side, you might conduct primary research to aid you in developing a marketing strategy to launch a new product in a new market. Due to the complexity of the marketing research project, Plus 94 Harris recommended the following seven steps:

3.1.1 Step One: Define Marketing Problems and Opportunities. The market research process begins with identifying and defining the problems and opportunities that exist for your business, such as:
- Launching C-track's product in Brazil
- Low awareness of DigiCore and its products or services in Brazil
- Low/Nil utilization of DigiCore's products or services. (The market is not familiar with DigiCore)
- Low/None poor company image and reputation

- Problems with distribution, or more like no distribution channels yet operational.

3.1.2 *Step Two*:

- ***Define the objective***: With a marketing problem or opportunity defined, the next step is to set objectives for the market research operations. The objective might be to explore the nature of a problem that it may be further defined, such as what is the market potential for a telematics solution in Brazil. For example, how many people would consider DigiCore's product and at what price? In other words, test possible cause and effect relationships: if we lower our price by 10 percent, what increased sales volume should we expect? What impact will this strategy have on your profit?

- **Budget**: How much money is DigiCore willing to invest in a market research study, as it represents a portion of the overall marketing budget? Because DigiCore is planning on launching a new product our allocated budget for research had to be realistic.

- **Timetables**: Prepare a detailed, realistic time frame to complete all steps of the market research process. Establish target dates that will allow the best accessibility to your market.

3.1.3 *Step Three*: As stated earlier, there are two types of research: primary research or original information gathered for a specific purpose and secondary research or information that already exists somewhere. Both types of research have a number of activities and methods of conducting associated with them. Secondary research is usually faster and less expensive to obtain that primary research. Gathering secondary research may be as simple as making a trip to your local library or business information centre or browsing the Internet.

3.1.4 *Step Four*: The most common research instrument is the questionnaire. It is important to: keep it simple, include instructions for answering all questions included on the survey, begin the survey with general questions and move towards more specific questions, keep each question brief, If the questionnaire is completed by the respondent and not by an interviewer or survey staff member, design a questionnaire that is graphically pleasing and easy to read, pre-test/pilot the questionnaire.

Moreover, tips such as: mixing the form of the questions, use scales, rankings, open-ended questions and closed-ended questions for different sections of the questionnaire. The "form" or way a question is asked may influence the answer given. Basically, there are two question forms: closed-end questions and open-end questions. In close-end questions, respondents choose from possible answers included on the questionnaire. Types of close-end questions include: multiple choice questions which offer respondents the ability to answer "yes" or "no" or choose from a list of several answer choices. Scales refer to questions that ask respondents to rank their answers or measure their answer at a particular point on a scale. For example, a respondent may have the choice to rank their feelings towards a particular statement. The scale may range from "Strongly Disagree", "Disagree" and "Indifferent" to "Agree" and "Strongly Agree."

In Open-end questions, respondents answer questions in their own words. Completely unstructured questions allow respondents to answer any way they choose. Types of open-end questions include: word association questions ask respondents to state the first word that comes to mind when a particular word is mentioned as well as sentence, story or picture completion questions ask respondents to complete partial sentences, stories or pictures in their own words. For example, a question for freight operators might read: "My daily commute between a depot and a customer is _____ miles and takes me an average of _____ minutes. I use the following types of monitoring systems to check the status of my vehicle: _____."

3.1.5 Step Five: To help obtain clear, unbiased and reliable results, collecting the data correctly is paramount. Before beginning the collection of data, it is important that staff is trained, educated and supervised at all times. An untrained staff person conducting primary research will lead to interviewer bias. Furthermore, they need to stick to the objectives and rules associated with the methods and techniques stated, whilst trying to be as scientific as possible in gathering your information.

3.1.6 Step Six: Once your data has been collected, it needs to be "cleaned." Cleaning research data involves editing, coding and the tabulating results. To make this step easier, start with a simply designed research instrument or questionnaire.

Some helpful tips for organizing and analysing data are as follows: look for relevant data that focuses on your immediate market needs, rely on subjective information only as support for more general findings of objective research.

Moreover, analyse for consistency; compare the results of different methods of data collection. For example, are the market demographics provided from the local media outlet consistent with your survey results, quantify the results; look for common opinions that may be counted together, read between the lines. For example, combine Brazilian Census Bureau statistics on median income levels for a given location and the number of key industries.

3.1.7 Step Seven: Once marketing information about your target market, competition and environment is collected and analysed, present it in an organized manner to the decision makers of DigiCore. For example, report your findings in the market analysis section of your business plan. Also, familiarize your sales and marketing departments with the data and conduct a company-wide informational training seminar using the information.

In summary, the above data was used to help guide business decisions, and readily accessible to the decision makers. The next phase is a literature study and the development of the research methodology in detail (e.g. questionnaires and other data gathering tools). This phase involves further analysis, interpretation and criticism of the ideas found in the literature and the construction of models or conceptual frameworks.

The following diagram was developed in conjunction with Plus 94 Harris:

Figure 4: Research Flow Chart
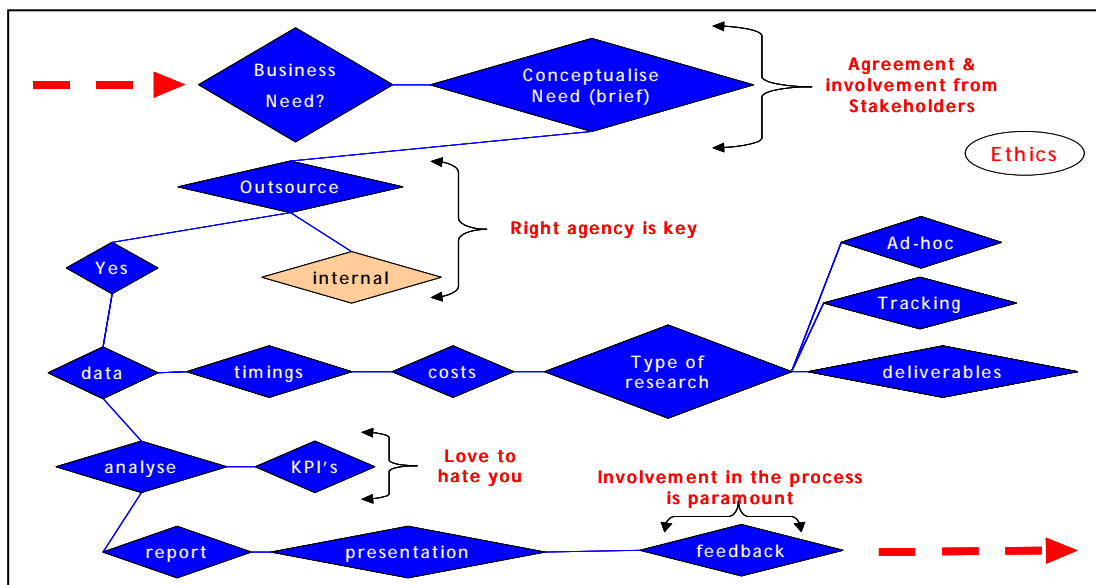
3.2 Methods Used in Market Research: Secondary Research; Sao Paulo, Brazil: A Sleeping Lion

In terms of desk research, the following information was sourced from various websites, such as the World Bank: An industrial power with the largest population in Latin America and the Caribbean, Brazil has made big strides in reducing social and economic inequality, which are both cause and consequence of the poverty that continues to afflict millions of people. The country also rose to the challenge posed by the single biggest health threat in the modern world, pioneering an anti-HIV/AIDS strategy that became an international model by guaranteeing universal access to retroviral medication.

The country's commitment to comprehensive anti-poverty measures survived two bouts of international economic turbulence and domestic energy crisis over the past five years, thanks to a strategy of expanding exports while lowering barriers to foreign trade and investment, as well as to Brazil's private sector. Economic growth was maintained, with GDP increasing 1.5% in 2001, and again in 2002, though at a rate that shows a continuing vulnerability to external shocks. Moreover, growth was far higher – 6% - in 1966-80.

Despite Brazil's impressive advances, the poorest one-fifth of Brazil's 173 million people account for only a 2.2 percent share of the national income. Brazil is second only to South Africa in a world ranking of income inequality. More than one-quarter of the population live on less than $2 a day and 13 percent live on less than $1 a day. Brazil's Northeast contains the single largest concentration of rural poverty in Latin America. Past development programs have failed to make a major dent in a region in which 49% percent of the population is classified as poor.

Environmental deficiencies continue to afflict the country, posing health risks to a major part of the population. Less than 10 percent of wastewater is treated. Consequently, it is a major source of water pollution. And up to 40 percent of the country's solid waste – some 40,000 tons a day – isn't collected. Of the waste that is collected, only 27 percent is disposed of or treated with environmentally sound methods. In a heavily urbanized country – 82 percent of Brazilians live in cities – only 56 percent of urban dwellings are connected to a sewerage system. In the countryside, fewer than 20 percent of households have piped-in water; only 13 percent have sanitation services.

Crime is also plaguing urban Brazil. And on the structural level, Brazil's poor transportation networks and bureaucracy are notorious for raising costs for ordinary citizens as well as for businesses. In São Paulo, transportation costs a poor person one-fifth of his or her income, and more than 2.5 hours a day in commuting time.

3.2.1 Brazil and South Africa: Stinking similarities

Brazil is a continent-sized nation, marked by profound contrasts and diversity. Some of these are geographic or climactic in nature, others are racial or ethnic. Brazil's population draws on Native American, African, and European roots, and successive waves of immigrants, principally from Asia and Europe, have added to the mix.

Yet other contrasts are social in nature and generally less welcome. Living conditions for Brazil's 170 million people vary dramatically, and income disparities in Brazil are significant—not only across regions but also between metropolitan centres, no metropolitan urban centres, and rural areas. Thus, inequality may matter for the country's economic development, poverty reduction, and social progress, and The old perception, which is well borne out by the facts, is that Brazil occupies a position of very high inequality in the international community.

3.2.2 Brazil A Real Opportunity For DigiCore

This was an interesting report because it highlights a country that is experiencing relative strong growth, but at the same time high levels of violent crime. Thus, a perfect mixture for the introduction of a product, which its basic selling point is peace of mind. Moreover, many of the experiences and learning curves experienced in South Africa can be applied in Brazil.

3.3 Methods Used in Market Research: Secondary Research; Basic IT infrastructure Fact-finding Exercise

In order to asses if DigiCore's operation could be 'exported' into Brazil, further desk research was conducted on the Brazilian telecommunications infrastructure. As the picture below illustrates, it is not an easy process and one weak link could jeopardise the whole operation. Moreover, to set up the infrastructure is expensive, so that 100% confirmation is needed. A further factor that had to be considered is costs and legislation. Based on costs, the primary communication preferred method has to be decided between GPRS or SMS. It is futile to set up a system whereby the running costs make the whole operation unsustainable.

Figure 5: Required communication set up
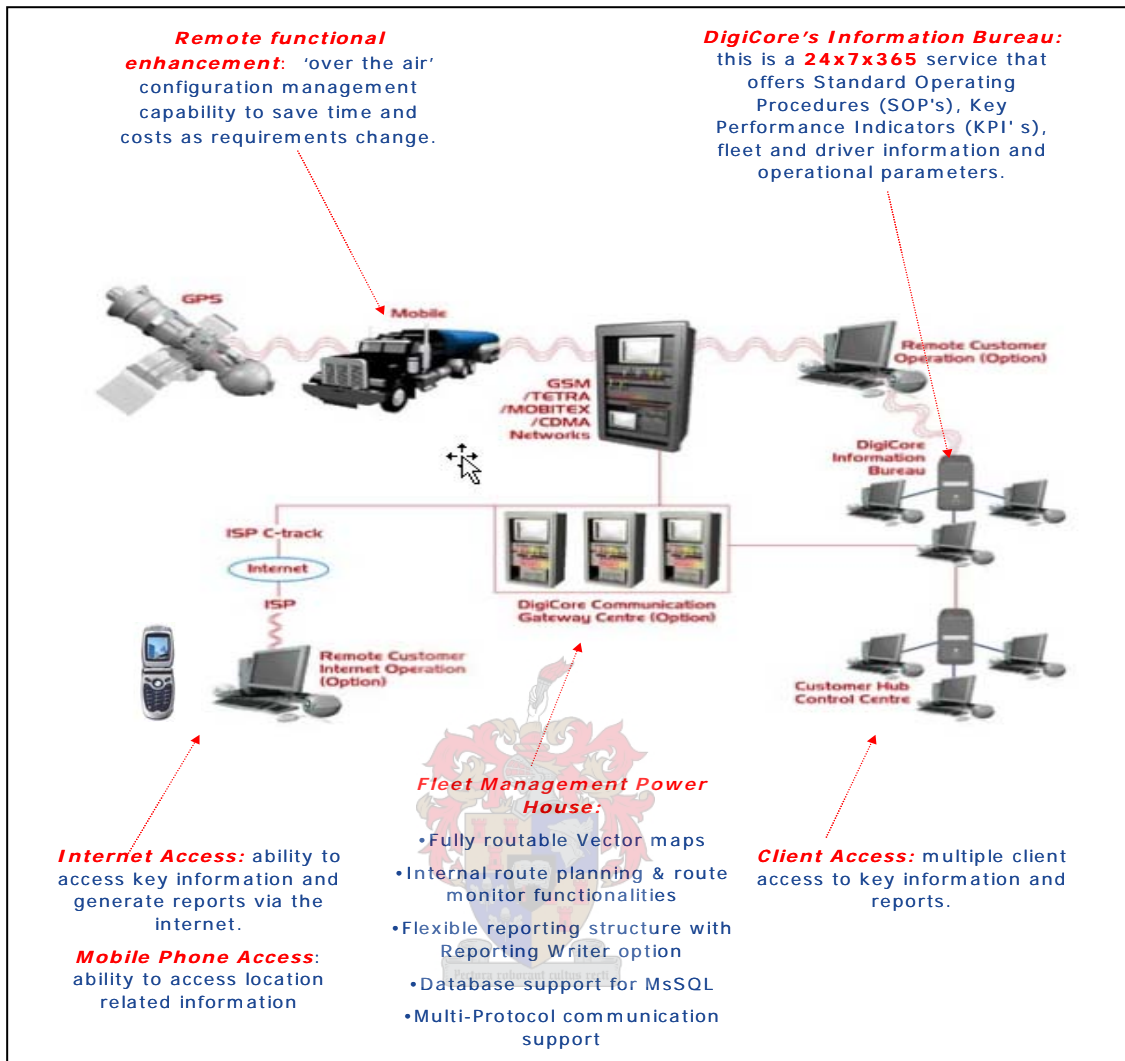
Further research had to be conducted on Anatel, the Brazilian telecommunication regulatory body which is solely responsible for the design and monitoring of permits, licences, codes of conduct, technical specifications and legal implications.

3.4 Methods Used in Market Research: Third Party Research; Crime Statistics In Brazil

An initial extensive desk research was conducted in order to obtain more information on Brazil and its current crime status. Fortunately, there is a strong correlation between the level of criminal activities and the success of our product. A study conducted between the UN and the Brazilian government into crime statistics, and more particularly specific to valuables was sourced and analyzed.

This study proved useful as it laid the foundation on the type of crime prevalent in Brazil and the need for telematics solutions.

3.4.1 Description of sample

The sample was composed of 1,000 respondents in the city of Sao Paulo. Of these 173 belonged to the upper class, 560 to the middle class; and 267 to the lower class. (Classes were determined by the South African equivalent of LSM – Living Standard Measures). Thirteen interviewees lived in flats, 940 in various types of houses, and 47 in shanties. Of the sample 557 were male and 443 female and their distribution by age is as follows: 9.9% were born between 1941 and 1942; 13.5% between 1943 and 1945; 66.1% between 1946 and 1967; and 10% between 1968 and 1976. 562 of the respondents were aged between 25 and 49. Most of them (518) had lived in the same abode for 10 years or more, 211 between 5 and 10 years and 227 between 2 and 5 years.

3.4.2 Data collection technique

Respondents were interviewed face-to-face by a group of 25 senior students and graduates of the Faculty of Social and Political Science of the University of Sao Paulo (supervised by 2 senior and 3 junior lecturers). The interviewers had previous field research experience and were briefed for two days on the use of the questionnaire (once the questionnaire had been pre-tested by the supervisors). The questionnaire was in Portuguese. No particular problems were encountered when collecting the data.

3.4.3 Response rate and re-contacting

All of the 25 interviewers were assigned specific areas by the supervisors (corresponding to the three social class areas). Daily checks were made to keep track of the number of respondents who had completed the interviews, so as not to surpass the target assigned to each "social class area". Interviewers called at each dwelling and requested permission for an interview. No refusals were recorded and on the last day 1,000 (one thousand) interviews had been completed.

3.4.4 Victimisation rates

Out of the 44.3% female respondents, 25.5% reported a sexual incident in the last 5 years and 4.51% of these occurred during the last year. Considering that most of the interviewers were males and that a discussion between the sexes on sexual offences is very uncommon in Sao Paulo, it is very likely that the incidents were under-reported.

Consideration should also be given to the fact that buses in Sao Paulo are usually overcrowded (2-3 times the normal capacity), therefore, an "offensive touch" can easily take place. Victims of consumer fraud may also be under-reported, as most buyers in Sao Paulo do not insist on checking that scales used by merchants are accurate; in addition, most food items in Sao Paulo do not have an expiry date printed on the package. The figure on corruption may also be under-reported. It is considered normal to give a "tip" for services rendered by a government official, and not regard it as "bribery". The data collected shows that 18.8% were government officials and 13.6% police officers.

3.4.5 Reasons for not reporting

Responses stating that the police could do nothing/wouldn't do anything/fear or dislike of the police which recorded around 50% (except for theft of motorcycles and assault/threat), supports the general opinions in the community that the police are helpless in solving those crimes (low clearance rate). Responses to motorcycle theft are more difficult to explain, considering that the ownership of a motorcycle is quite widespread in Sao Paulo. One possibility could be that the stolen motorcycles did not have proper (legal) ownership documents (police registration documents).

3.4.6 Crime seriousness

There seems to be some contradiction between responses to "reasons for not reporting" and "crime seriousness". Theft of a car is considered "very serious", still the reason given by 50% for not reporting was that the police are helpless. Does this mean that they have other ways or means of recovering their stolen property? This cannot occur through the insurance company because a police report is required in order to pay out insurance money.

3.4.7 Victim support

Victims responded that most support was given by relatives (76.5%) and friends (51.9%), neighbours came next (34.2%) and the police last (19.2%). This appears to be consistent with the "distrust" of the police and the "kinship system" in Sao Paulo communities.

3.4.8 Attitudes toward the police

Out of 19.7% who reported to the police, 53.8% (10.6% of total respondents) were satisfied. Those who were not satisfied (46.2%) gave as their reason: the police "did not do enough", "did not find the offender".

This could be an indication of 559 their disappointment, due to very high personal expectations of the police. With respect to police controlling the area, only 36.6% (of total respondents) considered that the police had done a good job; and 25.8% responded that police surveillance was sufficient. This shows that the presence of the police in the streets (including traffic police) was considered to be reasonably adequate.

3.4.9 Fear of crime

The feeling of safety was quite high. Respondents felt that they were "fairly safe" (70.9%) and "very safe" (13.8%) after dark. About 75.4% also responded that they do not avoid certain streets or areas in their neighbourhood, and 75.3% said they do not take someone with them for reasons of safety. However, this is not consistent with their responses to the chances of being victimised. Most of them seem to think that it is likely (49.8%) or very likely (1.2%) that they will be victimised.

3.4.10 Crime prevention

Crime prevention measures adopted were mostly window (and door) grills (56.5%) and watchmen (51.2%). Next came door locks (35%), high fences (19.1%), reliance on neighbours (27.4%) and the possession of firearms (4.3%), for which the approval of the authorities (police) is needed.

3.4.11 Attitudes towards punishment

Most of the victims were quite severe towards the offender. Out of the total respondents, 77.7% favoured prison sentences. This can also be ascribed to the very reduced number of fines contemplated (the Criminal Code was enacted in 1918); fines could become another alternative for punishment. Respondents appear to favour (51.5%) prison sentences covering a period of six months to one year.

Table 1: Prevalence victimization rates (5 years)

	Victimization rate (%)
Theft of car	2.5
Theft from car	15.7
Car vandalism	9.5
Theft of motorcycle	2.1
Theft of bicycle	6.8
Burglary with entry	13.6
Attempted burglary	9
Robbery	6.3
Personal theft	28.3
Sexual incidents	25.5
Assault / threat	8

Table 2: Crime prevention measures

	Measures (%)
Installed burglar alarm	18
Bought a fire arm	7
Move areas	9
Installed a security device in vehicle – alarm	22
Installed a security device in vehicle – tracking	4
Obtain insurance	10
Nothing	20
Other	14

3.5 Methods Used in Market Research: Secondary Research; The Cost Of fuel

A further important analysis is the rising cost of fuel, apart from criminal activity in a country; there is also a strong correlation between the cost of fuel and the success of C-track in any given market. This is because, C-track can reduce the monthly fuel bill due to its control and abuse capabilities.

A report conducted by the BBC gave us some insights into global fuel trends, which aided our forecasts. The report stated that the world's reliance on oil and gas is set to increase sharply as global energy demand soars by 60% over the next 25 to 30 years, "Fossil fuels will continue to dominate global energy use, accounting for some 85% of the increase in world demand," according to the World Energy Outlook 2004.

More than two thirds of the increase will come from developing countries as a consequence of fast economic growth and a massive rise in car ownership. This was an interesting fact, as Brazil is considered a developing country.

The report also raised concerns about energy security. It points out that although increasing world trade will strengthen the interdependence between consumer countries and the main producers in the Middle East and Russia, "the world's vulnerability to supply disruptions will [also] increase as international trade expands".
"All the large consuming countries, now including China, Brazil and India, are growing increasingly dependent on imports from an ever-smaller group of distant producer countries, some of them politically unstable".

Another factor that will push prices higher is the increasing cost of extracting oil and other energy sources and delivering them to consumers. "Meeting projected demand will entail cumulative investment of some $16 trillion from 2003 to 2030, or $568bn per year".
Whilst a truly sustainable energy system could be achieved by gearing up the search for "technological breakthroughs that radically alter how we produce and use energy", the report says. However, in the short term, "carbon capture and storage technologies hold out the tantalising prospect of using fossil fuels in a carbon-free way".
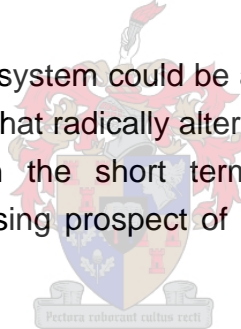
3.6 Concluding Observations

There is no doubt that by doing prior market research, primary and secondary, it allowed DigiCore to align and redesign its strategies prior to entering the Brazilian market. Unnecessary mistakes where thus reduced, which could have cost the company considerable time and expense.
Moreover, the research also aided the DigiCore management team of realistic timings and outcomes in Brazil. This is important as unrealistic expectations could in the long run jeopardise the success of a project.

Chapter 4: *Competitive Intelligence Analysis*

There is no doubt that based on our previous analysis the Brazilian telematics market represented a unique opportunity for DigiCore. This led the company to begin the process to identify an ideal Brazilian partner to form a JV (Join Venture).

The aim was to become a strategic supplier of telematics solutions by providing effective management of mobile assets and ensuring that mobile operators gained competitive advantage through improved asset utilisation and operational cost savings. DigiCore's strength both in South Africa and increasingly in various international markets helped in the development of this market. The goal was to achieve a clear differentiation from existing operators in the Brazilian telematics market by utilising DigiCore's cutting-edge information technology to target five critical fleet management priorities:

• Asset Management - reduce risk on valuable assets and cargo

• Fleet Safety & Security - reduce unauthorized vehicle use

• Fleet Productivity - reduce fuel & maintenance costs

• Fleet Abuse - reduce rough and dangerous driving

• Operational Control - reduce excessive overtime claims

Moreover, by empowering the JV to provide quality customer support in terms of consulting, managing telematics operations and after sales service, the JV in the medium term will be well positioned to operate competitively and provide a satisfactory return on investment.

In order to achieve these goals, one of the key elements of Knowledge Management is utilising a market research and competitive intelligence study as analysis techniques to focus in both the internal and external environment where you plan to operate. However, these techniques cannot work effectively in isolation. In other words, in order to be effective there also needs to be some focus on ethics and specific and clear codes of conduct. DigiCore as a public company is responsible to its shareholders. A set code of conduct provides clear guidelines on corporate behavior as well as complaints and disputes agreement, which all parties involved needed to agreed and signed.

Thus, the overall objective of utilising a Market Research and Competitive Intelligence analysis was to achieve the following:

- Critical to understand the Brazilian macro environment better
- Critical to know and understand the telematics industry and all of its players
- Critical to know what your competitors corporate & business strategies are
- Forecast opportunities & threats: demand, saturation, growth, new competitors
- Anticipate competitors' development of new products and/or services
- Validate or invalidate industry rumours
- Create a company information library
- Plug information leaks within your company – specially at the critical initial stages
- Aid decision makers/management team to take effective decisions
- Act rather than react
- Be ethical

4.1 Market Research Analysis

John Mouton (2002:91) clearly states the stages in the research process. Whilst each stage of the research process was not always applicable in Brazil, it was used as a framework to understand the Telematics market.

In formulating the research problem, research design, sampling, data collection, analysis and interpretation, the services of Andromeda Consultants, an American consultancy, were required. On our request, Andromeda conducted a market research study in Brazil earlier this year on customer attitudes and perceptions towards telematics in commercial vehicles. A total of 1239 interviews were conducted amongst various key segments such as:

- Fleet owners (large & small)
- Emergency vehicles
- Couriers
- Government departments

The interviews were carried out via questionnaire (face to face) and qualitative telephone interviews. There are some 35 million cars registered in Brazil. There are 2.2 million new cars and 103,000 new commercial vehicles sold annually. Awareness of telematics and what it can do for business and individuals in Brazil is very low.

Within Brazil 63% of respondents had heard of telematics and yet only 40% had some type of telematics systems installed, such as older technology tachograph. Interestingly, almost 32% of the target market were not aware of the full potential of telematics, especially amongst fleet and transport managers – most of whom were responsible for fleets over 20 vehicles.

The study confirmed that respondents from government departments demonstrated the lowest knowledge with regard to telematics features. Of those surveyed, key features where those perceived to increased control of unauthorised usage of their fleets.

Overall, interest in vehicle and driver performance monitoring features increased with the size of the fleet. The survey also noted that vehicle transport and logistic management systems had the highest value associated with telematics and it was generally perceived that specialist suppliers, such as DigiCore, offered more extensive services compared to other manufacturers and companies were thus prepared to pay a premium.

In broad terms market penetration is extremely low and the potential for telematics in Brazil is huge. The research clearly indicated that there is an opportunity for DigiCore in the commercial and private vehicle environment, by understanding the businesses of customers and delivering tailored solutions.

Whilst conducting a market research study was imperative, it was merely the starting point. A complete competitor intelligence analysis was vital in order to assess current competitors and what strategies would be optimal.

4.2   Competitive Intelligence Analysis

The use of CI involved all aspects of the JV and required a knowledge and understanding of the environmental impacts on the JV in order to ensure that correct decisions were made and implemented. The key issue is the examination and evaluation of the information through analysis that is the key to defining appropriate strategies. As Fleisher and Bensoussan state (2002, p76) "it is not just about looking at best fit but of taking into account the needs of different stakeholders and diagnosing the factors required to formulate a good strategy".

Moreover, Fleisher and Bensoussan warn that this process requires skill, time and effort as most organizations gather some form of competitive information, however few formally analyse it and integrate the results into their business strategy. This process is about breaking down an issue into its parts. Today's strategic mindset says that every organization needs to have at least some professionals who are actively engaged in evaluating and examining each part. Whilst this may be more applicable to larger organisations, it nevertheless had some relevance to the Brazilian joint venture.

Fleisher and Bensoussan further state (2002, p 102), "analysis is a multifaceted, multi-disciplinary combination of scientific and non-scientific processes by which an individual interprets the data or information to provide meaningful insights". Thus the primary reason to do analysis is that although there may be plenty of information around, the issues being analysed are often quite complex and the overall reality of the situation may not be all that obvious at first glance.

But in reality, as Fleisher and Bensoussan point out "there are literally hundreds of business and competitive analysis techniques that could be included". The challenge for DigiCore was to solve pressing analytical problems that we faced in the Brazilian market, understanding the industry and the competitive factors impacting them.

There is no doubt, that using knowledge management as a canvass, it will lead to a better analysis, and hopefully a higher correlation with better decision-making and strategic thinking. This in order to achieve competitive advantages and continuing performance results that are better than one's competitors and expected by often 'salivating' investors.

Utilising the services of MINDTOOLS, a consultancy, we used a SWOT analysis to position DigiCore within the broad Brazilian telematics market.

4.2.1 Strengths:
- What advantages do we have?
- What do we do well?
- What relevant resources do we have access to?
- What do other people see as your strengths?

In looking at DigiCore's strengths, it needed to be in relation to the competitors - for example, if all competitors provided high quality products, then a high quality production process is not strength in the market, it is a necessity.

In essence the outcome was as follows:

- We were able to respond very quickly as we have no red tape, no need for higher management approval, etc.
- We were able to give really good customer care, as the current small amount of work means we have plenty of time to devote to customers
- Our lead sales people, recruited from other tracking companies in Brazil, had a strong reputation within the market
- We were able to change direction quickly if we found that our marketing is not working

4.2.2 Weaknesses:

- What could we improve?
- What do we do badly?
- What should we avoid?

Again, considering this from an internal and external basis: Do competitors seemed to perceive weaknesses that we did not see? Are competitors doing any better than we think? It is best to be realistic now, and face any unpleasant truths as soon as possible.

- Our company had no market presence or reputation in the Brazilian market
- We had initially a small staff with a shallow skills base in many areas
- We were vulnerable to vital staff being sick, leaving, etc.
- Our cash flow was unreliable in the early stages

4.2.3 Opportunities:

- Where are the good opportunities facing us?
- What are the interesting trends we are aware of?

Useful opportunities can come from such things as:

- Changes in technology and markets on both a broad and narrow scale
- Changes in government policy related to telematics & trade
- Changes in social patterns, population profiles, lifestyle changes, etc such as a sharp increase in crime and thus a need for stolen vehicle recovery.

A useful approach to looking at opportunities is to look at our strengths and ask whether these open up any opportunities. Alternatively, look at our weaknesses and assess whether we could eliminate them.

- Our business sector is expanding, with many future opportunities for success
- The Sao Paolo province in Brazil encouraged foreign businesses to invest
- Our competitors may be slow to adopt new South African based technologies

4.2.4 Threats:

- What obstacles do we face?
- What is the competition doing?
- Are the required specifications for our, products or services changing?
- Is changing technology threatening our position?
- Will we have bad debt or cash-flow problems?
- Could any of our weaknesses seriously threaten the business?

Carrying out this analysis can be illuminating - both in terms of pointing out what needs to be done, and in putting problems into perspective. A further SWOT analysis was conducted with some of our major competitors competitors. Which produced some interesting insights.

- Will developments in technology change this market beyond our ability to adapt?
- A small change in focus of a large competitor might wipe out any market position we achieve

4.3 Conclusion: DigiCore decided to specialize in rapid response, good value services to local businesses. Marketing was in selected local publications, to get the greatest possible market presence for a set advertising budget. DigiCore would adopt and integrate changes in technology where possible. Finally, the sales force would drive growth in the business at the initial stages – and thus a great deal of attention would be invested in them.

As the SWOT analysis into the Brazilian telematics market indicates below, one of the main challenges will be to establish the DigiCore brand within an environment where entrenched and low cost operators operate.

Figure 6: A SWOT Analysis – Brazilian market

SWOT Analysis – Brazilian Telematics Market

Threat		Strength
Competitive market (pricing)	**Dex strong brand name - Capitalize**	**DC's proven technology**
Established relationships amongst current players	**Sell a solution – not box**	**3 product ranges – meet diverse business needs**
Competitive market (players)	**DC's ongoing R&D investment**	**DC's experience in field**
Growing economy	**Low Pricing operators**	
Big market **High crime levels**		**Teething problems**
Telemetry in its infancy/adolescence	**New comer in Brazil**	
SA & Brazil very eco/socially similar **Brazil is a regional powerhouse**	**Low awareness of DC's proven technology**	
Opportunity		Weakness

However, Brazil is a sizeable economy with many parallels to South Africa's socio-economic environment, an arena where DigiCore has been operating successfully for the last two decades pioneering ongoing development.

4.4 Managing Knowledge – analysis of findings

Whilst DigiCore wanted and needed to make a profit as soon as possible, it is important to acknowledge what the risk-reward ration was over a period of time. In order to do this managing the information/data was imperative - this to create and maintain a competitive advantage against competitors, as well as continually assess and evaluate the effectiveness of the competitive data and the flow of the competitive intelligence model.

This is because, poor competitive information could do more damage to our JV than having no information at all. That is why; follow-ups are necessary and feedback to ensure that all critical points of the competitive intelligence model processes are working smoothly and effectively. Once we had had solid information from our market research and competitive intelligence analyses, we had to decide what the best strategy would be and how best to implement it. This would include Information Technology infrastructure.

According to Matt H. Evans (Tomorrow's Forecast: Issue #164, 2004, Deloitte) these are key steps to managing knowledge:

- By synthesizing and analysing data, we can transform data into information
- Next we apply high levels of experience and insights to information, transforming it into intelligence
- And if we can "act" on the intelligence, then it is value added by helping us in strategic decision-making.

Figure 7: Managing Knowledge Flow
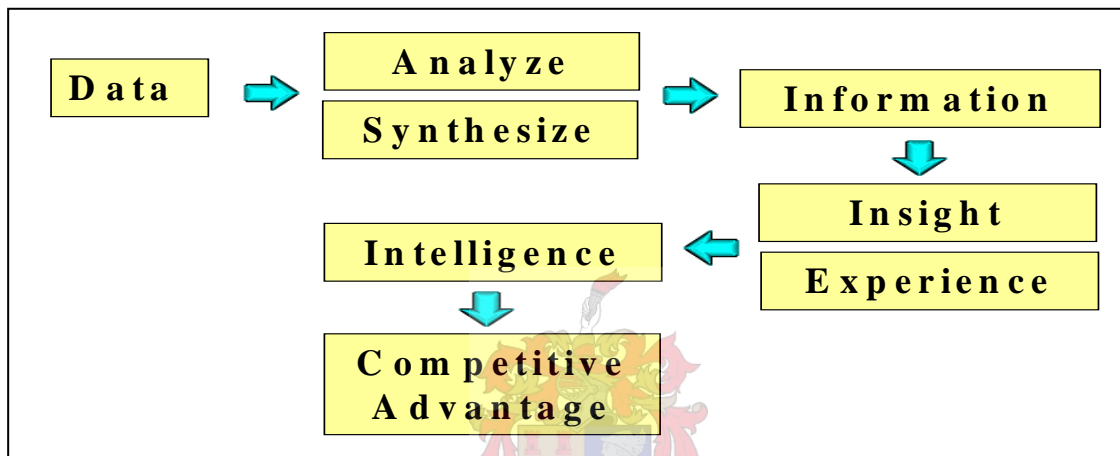
Chapter 5: *Channel Partner Development Programme*

By placing Brazil in the DigiCore map, various goals and objectives had to be achieved. On of these was designing a channel partner process. If the right partner was not identified and developed correctly the whole venture would, no doubt, be a failure. Thus, the main objective was to identify a strategic partner in Brazil.

In order to do this, the following blue print document was design and used for guidance. A partner search would be directed towards a wide variety of prospective business partners, including resellers and distributors, OEM arrangements, acquisition targets, strategic alliance partners, investors and others. The methodology needed to employ a phased approach that reduced the risk for DigiCore and meet clearly identified milestones along the way. This minimizes any downside financial exposure for the company.

Via various sources such as trade organisations and word of mouth, potential channel partners were identified. All parties that were interested were asked to complete a rigorous questionnaire with financials and commercial information. Once we had a shortlist of potential candidates, the following methodology was utilised:

5.1 *Objective:*

Develop a comprehensive international channel development program, which was based on the following:

5.1.2 *Internal Preparation*

Product and Company Profiles: Compiling detailed information on DigiCore's product and company that will be the basis for describing the opportunity your product represents to partners and resellers

- *Marketing Prior*ities: An analysis of the target market setting realistic objectives. Defining which sectors and channels are to be addressed. Setting reasonable timescales and expectations for the returns from those markets

- *International Partner Profile*: Defining the profiles, qualification criteria and process for recruitment of international marketing partners

- *Review of Pricing and Financial Model*: Pricing and payment policies, targets, terms and conditions

- *Support Requirements*: Identifying the support infrastructure required to provide the necessary levels of marketing and technical support

- *Partner / Reseller Manual*: Design the outline of the manual, together with guidance in preparing this important document

- *Partner Training and Support*: Provide outline documentation and planning guidelines, on what the international market will expect and need in terms of training and support.

- *Draft Documentation*: Draft Reseller Application Forms, Draft Heads of Agreement and Final Reseller Agreements, Licenses, Maintenance Agreements etc., for review by the legal department

- *Hiring Key Staff*: Describing the responsibilities and the profile of the key staff required to implement the plan

- *Localization*: Assess the impact of localization issues on the market development plan

- *Master Activity Schedule*: The plan will be delivered with timescales and resource requirements, developed in conjunction with the dealer.

5.1.3 Partner Search – Partner Recruitment

- *Identifying Prospective Partners*: define the profile of an ideal partner, and provide you with a comprehensive list of sources where prospects can be found

- *Making Contact*: The initial approach: Actions to take when contacting companies for the first time and how to move them to the next phase

- *Qualifying Prospects*: Qualifying prospects that express an interest is a critical part of the process, to produce qualified, motivated partners

- *Managing the Sales Process*: How to "close the sale" and get the commitment from your prospective international partners that will lead to mutual success. This includes a detailed discussion of marketing plans

- **Signing the Contract**: A thorough discussion of all of the key elements of a partner contract, including issues that are particularly sensitive to resellers, and the essential elements that provide you with the protection you need

5.1.4 Partner Management

- **Sales & Marketing, Incentive Programs**: An overview of the most common marketing and incentive programs that are used in the industry, including quota clubs, spiffs, sales contests

- **Commitments and Reporting**: The partner agreement will normally contain performance goals, and provides monthly reporting formats to keep track of their progress

- **Effective Communications**: Maintaining regular communications with partners is critical, using common tools, including newsletter and partner conferences

- **Measuring and Monitoring Partner performance**: The annual partner review should not be a casual "did they hit their numbers" exercise. A comprehensive process for the annual review that results in an informed decision as to whether or not the partner should be renewed, as well as setting the expectations for the next year

- **Refining the Channel**: How, and when to terminate relationships. How to handle cross-border sales; avoiding channel conflict

Once all the critical elements have been identified and explored in detail, the challenge is to identify potential business partners in Brazil and make initial contact to present the business opportunity and gauge the real level of interest. For each potential partner that responds positively, a one-page document (in-depth questionnaire) will be completed with company overview, contact details, revenues, number of employees, complementary technologies, and any other information that may be useful to our client for qualification.

The partner strategy was designed to produce a sufficient number of high-quality, productive partners who are ready and willing to invest in a concrete marketing plan to promote DigiCore's product.

The difference in performance between a partner who simply signs a distribution agreement in order to add to his portfolio, and one that actively promotes the product is not incremental – it is an order of magnitude difference.

5.2 Market Diagnostic and Channel Profile

Once a channel strategy and market research have been completed and understood, a further step of analysis is necessary. If you have identified a solid channel partner and have a better understanding of the market you wish to operate in, the next step is to align the channel partner's strength within the market you wish to operate.

A typical acid test is to determine how current products and services are being sold and marketed by the channel partner and identifying any weaknesses in the company's channel support program.

Thus, obtaining a high-level overview of the company and its products is important to make sure that DigiCore and the channel partner aim towards a common set of objectives. A further initiative is to guide the selling process and market challenges, such as branding, positioning and marketing collateral.

However, as stated by Geoffrey Moore, (Crossing the Chasm, p145), "Getting and sustaining the attention of someone else's sales force is a full-time job, since helping to sell someone else's product is an unnatural act that must be stimulated constantly".

It was clear that our specified channel partner in Brazil would face some challenges. Our partner represents 20 products, but make most of its money from two or three of them. In order to ensure that C-track became one of their core products, it required a change in the reseller's internal business process. However, they will only make these changes if they were convinced that DigiCore was committed to developing and supporting a high quality channel.

Thus, based on market research conducted amongst our current operations, the following key factors were identified:

- *Margin*: the margin or discount that is being offered to the partner needs to be attractive, or they won't actively sell your product
- *Technical support*: real time support as well as extensive product training is paramount

- ***Territorial exclusivity***: exclusivity needs to be offered, at least for a specified and agreed period. Brazil is the 7th largest ICT market in the world, yet it is responsible for less than 2% of the world ICT expenditure

- ***Set reasonable targets***: set targets that allow DigiCore to get rid of under-performers, but setting unreasonably high targets only creates problems

- ***Don't publish prices on the Web***: This is a big issue with channel partners, because local pricing tends to vary from market to market. Publishing your prices, if they are lower than standard international pricing, can make life difficult for your partners

- ***Communicate***: Absence does not make the heart grow fonder. Stay in regular contact through phone calls, e-mails and visits

5.3   Concluding Observations

After extensive search, DigiCore identified DEXBrasil as the ideal channel partner. DEXBrasil is a subsidiary of DEXSA. The Dex Group of Companies, collectively and informally known as DEX, is an IT-based global group, established in 1982 and staffed by 150 highly-skilled people – most of them specialists in their fields.

In fact, these specialists have created and are delivering through information technology a variety of unique solution-driven, state-of-the-art products and services.
- financial services with focus on insurance
- IT-in-security - biometric identification, access control, document protection, electronic data protection
- management - accounting, collections, allocations and management services - insurance, security, IT, globalisation

By utilising Cook & Cook's model, DigiCore has identified the need to conduct a **Needs assessment** exercise on a quarterly basis. Identifying key competitors to ensure all pertinent competitive information needs to be part of the ongoing sales process. Each custodian must **Formulate questions** that are of relevance to the business, for example a new product introduction by a competitor may be a direct threat to DigiCore and thus time and efforts invested on compiling competitive intelligence is imperative.

However, there has to be an **Organised Process** whereby **Gathered data** is collected and stored. An important factor is to avoid information overload whereby information is just collected and stored but no real transformation or analysis takes place. In order to do this, it must be ensured that **the information** is organised and segmented in order to assess if **Sufficient information** has been collected, in other words, are there any information **Gaps** that may result in competitors launching products and or services which DigiCore management are unaware and unable to react on time?

Some of the elements of an effective program Information Management Process:

- *Sales & technical training*: The channel partner needs to learn more about how the product works, how it is sold, and how it is used by clients in their domestic market. The vendor will benefit from developing a stronger relationship with his new business partner, getting input regarding features that might make the product better or easier to sell in the target market, as well as giving more people in the organization exposure to the new international partners.

- *Partner manual*: This is a critical document that outlines all of the company policies, order procedures, payment process, contact information for tech support, price list, product overviews, etc. It should be designed in a way that reduces or eliminates most of the questions that might come from international partners.

- *Sales & Marketing Programs*: Let the channel benefit from everything you are doing at home. Resellers and distributors will rarely have a marketing staff or creative people that can create materials from scratch, nor will they have the same economies of scale that you do. Remember that you are likely to be one of 20 or 30 products they are selling, so make it as easy as possible for them to sell yours.

- *Sales & Marketing Reports*: Most channel partners dislike filling out monthly reports, because they see it as administrative busywork that takes time away from selling and supporting products. However, they are an essential element for a vendor in monitoring, managing and motivating a channel.

- *Programs & Incentives*: There are a number of programs that can be implemented to promote your product, but they will vary based on the complexity of the technology, the sales cycle and the markets in which you are active. Some of the more common programs are sales contests, quota clubs and spiffs (payments usually made directly to a reseller's salespeople for the sales they make).

- *Site visits*: A vendor should visit his key partners every year. The visits improve the relationship, provide an opportunity to meet with more people in the channel partner's organization, and in many cases can be used for sales calls on key accounts.
- *Partner conferences*: When the channel becomes large enough, an annual conference should be scheduled. They help create a feeling of community, and are an excellent forum for presenting new versions of the product, as well as getting feedback (and criticism!) that isn't provided in one-on-one phone calls and e-mail exchanges.
- Web based platform: The following simple programme was developed by DigiCore's engineers to capture data and ensure that all relevant parties, regardless of geographical location could add data on an ongoing basis.

Figure 8: An In-house tool designed to disseminate information
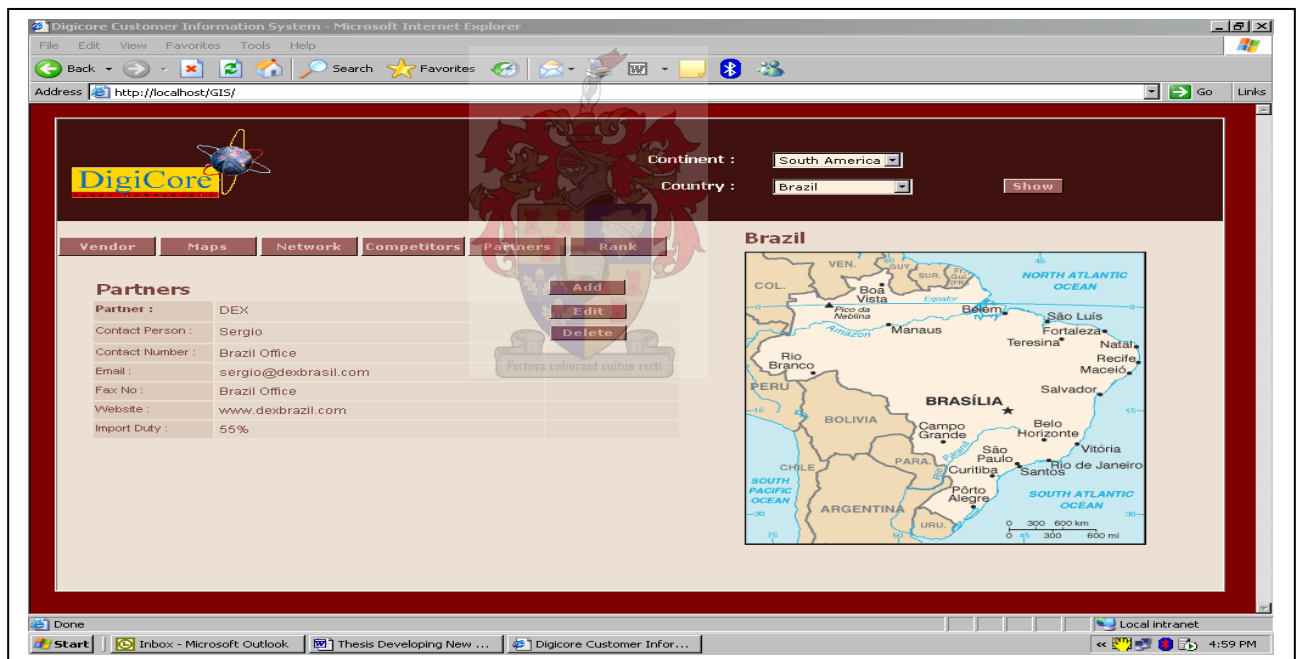
Chapter 6: Marketing Product Positioning In Brazil. Secure A Stolen Vehicle Recovery Offering

Once all the information was available, the next step was to formulate a marketing strategy and design a blue print or roadmap in all relevant areas.

6.1. The Product

Historically many small fleets and businesses in Brazil in accordance with insurance requirements have opted for beacon based and passive technology for security, which cannot give any value-added real-time location or movement information other than reactive recovery if and when required. C-track Secure in Brazil would combine valuable Internet based productivity and movement reporting. C-track Secure would offer an efficient combination of track and trace technology with vehicle tracking information.

Based on the research, Secure would fill a definite market gap in Brazil. Full Fleet Management solutions can be too expensive for small fleet operators whilst Stolen Vehicle Recovery (SVR) systems are relatively inexpensive but add no value in terms of fleet management. Secure offers not only the most advanced personal Stolen Vehicle Recovery (SVR) system on the market; it also offers basic fleet management capability without the need to invest in expensive office equipment. This unit provides DEXBRASIL with a highly innovative and unique platform for significant business expansion via breakthrough into the mass market for 'no frills' assets tracking for SMEs or individual consumers.

6.2. Business Strategy

The market place for C-track Secure in Brazil can be spilt into 2 distinct categories:

- Corporate Segment: Corporate Plant, Corporate Company car, SME fleet management
- Consumer Segment

6.2.1 Corporate & SME Segments

Corporate users can broadly be split into two different categories – large corporates, whose primary incentives are to find stolen and lost assets – either company cars, or plant. The second category includes the SME market with a fleet of less than 10 vehicles. C-Track secure will give the SME user the ability to do all the above, at a cost which is considerably below the current market level.

There are a variety of applications, which create a requirement for companies to track their vehicles. These include, but are not limited to:

• Stolen asset (vehicle or plant) recovery

• Vehicle and asset efficiency

• Legislative (corporate manslaughter, business/private mileage, insurance company insistence).

SMEs will be able to see their vehicles on a map on their PC. The program will be supplied with a CD, which when loaded onto their PC, will be able to look at their vehicles on our server. The mapping will be 'applet' mapping – i.e. every time they use the map, the map view gets stored on their computer.

6.2.2 Consumer Segment

Brazilian Consumers have three major reasons for wanting a tracking system:

- To protect their vehicle
- Because their insurance company will not insure them without a tracking device
- To track their children, or others borrowing the vehicle.

Whilst the market for vehicle security products is well developed in the Brazil, it is relatively under-penetrated. Demand is growing, however, it will take the Brazilian insurance companies to begin to force high value vehicle owners to have vehicle-tracking equipment fitted. This has LOCATION DISPLAY & TRIP REPLAY. SME users will be able to see vehicle location presented on mapping screens that zoom into street and even house number level. The Trip Replay function will also allow users to replay the last 24 reported vehicle positions SMEs will also be given access to a range of reports.

6.2.2.1 Consumer Offering

Consumers will be given a package which will include 31 free texts per month. This will allow for one daily SMS. Any further SMSs sent by the vehicle will be charged to the customer at a premium rate. This will be collected by Direct Debit on a quarterly basis.

The primary means for retail vehicle drivers to access information will be via their cell phone – the following functions can be supported:

- Obtain the vehicles latest location (accurate to 4 meters)

- Be alerted if the vehicles moves - with or without engine on ("Watch Guard")
- Be alerted if the vehicles is driven outside of a prescribed area
- Immobilise the vehicle

6.3. Sales Distribution

6.3.1 Corporate:

Large corporate - We aim to use our internal sales force to target large corporates for both plant and company cars, by both up selling to existing customers, and using our existing contacts. We will also have some selected meetings with leasing companies.

6.3.2 SMEs:

They key to achieving rapid uptake of Secure, will be in creating dealer channels. These will include:

- Local fleet leasing companies
- Local Garages
- Existing vehicle security franchises
- Existing Telematics dealers who may be disenfranchised with their current provider.
- Security Companies
- We hope to be able to tie up with a major partner to use their existing SME base. Examples of such a partner would include Brazil Telecom etc.

The aim is not to sell direct to the general public. It is accepted that lower margins will be achieved on the product sale itself; however, the volumes will help.

These would be sold through:
• Car dealers
• Tie ups with Insurance companies
• Installer network
• Local garages – using Snap on and Mac Tools
• ATS/Kwick fit
• Retail outlets
• Tie ups with corporates (the AA)
• Partnerships with Mobile companies (i.e. Celcom)
• Internet outlets
• Mail Order magazines & Sunday Paper advertisements

6.3.3 Brazilian insurance company recognised products & required industry certifications

It is imperative that Brazilian insurance companies not only recognise Secure but that they recommended it amongst their current customer base. In order to achieve this, it may be necessary to obtain industry specification and standards requirements.

6.3.4 Market Share

Initial projections range between the 5000 to 15000 units per year.

6.3.5 Secure Operating Centre

The only communication between the vehicle and external environment must be to a Secure Operating Centre (SOC), which has to adhere to strict guidelines (intruder protection, fire protection, back up power etc).

6.4 Technologically Superior Product: Marketing Position In Brazil

6.4.1. The System: Real time location

- C-track Secure: provides real time location, whereby a vehicle's location can be accessed from a cellphone, with a simple SMS or from an Internet connection. Secure stores historical information to monitor productivity and its proactive nature means that the unit will communicate with the vehicle's owner when various exceptions occur, such as driving out of a pre-defined area.
- Receive meaningful location information, right down to the street name
- GPS positioning, 4-10meters accuracy
- As a back-up it is also traceable using the GSM networks
- Detailed maps allow panning and zooming.
- Capability to replaying the vehicle's last 24 positions, or get detailed trip-by-trip reports of its activities

6.4.2 Active, Intelligence Unit

- Secure senses and proactively reports tampering with its power supply in which case the back-up battery will take over
- The unit will track vehicle location where there is movement without the ignition being on
- Low current draw by the unit (less than 10% of industry standard), ensures it won't drain the vehicles battery
- A daily system check ensures that the unit is working

- An optional, remote Panic Button will send vehicle's location to the Support Centre for immediate action and Immobilisation

6.4.3 Business/Private Tax Log

Capability to determine business or private trip selection for tax and vehicle utilisation purposes (kilometers business/private log book)

6.4.4 Key Reports

- **Summary Report**: Records time of 1st. Start Up for the day, time of last ignition off for the day, location at last ignition off, maximum speed for the day, distance traveled for the day and number of completed trips for the day. It is recommended that the installing technicians set units up in this mode unless stipulated otherwise in the application form, as it is the most economical in terms of SMS usage.
- **Daily Movement Report**: Records vehicle location, distance traveled and maximum speed for the preceding hour every hour, on the hour. Once twelve such positions have been recorded, an SMS is sent to the Support Centre.

6.5 Market Segmentation

The market for telematics in the Brasil is vast and the potential customer base can be viewed as three separate customer groupings. Each of these distinct groupings could benefit significantly from utilising telematics:

- Major corporate organisations – Organisations employing large numbers of people
- Small and medium sized employers (SMEs) - Often defined as employing between 1 and 249 people
- Retail consumers – individuals where security is a major concern

6.5.1. Major Corporate

The awareness of telematics amongst major organisations is very limited. Where such organisations are involved in supply chain management and logistics it is likely that fleet managers within such organisations could be making use of telematics on a simple tracking and tracing basis. Such technology is not well known at Board level. With the ability of telematics to impact on the business as a whole there are significant opportunities to deliver telematics into major corporation boardrooms.

6.5.2 SMEs

Turning to the SME sector, in broad terms, almost any organisation within the haulage industry will have had an exposure to telematics. The hauler market place is very saturated. There is a history of selling telematics into haulers for a period of between 3-5 years at decreasing costs, as the market has become progressively more competitive.

6.5.3 Retail consumers

The population of Brazil is approximately 120,000,000 people. There is almost currently no awareness amongst the general public of the word telematics. As mentioned earlier in this section there is a number of factors, which will heighten awareness amongst consumers of the benefits of telematics. Over the past several years there has been a marked increase in the number of households with access to at least one car.

A recent global survey by Gartner (www.gartner.com) showed that there is a real demand from informed consumers for navigation devices and safety and security for individuals and their vehicles. In particular there was a strong demand for remote immobilisation of cars. Their survey showed that 66% of those interviewed were willing to pay a premium for a navigation device.

Negative perceptions amongst retail consumers: Lessons from a recent survey by SBD indicated that SatNav and Security devices were still considered by consumers to be too expensive and too complex. There is a clear demand for Security devices by consumers but the devices need to be simple to operate and easy for resellers (Car Dealer Networks) to demonstrate and sell. The pricing model also has to be very simple. The SBD survey showed that from 1998 to 2004 in Europe there were approximately 150,000 car security devices sold. In the past year alone this figure has risen by 215,000 devices sold in one year. Globally, insurance organisations tend to insist that vehicles with a value over USD $60,000 have to have a tracking type device installed.

Consumers will be looking for simple devices and there is significant scope for the C-track Secure product offering. There is also likely to be growing demand for tracking and tracing other consumer assets such as motor bikes, caravans and boats. The changing technologies especially relating to power management and enhanced battery power make the introduction of battery powered tracking units very affordable.
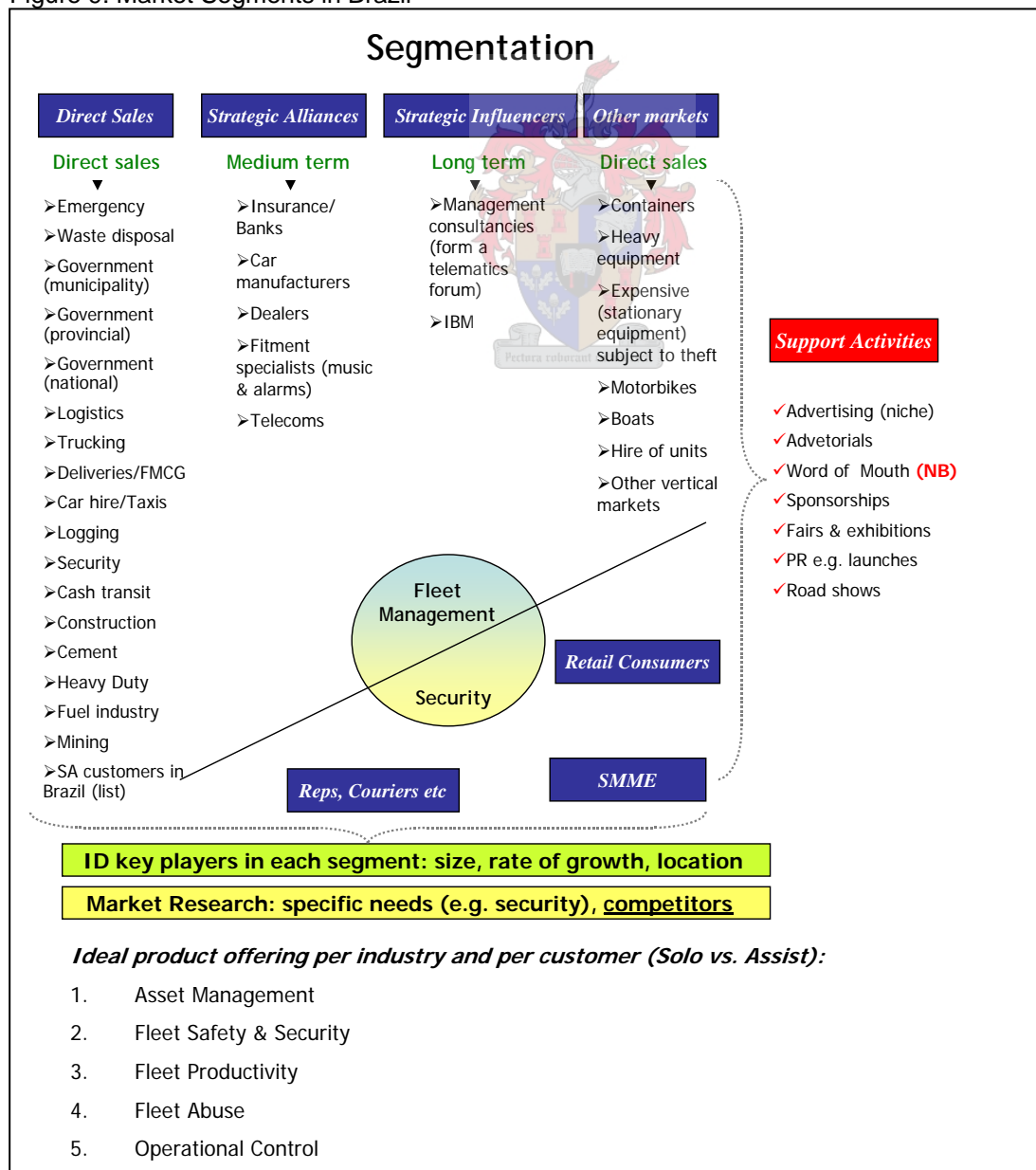
6.5.4 Specific Vertical Market Opportunities

As well as the broad lateral market segmentation there are very significant opportunities in vertical markets in Brazil – especially for the C-track security product and a Battery powered box. In summary:

- Motorcycles are popular in Brasil and there are very few devices in the market for tracking these assets. There is a real market opportunity for stolen motorbike tracking not only in the private sector but also in the delivery and courier markets. The recovery rate for stolen motorbikes is less than half compared to cars due to the ease with which bikes can be loaded into the back of a van and the fact that existing antitheft systems mean the tracking device is not usually switched on until the owner discovers the bike has been stolen. Secure's motion sensor will prevent this.

- It is a significant recognised issue that items of plant – traditionally associated with the construction industry – are stolen or go missing on a regular basis. Plant Theft is an ever-increasing problem for plant hire and construction industries. With an estimated 120 million pounds of plant being stolen per annum, there is a real drive to decrease these figures.

- Insurance companies are being pressed by the Construction Plant Association to make security systems a manufacturer's stipulation. If anti theft devices are fitted it is possible to obtain discounts from insurance companies. There are a host of different manufacturers producing retro-fitted equipment and there are clear opportunities for Digicore to provide tracking devices to this market sector.

- Secure can be used for trailer tracking providing an excellent cost-effective solution to reducing cargo risk. Trailers are very difficult to track, as there are technology challenges in tracking this type of asset. Most trailers (apart from refrigerated trailers) do not have a 'stand alone' source of power on them. As such it is not possible to install traditional tracking devices on most trailers as the 'black boxes' require a source of power to charge any batteries within the telematics box. As a result of recent technology breakthroughs in GPS chip technologies, power management and batteries a few 'battery powered' telematics boxes are starting to emerge.

- Caravan Clubs and motor homes have experienced membership growth for a number of years. Whilst they do not endorse products they can influence buyers and the market for caravan security products is significant. Typical GPS security products, which have until recently been battery powered can cost up to USD 700 together with a monthly fee.

- Offshore pleasure craft is another obvious market. Historically satellite communication and tracking devices at costs well in excess of USD 1,200 have served the marine market. With falling prices and changes in technology there are opportunities to provide tracking and 'security' devices to this market segment. The pleasure craft market is set to grow steadily over the next few years.

Figure 9: Market Segments in Brazil

Segmentation

Direct Sales	Strategic Alliances	Strategic Influencers	Other markets
Direct sales	**Medium term**	**Long term**	**Direct sales**
➢Emergency	➢Insurance/ Banks	➢Management consultancies (form a telematics forum)	➢Containers
➢Waste disposal	➢Car manufacturers	➢IBM	➢Heavy equipment
➢Government (municipality)	➢Dealers		➢Expensive (stationary equipment) subject to theft
➢Government (provincial)	➢Fitment specialists (music & alarms)		➢Motorbikes
➢Government (national)	➢Telecoms		➢Boats
➢Logistics			➢Hire of units
➢Trucking			➢Other vertical markets
➢Deliveries/FMCG			
➢Car hire/Taxis			
➢Logging			
➢Security			
➢Cash transit			
➢Construction			
➢Cement			
➢Heavy Duty			
➢Fuel industry			
➢Mining			
➢SA customers in Brazil (list)			

Fleet Management

Security

Retail Consumers

Reps, Couriers etc

SMME

Support Activities

✓Advertising (niche)
✓Advetorials
✓Word of Mouth **(NB)**
✓Sponsorships
✓Fairs & exhibitions
✓PR e.g. launches
✓Road shows

ID key players in each segment: size, rate of growth, location

Market Research: specific needs (e.g. security), competitors

Ideal product offering per industry and per customer (Solo vs. Assist):

1. Asset Management
2. Fleet Safety & Security
3. Fleet Productivity
4. Fleet Abuse
5. Operational Control

6.6 The Ideal Information Architecture

An information system is a set of interrelated components working together that support the decision making process. Within DigiCore Information Systems was the ideal platform not only to make the product more competitive but also to achieve new opportunities and thus achieve significant business benefits.

6.6.1 Secure Web Server Infrastructure Options

The purpose of this document is to explain the different web server implementations.

- The Secure Web Server Environment has the following facets –
- Web Service
- Map Service
- C-track 6 Secure base station with SQL2000 database.
- Supporting Tools

Depending on the solution required, the infrastructure would be different. The most common scenarios and possible solutions will be explained.
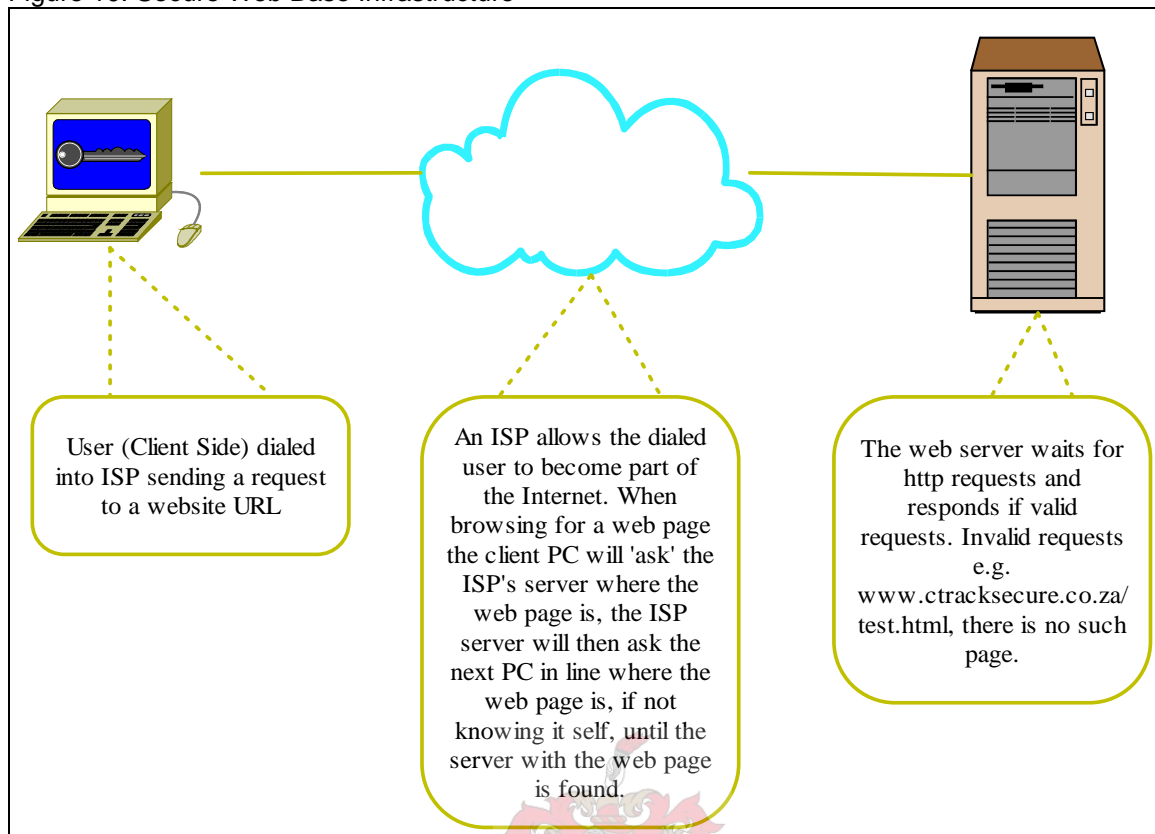
6.6.2 Web Overview

When talking about the web environment, it refers to the client side and server side. The Server side refers to the PC where the web is hosted and the client side refers to the pc from which the web requests are made.

Hosting a web site means that a central pc has a unique IP address, visible to any body in the world and name – e.g. www.ctracksecure.co.za which actually only represents the IP. This PC runs the Microsoft Internet Information Server, also referred to as IIS, and the developed website files. Each website uses different methods to fulfil its needs. Some companies use a website as a marketing tool with pictures and text, others use websites as applications to give a service etc.

The requirement determines the complexity of the infrastructure surrounding the website, where to host it, what type of server to use, what bandwidth to use and what technology to use in developing the website.

No matter what technology used, the 'Internet' works on a basic principal of request and response. The client side, e.g. www.whatever.co.za, will send a request to the destination server for the web page. The server will receive the request, and if a valid request, respond by sending the data back to the pc requesting the page.
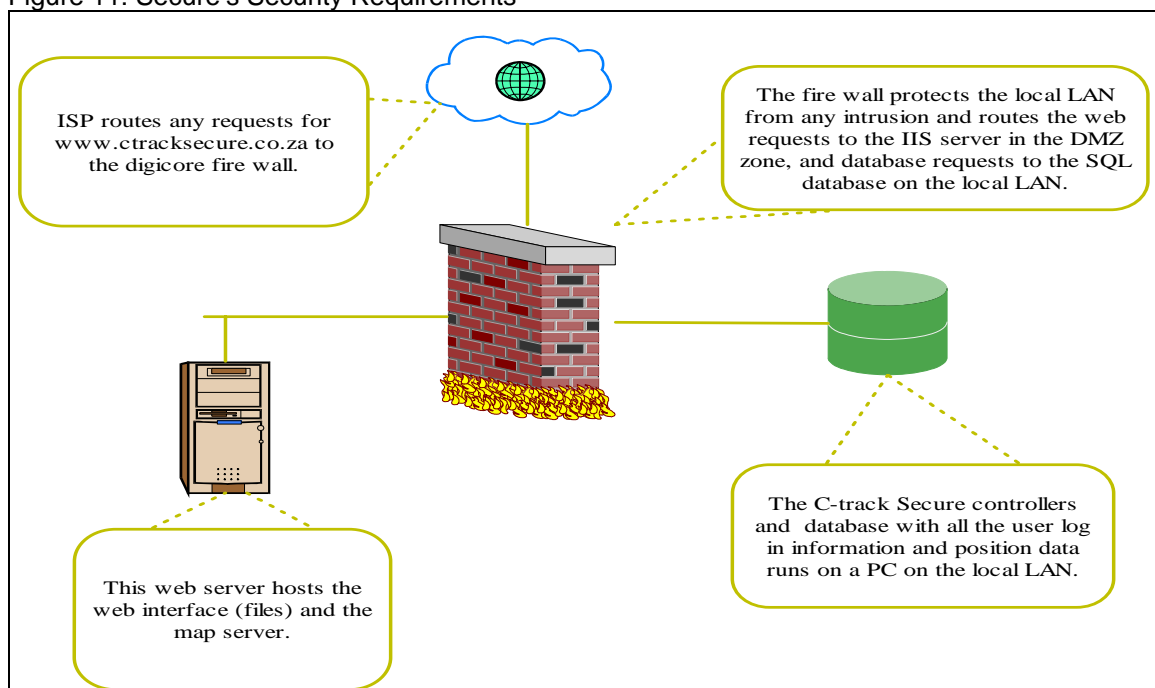
Figure 10: Secure Web Base Infrastructure

User (Client Side) dialed into ISP sending a request to a website URL

An ISP allows the dialed user to become part of the Internet. When browsing for a web page the client PC will 'ask' the ISP's server where the web page is, the ISP server will then ask the next PC in line where the web page is, if not knowing it self, until the server with the web page is found.

The web server waits for http requests and responds if valid requests. Invalid requests e.g. www.ctracksecure.co.za/ test.html, there is no such page.

The server cannot respond without any sort of request. This is a very basic concept but very important to remember, especially when working with a web application.

6.6.3 DigiCore's Web Infrastructure

Figure 11: Secure's Security Requirements

ISP routes any requests for www.ctracksecure.co.za to the digicore fire wall.

The fire wall protects the local LAN from any intrusion and routes the web requests to the IIS server in the DMZ zone, and database requests to the SQL database on the local LAN.

This web server hosts the web interface (files) and the map server.

The C-track Secure controllers and database with all the user log in information and position data runs on a PC on the local LAN.

Security plays a big role in any IT environment. DigiCore hosts a firewall that takes care of all security related and routing tasks. All IIS PC-s are placed in their own network called the DMZ (De-Militarised Zone). The DMZ zone is separated from the rest of the network with a good purpose. If any person hacks into any of the IIS PC's, all other networks are not reachable from the DMZ zone, which protects our client's data on the local LAN.

6.6.4 Secure Web Setup

The Secure Web PC's are configured as follow –
- IIS PC (DMZ)
- Runs Microsoft IIS.
- Secure Web Services. Installed in the <Web>/<root> directory.
- DCT Internet Map Server. Runs an instance of big maps and small maps.
- DCT Log Services. Administrator tool to view real time activity on the Secure Web Services.
- C-track Secure Base station and database (LOCAL LAN)
- Comms Server, Router and Mobile Controller.
- SQL database with client data.
- Login Administrative Tool. Used to reset logins. (Can also run remotely)
- Web License Key Generator. Generates new Usernames, Passwords and Registration Keys for users. (Can also run remotely)
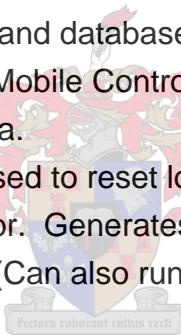
6.6.5 Secure Web Technology Implementation

Secure Web is based on .NET C# thin client technology, with .NET Web Services running at the server. The thin client uses web protocols to communicate with any web server. The benefits of using thin client technology –
- Develop with powerful development technologies like C#.
- Improve application extensibility and usability.
- Development time is much shorter.

6.6.6 Secure Web Application Process

Figure 12: Secure's Web Application Process
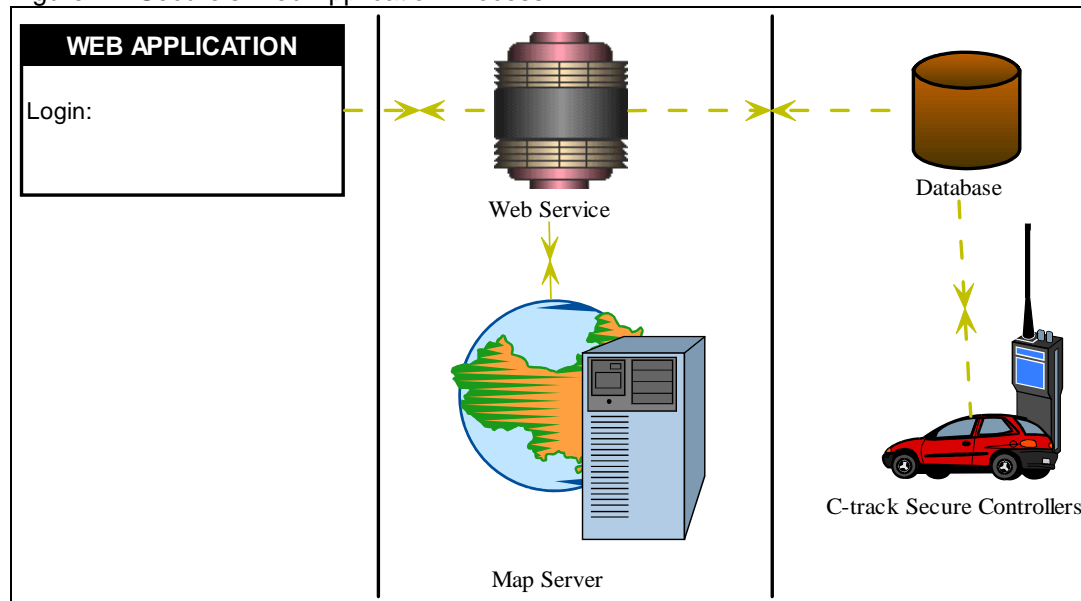
It is very important to remember that all data and maps are generated at the IIS server and passed back to the client side. The user has no local database on his PC. There is some optimisation built in the application to store for e.g. the 'Africa Map' on the users machine to make the boot-up process quicker.

To explain the process flow between the client side and server side we will work through a few scenarios -

Last Location -
- The request is sent to the server. The vehicle number is sent to the server as part of the request.
- The Web Service queries the database for the data.
- After receiving the data back from the database, the web service passes the relevant data to the Map Server, which generates a map image (JPG).
- The Web Service responds back to the client side with a path from where the image can be downloaded.
- The client side then downloads and displays the map.

Poll a mobile –

- The request is sent to the server. The poll request is placed in a mobile polled queue. If there is more than one poll request for a specific vehicle, the later requests will also be placed in the mobile polled queue for that specific vehicle, without sending a new poll to the vehicle.
- The client side sends a request for the poll state every 5. The server responds with a Poll received, not received or a time-out message. If no poll is received within 10 minutes, the server will respond with a time out message.

6.6.7 Scenario 1: Pilot Site

Possibly used initially to get the whole environment stable with not to many clients. Typically not more than 100 clients with 1000 vehicles.

Network Requirements:

- Static International IP address - 128K line.
- Firewall.
- DMZ Zone for IIS PC.
- GSM Device.

PC Requirements

- Port Firewall or e.g. Linux Firewall (PC – Entry-level PC P4, 512M RAM, 40G Byte HDD, depending on Network set-up 3 – 4 LAN cards.)
- IIS/Map Server PC – Entry-level PC P4, 2G RAM, 40G Byte HDD, single LAN card.
- C-track 6 base station – Entry-level PC P4, 1G RAM, 80G Byte HDD, single LAN card. USB/ serial port for GSM device.
- Software – Microsoft SQL2000, C-track 6, IIS (Microsoft Windows 2000 Server), OS – Microsoft Windows 2000 Server.

Figure 13: Secure's Pilot Site
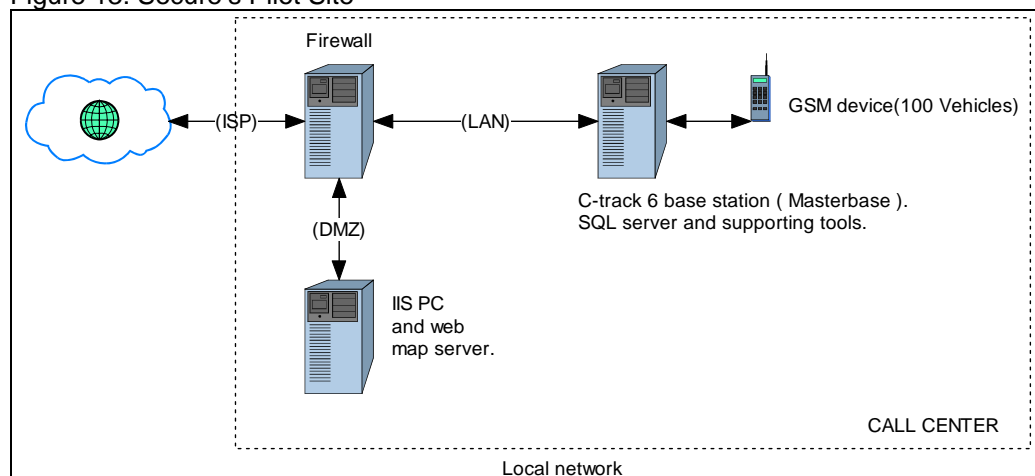
6.6.8 Scenario 2: Entry Level/Start-Up

Co-located hosting (at ISP) of the web server with in house hosting of the C-track 6 base station. Typically not more than 500 clients with 5000 vehicles.
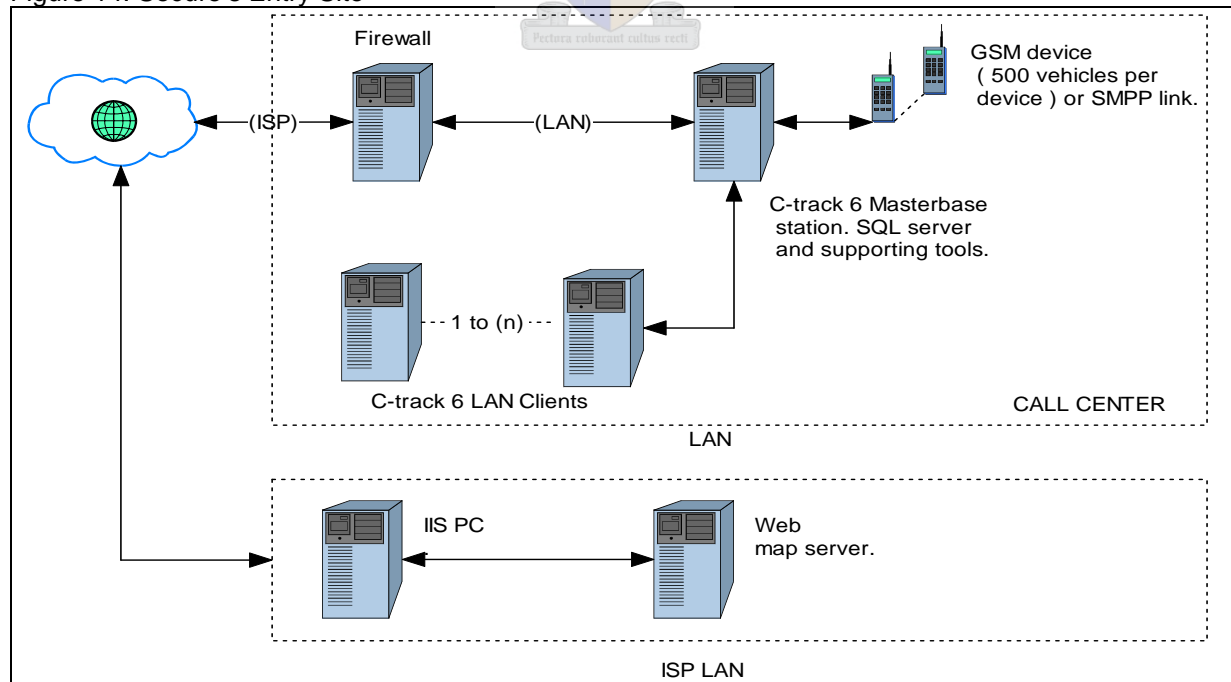
Network Requirements:
- Static International IP address - 128K line or direct line to ISP (if possible).
- Firewall.
- SMPP link/ GSM

PC Requirements
- Firewall or e.g. Linux Firewall (Shorewall) (PC – Entry-level PC P4, 512M RAM, 40G Byte HDD, depending on Network setup 2 – 3 LAN cards.)
- C-track 6 base station – Dual Processor 2.8GHz Xeon with 4 GIG RAM with Raid 70GIG HDD.
- IIS Server - Entry-level PC P4, 2G Byte RAM, 40G Byte HDD, single LAN card.
- Web Map Server - Dual Processor 2.8GHz Xeon with 4 G Byte (8G Byte max) RAM with Raid 70G Bytes (146G Byte x 5 max) HDD.
- Software – Microsoft SQL2000, C-track 6, IIS (Microsoft Windows 2000 Server), OS – Microsoft Windows 2000 Server.

Figure 14: Secure's Entry Site

6.6.9. Scenario 3:Remote Hosted 1

Co-located hosting, at Data Warehouse, of the web server and C-track 6 base station with LAN client and LAN GSM device through encrypted connection (IPSEC). Typically not more than 500 clients with 5000 vehicles.

Network Requirement:
- Static International IP address - 128K line.
- Firewall if not supplied.
- SMPP line.
- PC Requirement:
- Firewall or e.g. Linux Firewall (Shorewall) (PC – Entry-level PC P4, 512M RAM, 40G Byte HDD, depending on Network setup 2 – 3 LAN cards.)
- C-track 6 base station – Dual Processor 2.8GHz Xeon with 4G RAM with Raid 70G Byte HDD.
- C-track 6 LAN client - Entry-level PC P4, 1G RAM, 40G Byte HDD, depending on Network setup 2 LAN cards depending on configuration.
- IIS Server - Entry-level PC P4, 2GIG RAM, 40G Byte HDD, single LAN card.
- Web Map Server - Dual Processor 2.8GHz Xeon with 4G (8G max) RAM with Raid 70G Byte (146G Byte x 5 max) HDD.
- Software – Microsoft SQL2000, C-track 6, IIS (Microsoft Windows 2000 Server), OS – Microsoft Windows 2000 Server.

Figure 15: Secure's Remote Hosted
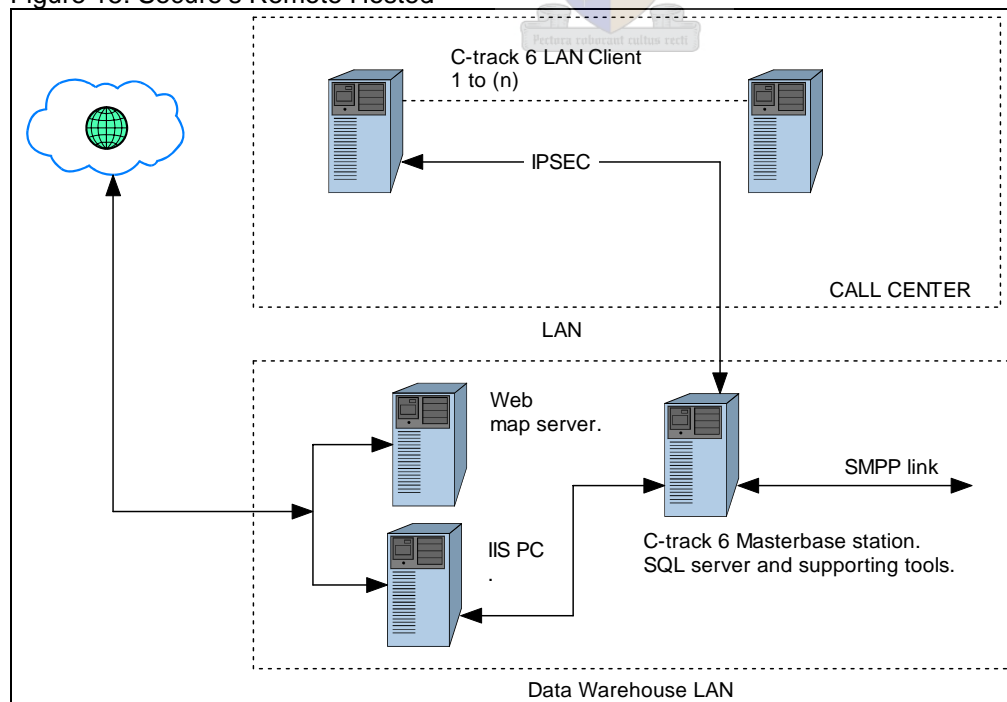
6.6.10. Scenario 4:Remote Hosted 2

Co-located hosting of IIS PC (at ISP) and C-track 6 base station at Data Warehouse with LAN client and LAN GSM device through encrypted connection. Typically not more than 500 clients with 5000 vehicles.

Network Requirement:

- Static International IP address - 128K line.
- Firewall if not supplied.
- SMPP line.

- PC Requirement:
- Firewall or e.g. Linux Firewall (Shorewall) (PC – Entry-level PC P4, 512M RAM, 40G Byte HDD.)
- C-track 6 base station – Dual Processor 2.8GHz Xeon with 4G RAM with Raid 70G Byte HDD.
- C-track 6 LAN client - Entry-level PC P4, 1G RAM, 40G Byte HDD, depending on Network setup 2 LAN cards depending on configuration.
- IIS Server - Entry-level PC P4, 2GIG RAM, 40G Byte HDD, single LAN card.
- Web Map Server - Dual Processor 2.8GHz Xeon with 4G   (8G max) RAM with Raid 70G Byte (146G Byte x 5 max) HDD.
- Software – Microsoft SQL2000, C-track 6, IIS (Microsoft Windows 2000 Server), OS – Microsoft Windows 2000 Server.

Figure 16: Secure's Remote Hosted 2
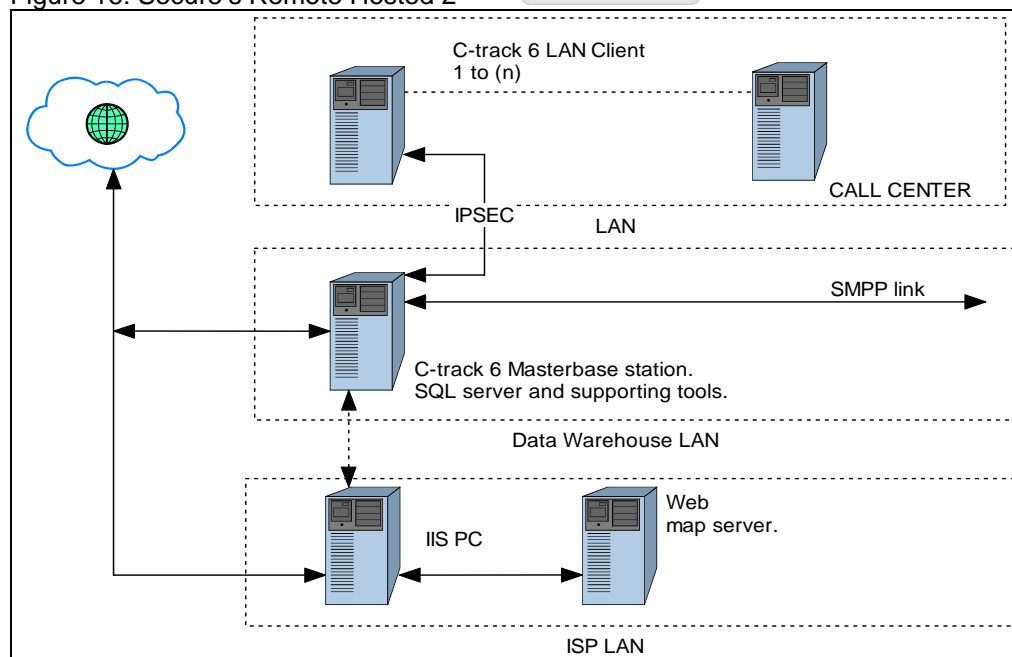
6.6.11 Scenario 5:High Volume

Co-located hosting, at Data Warehouse, of the web server and C-track 6 base station with LAN client and SMPP link through encrypted connection (IPSEC). Typically not more than 5000 clients with 25000 vehicles.

Network Requirement:
- Static International IP address.
- Firewall if not supplied.
- SMPP line.

PC Requirement:
- Firewall or e.g. Linux Firewall (Shorewall) (PC – Entry-level PC P4, 512MRAM, 40 GB HDD)
- C-track 6 base station – Dual Processor 2.8GHz Xeon with 4G RAM with Raid 70 GB HDD.
- C-track 6 LAN client - Entry-level PC P4, 1G RAM, 40G Byte HDD, depending on Network setup 2 LAN cards depending on configuration.
- IIS Server - Entry-level PC P4, 2GIG RAM, 40G Byte HDD, single LAN card.
- Web Map Server - Dual Processor 2.8GHz Xeon with 4G (8G max) RAM with Raid 70G Byte (146G Byte x 5 max) HDD.
- Software – Microsoft SQL2000, C-track 6, IIS (Microsoft Windows 2000 Server), OS – Microsoft Windows 2000 Server.

Figure 17: Secure's High Volume
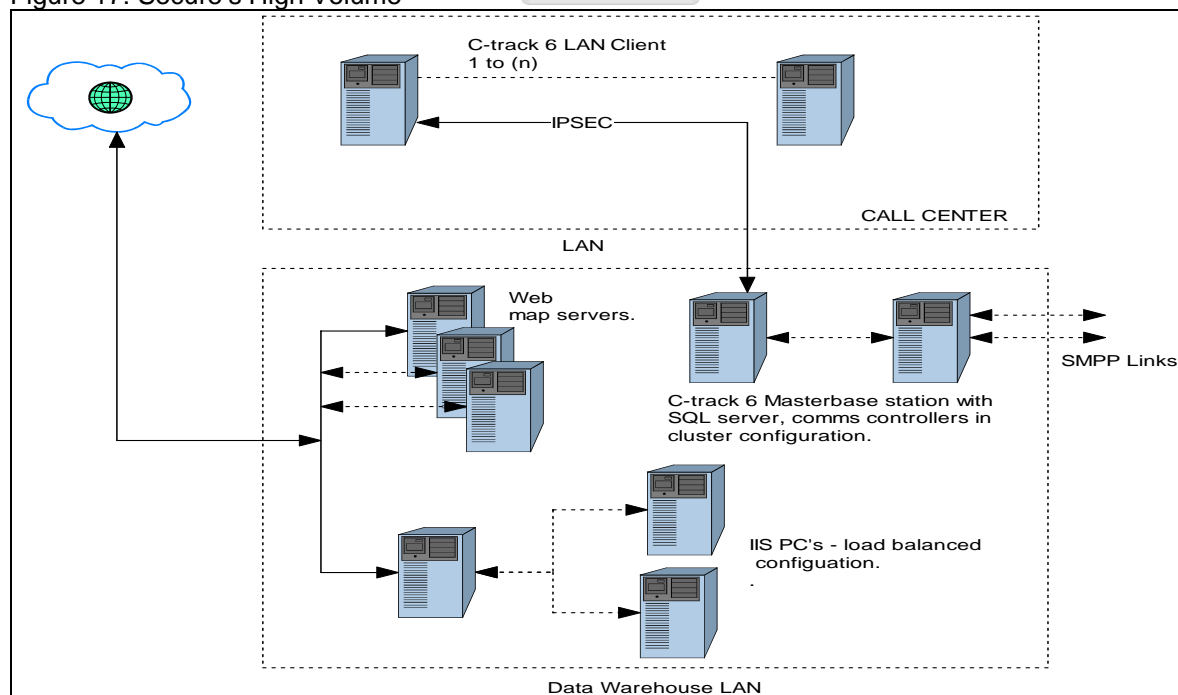
6.7. Strategies For Growth

In order to sustain the operation in Brazil, a medium to long term strategy for growth was conceptualized in order to achieve the desired results over this period.

6.7.1 Fleet & SVR Sector

DEXBrasil will continue to focus on selling telematics products in Brazil and to develop and grow the Stolen Vehicle Recovery market. This will be a complementing strategy to ensure long-term growth as although large fleet management contracts are a major focus, it usually results in a very 'lumpy' cash flow, with a few large influxes during the year. The strategy is to supplement these with smaller contracts of sub 100 vehicles. These have the advantage of spreading risk, and their decision-making cycles are relatively quick, and generate a higher margin. To aid this strategy, top commercial personnel will be employed.

6.7.2. Supply Chain

The Brazilian market is becoming more sophisticated and customers are now beginning to require vehicle tracking and added value services such as route monitoring and control centre capabilities.

6.7.3 Key Staff Development

At least the following structures will have to be in place. One hardware person – setup, maintenance. One software person – installation of C-track full suit / set-up / maintenance / backup and one commercial person – sales, communication, CRM. It is recommended that these people have an acceptable English language capability.

6.7.4 Marketing

Marketing is a key area, which requires ongoing investment to ensure that the Brazilian marketplace is fully aware of DEXBrasil capabilities. The investment would not be exclusive to people but also targeted at the Internet, events and sales collateral. Effective use of the Internet would be key.

6.7.5 Marketing Materials

Working with South Africa the business has developed an impressive selection of brochures to support the sales process. Digicore South Africa is also working on a corporate brochure with the input of the management team in Brazil. A new 'four page' brochure for use with potential customers – as a mail shot – and as a 'pdf' for e-mailing could be developed.

6.7.6 Press releases

A concise effort should be made to keep the DEXBRASIL/Digicore name in the press, by producing a number of timed press releases and case studies. A number of press releases are lined up for release over the next few months, including a press release highlighting the JV between Celcom and DEXBRASIL.

6.7.7 Newsletter

This is an area that is being developed, as there is a significant amount of material and customer experiences that can be incorporated. It is envisaged that a newsletter will be produced about three times per year.

6.7.8 Mail shot

A number of mail shots have been used in the past to generate sales leads. A campaign could be developed with targeted follow –ups to add to the sales pipeline. The objective is to send out up to 500 letters per week with a fax back reply to organisations on the extensive database used by DEXBrasil.

6.7.9 Telesales

A potential exists for telesales activities. DEXBrasil could expand its sales force by employing two telesales executives, remunerated on a low base salary, with an incentive payment system on securing appointments and contracts. The telesales only roles would be to secure qualified appointments for the field sales force.

6.7.10 Commercial Shows

Trade shows usually generate a number of leads and serves to collect key info on competitors and market trends.

6.7.11 Website

With a link to DEXBrasil on DigiCore's homepage, could be a key marketing activity to drive traffic and enquiries.

6.7.12 Advetorial

Advetorial campaigns acts as excellent reinforcement of all the other communication routes. DEXBrasil should provide insights on topical telematics issues, trailer tracking and SVR.

6.7.13 PR

DEXBrasil should work to maintain consistent levels of awareness within appropriate media and at events. Messaging and editorial materials may be developed for various publications.

6.7.14 Sponsorship, Exhibitions & Events

DEXBrasil should continuously be evaluating sponsorship opportunities in Brazil and look at a number of exhibitions and events which DEXBrasil could attend, which may generate new leads and also ensure that DEXBrasil L is seen in the market place. To support attendance at smaller events a portable stand exhibit should be considered.

6.7.15 Conferences

The Company could develop relationships with top telematics conference organisers in Brazil and throughout the world and willingness to speak at (or Chair) key conferences on various telematics topics. This provides an excellent means of keeping up to date on all telematics issues and allows the voice of DEXBrasil /DigiCore to be heard loud and clear in the telematics world.
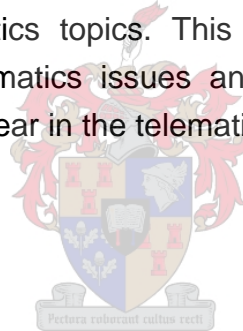
Chapter 7: *Financial Considerations*

In order to conduct realistic forecasts and scenarios it is imperative that the following values are calculated and tracked on a regular basis.

- Cumulative Pre Tax Profit
- Net Cash Position
- Monthly Revenue Projection
- Monthly unit sales
- Gross Profit
- GP%
- Overheads
- Net Profit
- NP%
- Cash end of year
- Maximum Cash requirement

It is DigiCore experience that this business can be very profitable. The success lies in the cumulative annuity effect of monthly subscriptions. In other words, whilst the number of unit sales can be fixed on a month-to-month basis, the revenue generated from the monthly subscriptions is cumulative. The time needed to achieve a break-even-point depends on the organisation in terms of the focus and effort they invest.

Figure 18: Financial Planning
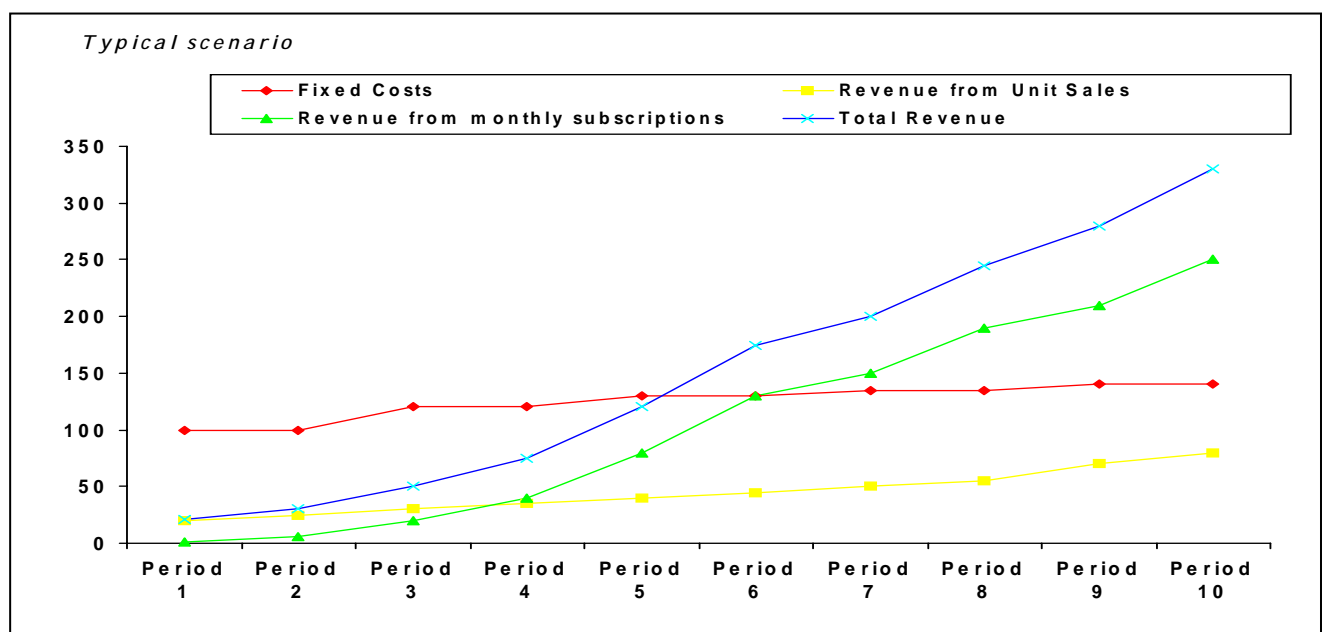
7.1 Revenue Streams

The revenue in the business is estimated as follows

- Fleet unit Sales
- Monthly subscriptions
- Additional products (including POD, Sat Nav, RFID and other accessories)
- Fleet unit maintenance (e.g. de-re installations, maintenance, training)
- GSM sales
- Control Room & Added Value Services

7.2. Costs

- Cost of systems
- Mapping costs
- Shipping Costs
- Cost of Accessories
- Installation costs
- GSM costs
- Cost of Maintenance contracts
- Cost Operating centre
- Overheads
- Marketing
- Office Rental Costs
- Company Car/Mileage reclaim
- Traveling & Entertainment
- Printing, Stationary & Office
- Telephone
- Mobile Phone
- Professional Fees
- Server Rental & IT infrastructure
- Insurance
- Recruitment fees
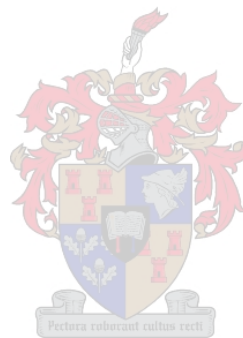- Salaries
- Staffing training
- Office Rental

7.3 Pricing of C-track

7.3.1 Hardware Costs:

The price below is the standard dealer prices (USD $350). It excludes import duties and taxes.

7.3.2 Hardware Costs:

Software prices and updates, map integration and updates & licensing is $35 per vehicle per annum. Paid annually. This will include ongoing technical support.

Chapter 8: *Project Conclusions*

As discussed by Cook & Cook (2000, p45), CI is not a given in any corporation. It needs commitment in all meanings of the word. Stakeholders need to understand what CI is, what it can do and what its limitations are. The business in return needs to ensure that all key ingredients are in place to avoid any potential failure. In other words, there has to be a dedicated competitive intelligence team – the DigiCore International unit has incorporated CI into its daily activities and there are dedicated individuals who are responsible for the data produced – the buck stops at our department.

Brazil was the starting point, and although there is no doubt that mistakes were made, thanks to the teachings of Knowledge Management, strategies were developed and implemented. CI was not only about saving rands but also about reducing invested time and effort.

This is because CI and market research helped us to define what the current needs were in Brazil and ensured that we penetrated the market with enough flexibility as well as direction to encompass changing or new needs as they emerged. This process has to be clearly managed; in other words, this is not about achieving a benefit on a day-to-day basis – but over time. The value CI brings to the organisation has to be clear otherwise there is a flaw in the process.

Lastly there needs to be continual feedback with all stakeholders – they need to be part of the process, the KPI's need to be well understood and agreed by all. This in order to align current strategies with market needs and grab new opportunities as they arise as well as deal with potential threats.

For DigiCore, Brazil has the potential to become its biggest market and the gateway to Latin America. Whilst the science of knowledge management and its components such as CI and market research where invaluable, they in themselves were not panaceas to achieve positive results. CI and market research were tools that aided in the design of logical roadmaps and proved useful in maintaining a competitive advantage in the telematics market.

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Appendix A

GLOSSARY OF TERMS

- RFID - Radio Frequency Identification, with RFID, the electromagnetic or electrostatic coupling in the radio frequency (RF) portion of the electromagnetic spectrum is used to transmit signals. An RFID system consists of an antenna and a transceiver, which read the radio frequency and transfer the information to a processing device, and a transponder, or tag, which is an integrated circuit containing the RF circuitry and information to be transmitted.

- GPS - Global Positioning System. A system of satellites and receiving devices used to compute positions on the Earth.

- GPRS - General Packet Radio Service. A GSM data transmission technique that does not set up a continuous channel from a portable terminal for the transmission and reception of data, but transmits and receives data in packets.

- GSM - Global System for Mobile Communication.

- POD – Proof of Delivery.

- SIM - Subscriber Identity Module card, an electronic card that is inserted into a handset and identifies the subscriber to the network.

- Telematics - The broad industry related to using computers in concert with telecommunications systems. This includes use of the internet as well as all types of networks that rely on a telecommunications system to transport data. The term has evolved to refer to systems used in motor vehicles that combine wireless communication with GPS tracking. The term is further evolving to include a wide range of telecommunication functions that originate or end inside motor vehicles.

Appendix B

C-track Product Matrix

Hardware Features	SOLO	ASSIST	SECURE
Inputs (protection 50v)	10 Digital / 2 Analogue / 3 Frequency	4 Digital / 1 Analogue	2 Digital / 1 Analogue
Outputs	3 Output	2 Outputs	1 Output
Input Voltage	9-36v	9-36v	9-36v
Over the air upgrade & configuration	✔	✔	✔ (V.21)
Extremely low power consumption	✔	✔	✔
Remote Vehicle Immobilisation	✔	✔	✔
Internal Battery	✔	✔	✔
Driver ID	✔	✔	X
Added peripheral bus - expandability	✔	X	X
PDA Interface & Support Tools	✔	X (only installation & health status only)	X
CAN Driver compatibility	✔	X	X
Serial Port	✔	X	X
Fleet Management Features			
Area Management	No Go + Preferred Area Notification + + Waypoints	No Go + Preferred Area Notification + Route Monitoring + Waypoints	One preferred area
Panic Alarm	✔	✔	✔ (remote button)
Tampering alarm (GPS unlock, battery)	✔	✔	✔
Movement Sensor	✔	✔	✔
Ignition On/Off	✔	✔	✔
Incident information	✔ (continuous monitoring)	✔ (interval monitoring)	✔ (interval monitoring)
Accident data	✔	✔	✔
Speed Recording - GPS	✔	✔	✔ (trip)
Odometer	✔	✔	X
Route Monitoring	✔	X	X
Hour meter	✔	X	X
Speed Recording - Sensors	✔	X	X
Communication with vehicle	✔	X	X
DMM (Tachograph functionalities):	✔	X	X
- Speed Profiling	✔	X	X
- Rpm monitoring	✔	X	X
- Harsh breaking / acceleration	✔	✔	X
- Excessive idle monitoring (engine)	✔	X	X