
**Strategic Information Management in the value chain of a multi-national Organization,
operating in the vehicle industry.**

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KEY WORDS

Information technology, information management, information value chain management, supply chain management, competitive advantage, sustainable growth, customer relationship management, e-commerce, e-business, information systems, customer retention, information management strategy, system collaboration, supply chain partners, bullwhip effect, customer satisfaction, motor industry, supply chain integration, automation, effectiveness, efficiency, productivity, customer centric business model, original equipment manufacturer, business intelligence, sales force automation.

ABSTRACT

The aim of this study is to conduct a thorough theoretical study on information management in the value chain of an organisation operating in the motor industry. In order to achieve the primary objective of the study, which is to gain a better understanding of how an organisation in the motor industry can manage information in the value chain to add productivity and reduce waste in all facets in order to gain economies of scale and add sustainable growth, a literature and empirical study will be conducted.

The focus of the literature study was to research the state of information management technologies in the motor industry. The literature study investigate the implications of information management technologies for employees, customers and thus for the industry and provide an overview of frameworks found in literature with the emphasis on the management of information within the organisations value and supply chain.

The empirical research in chapter three had as objectives to investigated respondents' attitudes towards an information management initiative within the organisation, and respondents' perceptions towards the importance of information management within the organisation. The empirical research also investigates which information source customers use when they browse the internet for products and the importance of building relationships with customers through information management.

There is ample proof from the empirical study that customers and product suppliers can have a closer relationship with the effective use of information management. Customer needs can be realised much faster and a interactive relationship can be managed if the organisation implements information management initiatives correctly.

The final chapter concludes with a summary of the secondary objectives researched in the literature (Chapter two) and Empirical research (Chapter three) chapters in order to support recommendations towards the primary objective of the study. The rapid pace of adoption and advancement of e-business and e-commerce technologies creates opportunities for new and innovative services provided through information management initiatives. The motor industry finds itself in the early stages of the electronic economy, where customers and product suppliers can be bound together through the use of information.

Recommendations were made in the final chapter on how an organisation in the motor industry can use and implement information management techniques. Information management in the value chain has the potential to increase capacity of the organisation through improving efficiency and productivity of operations, further increasing service and product quality and thus customer loyalty.

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TABLE OF CONTENTS

	Page
ABSTRACT	ii
ACKNOWLEDGEMENTS	iv
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF EQUATIONS	xi
CHAPTER 1: INTRODUCTION	1
1.1 INTRODUCTION	1
1.2 BACKGROUND TO THE STUDY	3
1.3 IMPORTANCE OF THE STUDY	4
1.4 CASUAL FACTORS TO THE STUDY	5
1.5 OBJECTIVES OF THE STUDY	6
1.5.1 Primary objectives	6
1.5.2 Secondary objectives	6
1.6 SCOPE AND LIMITATIONS OF THE STUDY	7
1.7 RESEARCH METHODOLOGY	7
1.7.1 Literature study	8
1.7.2 Empirical study	8
1.8 CHAPTER CLASSIFICATION	8
1.9 CONCLUSION	9
1.10 CHAPTER SUMMARY	9
CHAPTER 2: LITERATURE STUDY	10
2.1 INTRODUCTION	10
2.2 THE AUTOMOTIVE INDUSTRY IN SOUTH AFRICA	12
2.3 THE INFORMATION VALUE CHAIN	15
2.3.1 A model for information value chain management	17

2.3.2	Information management in the supply chain of organisations within the motor industry	19
2.3.3	Key factors of supply chain management	21
2.3.3.1	Supply chain integration	21
2.3.3.2	Benefits of an integrated and automated supply chain	23
2.3.3.3	Benefits of an integrated and automated supply chain	24
2.3.4	Customer relationship management and the concept in the motor industry	26
2.3.5	E-commerce in the modern economy	29
2.3.6	Seven unique features of e-commerce technology	32
2.4	INVESTIGATING THE ROLE-PLAYERS IN THE MOTOR INDUSTRY REVEALED THE FOLLOWING CHALLENGES WITH REGARDS TO INFORMATION MANAGEMENT	35
2.4.1	Dealer	35
2.4.2	Vehicle manufacturer	36
2.4.3	Suppliers	37
2.4.4	Logistics	37
2.5	RECOMMENDATIONS	38
2.6	CONCLUSION	43
CHAPTER 3:	EMPIRICAL STUDY	45
3.1	INTRODUCTION	45
3.2	SCOPE OF THE EMPIRICAL RESEARCH	45
3.3	RESEARCH DESIGN	46
3.3.1	Population	46
3.3.2	Sample type and size	46
3.3.3	Survey design	47
3.4	DATA COLLECTION	48
3.4.1	Proof of concept	48
3.4.2	Selection method	49
3.5	DATA ANALYSIS	49

3.5.1	Frequency analysis and descriptive statistics	49
3.5.2	Validity and reliability	51
3.6	RESULTS AND DISCUSSIONS	52
3.6.1	Employee questionnaire	52
3.6.2	Results of Section A	52
3.6.2.1	Age	52
3.6.2.2	Gender	53
3.6.2.3	Occupational level	54
3.6.2.4	Time in current position	54
3.6.2.5	Level of education	55
3.6.3	Results of Cronbach's alpha values	56
3.6.4	Descriptive statistics	58
3.6.5	Correlation between variables	59
3.6.6	Comparing aspects of information management-based on respondents' age	61
3.7	RESULTS AND DISCUSSIONS	64
3.7.1	Consumer questionnaire	64
3.7.2	Results of Section A: Biographical details	65
3.7.2.1	Age	65
3.7.2.2	Gender	66
3.7.2.3	Income	67
3.7.2.4	Vehicle brand	68
3.7.2.5	Number of brands in the last 10 years	69
3.7.2.6	Ownership time	70
3.7.3	Results of Section B: Information sources used	70
3.7.4	Results of Section C: Lead time expectations and experience	71
3.7.5	Results of Section D: Establishing a relationship	71
3.7.6	Cronbach's alpha values of question 23	73
3.7.7	Descriptive statistics	73
3.7.8	Correlation between variables	76
3.8	CONCLUSION	79

3.9	CHAPTER SUMMARY	81
CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS		82
4.1	INTRODUCTION	82
4.2	CONCLUSIONS	82
4.2.1	Strengths	83
4.2.2	Opportunities	83
4.2.3	Weaknesses	84
4.2.4	Threats	85
4.3	RECOMMENDATIONS	85
4.3.1	OEM communications of e-business strategies	86
4.3.2	Using business intelligence in value chain management	86
4.3.3	Implementation of a customer relationship management system	87
4.3.4	Enterprise resource planning software solution	88
4.3.5	Case studies, business plans, cost benefit analysis and justification	89
4.3.6	Creating adequate regulatory and institutional frameworks	89
4.3.7	E-marketplaces in the motor industry	89
4.3.8	Education of the next generation employee	90
4.4	ACHIEVEMENT OF THE STUDY OBJECTIVES	90
4.4.1	Primary objectives of the study	90
4.4.2	Secondary objectives of the study	90
4.5	RECOMMENDATIONS FOR FURTHER STUDY	91
4.6	CONCLUSION	93
4.7	CHAPTER SUMMARY	93

REFERENCES	94
APPENDICES:	
A: EMPLOYEE QUESTIONNAIRE	100
B: CONSUMER QUESTIONNAIRE	107
C: EMPLOYEE QUESTIONNAIRE	113
D: CUSTOMER QUESTIONNAIRE	118

LIST OF TABLES

TABLE 3.1:	BIOGRAPHICAL PROFILE OF RESPONDENTS BY AGE	53
TABLE 3.2:	BIOGRAPHICAL PROFILE OF RESPONDENTS BY GENDER	53
TABLE 3.3:	BIOGRAPHICAL PROFILE OF RESPONDENTS' OCCUPATIONAL LEVEL	54
TABLE 3.4:	TIME IN CURRENT POSITION	55
TABLE 3.5:	BIOGRAPHICAL PROFILE OF RESPONDENTS' HIGHEST LEVEL OF EDUCATION	56
TABLE 3.6:	CRONBACH'S ALPHA VALUES	57
TABLE 3.7:	MEAN AND STANDARD DEVIATION	58
TABLE 3.8:	PEARSON'S CORRELATION COEFFICIENT	60
TABLE 3.9:	SPEARMAN'S CORRELATIONS COEFFICIENT FOUND IN THE SURVEY	60
TABLE: 3.10	PARAMETRIC TEST	62
TABLE: 3.11	NON-PARAMETRIC TEST	62
TABLE: 3.12:	GENDER DIFFERENCE	63
TABLE 3.13:	CRONBACH'S ALPHA	73
TABLE 3.14:	THE MEAN AND STANDARD DEVIATION RESULTS	74
TABLE 3.15:	RESULTS FROM THE SPEARMAN'S COEFFICIENT	77

LIST OF FIGURES

FIGURE 2.1:	THE INFORMATION VALUE CHAIN	11
FIGURE 2.2:	CAPITAL EXPENDITURE IN MOTOR VEHICLE MANUFACTURER INDUSTRY	14
FIGURE 2.3:	CATEGORIES FOR INFORMATION VALUE CHAIN ACTIVITIES	19
FIGURE 3.1:	AGE GROUP OF THE RESPONDENTS	65
FIGURE 3.2:	RESPONDENTS' GENDER	66
FIGURE 3.3:	ESTIMATED MONTHLY HOUSEHOLD INCOME	67
FIGURE 3.4:	RESPONDENTS' BRAND THAT THEY OWN	68
FIGURE 3.5:	NUMBER OF BRANDS THE RESPONDENTS' OWNED IN THE LAST 10 YEARS	69
FIGURE 3.6:	AMOUNT OF TIME THAT WILL PASS, BEFORE RESPONDENTS WILL PURCHASE A NEW CAR	70

LIST OF EQUATIONS

EQUATION 3.1:	CALCULATION OF THE ARITHMETIC MEAN	49
EQUATION 3.2:	CALCULATION OF THE STANDARD DEVIATION	50
EQUATION 3.3:	CALCULATION OF PHI	50

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Information Technology can be defined as a set of tools, processes and methodologies (such as coding/programming, data communications, data conversion, storage and retrieval, system analysis and design, system control) and associated equipment employed to collect, process and present information. In broad terms, Information Technology (IT) also includes office automation, multimedia and telecommunications (Dictionary n.d.). Although information systems of some form or another have been around since the beginning of time, Information Technology (IT) and the effective use thereof is a relative newcomer to the scene. The facilities provided by such technology have had a major impact on individuals, organisations and society. There are few companies that can afford the luxury of ignoring Information Technology and the management of the flow of information throughout the value chain. Very few individuals would prefer to be without it, despite its occasional frustrations and the fears it sometimes invoke. An organisation may regard IT as a “necessary evil”, something that is needed in order to stay in business, while others may see it as a major source of strategic opportunity, seeking proactively to identify how IT-based information systems can help them gain a competitive edge (Galliers&Leidner, 2003:7).

As IT has become more powerful and relatively cheaper, its use has spread throughout organisations at a rapid rate. Different levels in the management hierarchy are now using Information Technology to monitor market trends, build customer relationships and launch new marketing campaigns, where once its sole domain was at operational level. The aim now is not only to improve efficiency but also to improve business effectiveness and to manage organisations more strategically.

Through the use of IT to support the introduction of electronic markets, buying and selling can be carried out in a fraction of the time, disrupting the conventional marketing and distribution channels. On a more strategic level, information may be passed from an organisation to its suppliers or customers in order to gain or provide a better service and value. Providing a better service to its customers than its competitors may provide the differentiation required to stay

ahead of the competition in the short term. Continual improvements to the service may enable the organisation to gain a longer-term advantage and remain ahead.

IT and the management of information can record, synthesize, analyse and disseminate information quicker than in any other time in history. Data can be collected from different parts of the company and its external environment and brought together to provide relevant, timely, concise and precise information at all levels of the organisation to help it become more efficient, effective and competitive. Information can now be delivered to the right people at the right time, thus enabling well-informed decisions to be made. Previously, due to the limited information-gathering capability of organisations, decision makers could seldom rely on up-to-date information but instead made important decisions based on past results and their own experience (Galliers&Leidner, 2003:7).

This study deals with Strategic Information Value Chain Management in the Automotive Industry. This study was done from the product provider's perspective in the motor vehicle Import and Retail industry (MVIR). This study aims to determine an effective Customer Satisfaction Index (CSI) to assist the motor vehicle import and retailer to deliver superior satisfaction to its customers on point of sale as well as in the Aftermarket service delivery environment.

Large vertically integrated organisations tend to manage their value adding processes in secluded silos, meaning that there is little synergy between supply processes and that the common goal of adding value to the customer and ensuring customer retention is not translated throughout the entire value chain right through to consumption. In this study I will look at how important Information Management is to successfully add value in the supply chain (which will be synonymous to value chain) to ultimately ensure customer retention and thus ensure increased sustainable profitability.

The use of Information Technology (IT) is considered a prerequisite for the effective control of today's complex value chains in the motor industry. Despite the acknowledged importance of the use of IT in value chain management, the number of empirical studies assessing the use of IT in the value chain context is limited.

1.2 BACKGROUND TO THE STUDY

The 12th Annual Global CEO Survey 2009 conducted by Price Waterhouse Coopers revealed an information gap in a number of areas that are vital for strategic decision-making. The survey showed, for example, that 94% of CEOs asked considered information about their customers' and clients' preferences and needs as important or critical to long-term decision-making (Schwolow&Jungfalk, 2009). In contrast, only 21% of the respondents felt that they received comprehensive information of this kind. Similarly, while 93% regarded it as important information about the risks to which their business are exposed, only 22% of the CEOs asked perceived the available information as adequate (Schwolow&Jungfalk, 2009).

In my view, this illustrates how a valuable asset, information is in long-term strategic direction and decision-making. The information gap in this study could have several sources. The information might be unavailable. It might be available but inaccessible. It might be accessible but in the wrong format. Or it exists in the right format, but is outdated, inaccurate or incomplete. This study will highlight the need for a coherent and practical approach to managing information in the value chain as a strategic resource for long-term decision-making and growth.

In the motor industry organisations represent themselves as product providers in order to fulfil customer needs. The value chain consists of functions that anticipate products through to when they are discontinued. This implies a very particular focus in business and reflects in measurement mechanisms. With all the value added products that motor vehicle retailers sell these days (insurance products, vehicle finance, and tangible extras), and an era of the "what about me" syndrome that is causing customers to be less brand loyal and at the same time to be increasingly persistent about a requirement to configure products to their own needs, a product centric business will fail. Customers need to be associated with organisations for longer so that more benefit could be derived from them, while there is an increasing tendency of customer defection as a result of a decrease in brand loyalty. The required value chain is about ensuring that customer needs are serviced. Customer retention will ensure longevity for the organisation and this will be achieved by configuring products and services to suit the individuals' needs in a timely fashion.

The paradigm shift from a product centric to a more customer centric value chain will only be possible if the organisation implements an information management system that will provide market and customer information in real-time.

Essentially, there are three major activities where value is added to information resources: information acquisition, information processing and information distribution. These processes furthermore rely on an IT infrastructure, human resources, information governance and knowledge management for integration and coordination. Ultimately, if all of these elements function optimally both individually and collectively they will positively affect information use. At the beginning of each information management strategy stands the information requirements assessment which includes an analysis of the gap between the current state and the desired state of organisational information management. For this purpose, organisations should identify their information resources, determine the types of information they need as well as qualitative specification, assign responsibility and set up critical success factors and key performance indicators in order to measure progress.

In conclusion, based on their information requirements assessment, organisations should focus on implementing an IT infrastructure with efficient back-end and front-end systems to affect time and cost savings; enforcing information governance and enabling knowledge management; supporting the distribution and sharing of information as well as information acquisition and finally, information use and strategy implementation.

1.3 IMPORTANCE OF THE STUDY

Information Technology is the central nervous system of a business. Without it, the vital organs – the business units, departments and teams acting inside a company – could not do their work and the corporate body would not survive. Companies with extensive value chains need a nervous system that successfully coordinate their own activities and that connects to their supply chain partners.

To enable the Motor Vehicle Import and Retailer (MVIR) to deliver superior value to their product offering, enhancing customer satisfaction and brand loyalty, the abovementioned organisation will have to strategically manage information in the entire value chain to better understand customer needs, market trends and streamlining the value chain so that productivity is higher and turnaround time is faster.

Once it is established that the organisation is provided with information that is relevant, timely and clear, through various information technology tools, the main question will be: what to do

with the information? This study will provide the organisation with an answer on what to do with information in different lifecycles in the value chain so that the net effect enhances profitability.

Another important area that this study will focus on is the ability of organisations to be agile and responsive in an increasingly complex, rapidly changing and interconnected global environment that will require real-time management and coordination of value chain activities across the extended enterprise. Real-time management of the value chain will require the capability of conducting transactions through computer networks, the capability of responding to situations with expertise and knowledge and the capability to leverage business intelligence.

1.4 CASUAL FACTORS TO THE STUDY

As described by Porter (2001) the evolution of technologies in business has gone through the overlapping stages of automation of discrete transactions, functional enhancement of activities, cross-activity integration, integration of the entire value chain, and the optimization of various activities in the value chain in real-time. The digital economy of the 21st century fuelled by globalization and the internet is characterized by instantaneous processing, access and dissemination of information around the globe. The problem is that the evolution that occurred in technologies did not occur in the mindsets of business managers; the economic value that information management can capture for the business is not realized.

Although this study will examine the general aspects of the value of information management, its specifics are elusive. It is a problem in the world of business where, in the final analysis, it is bottom-line results that count. Schwolow and Jungfalk(2009) identify three types of problems in defining the value of information resources for businesses: first, information value is poorly defined; second, the value of information depends on the business context in which it is employed; and third, how valuable information is for a business depends greatly on managerial perceptions as well as success criteria and measures.

This study will examine the characteristics of real-time value chain management and will present a model utilizing technologies in e-business, knowledge management and business intelligence. Further evidence will be provided in the literature study, that information management holds economic value for business.

1.5 OBJECTIVES OF THE STUDY

This study comprises primary and secondary objectives. The primary objective is an indication of the purpose and intention of the study. The secondary objectives are an indication of the state of information management's impact on the organisation and customers.

1.5.1 Primary objective

The primary objective of this study is to gain a better understanding of how an organisation in the motor industry can manage information in the value chain to add productivity and reduce waste in all facets in order to gain economies of scale and sustainable growth.

1.5.2 Secondary objectives

To achieve this primary objective of the study, the secondary objectives to be realized were as follows:

- ❖ Theory evaluation:
 - Perform a literature study to research the state of information management in the organisation's value chain and why it is relevant for sustainable business operations and customer satisfaction.
 - Investigating the implications of information management in the supply chain and the benefits of successful implementation.
 - Investigating the importance of information management when utilizing and implementing successful Customer Relationship Management.
 - Explore the concepts of e-commerce and e-business and how business will have to adapt to a more virtual trading platform.
- ❖ Empirical research:
 - Investigate respondents' attitudes towards an information management initiative within the organisation.
 - Investigate respondents' perception towards the importance of information management within the organisation.

- Investigate which information source customers use when they are browsing for products.
- Investigate the importance of building relationships with customers through information management.

From both theory and the empirical research the final objective is to recommend a general framework for implementing information management techniques in the organisation which can lead to a sustainable competitive advantage in the motor industry.

1.6 SCOPE AND LIMITATIONS OF THE STUDY

The scope of this study document will mainly focus on how information and data passes through the entire value chain of a major motor vehicle import and retail organisation, so that effective strategic information management can be implemented to enhance customer satisfaction, retention, and that products and services can be delivered more efficiently.

The motor vehicle import and retail organisation, imports products like Hyundai, Kia, Tata, Daihatsu, Proton, Ssanyong, Renault, Chery and Foton. The empirical study was limited to the customers of the motor vehicle import and retail organisations' brands and the specific value chain of the organisation in South Africa. The literature study was limited to sources of information generally available.

1.7 RESEARCH METHODOLOGY

The methodology followed in this study consists of two parts, namely an extensive theoretical literature study of the relevant literature and an empirical study by means of questionnaires with employees of the organisation conducting business in the motor industry and consumers of the brand that the specific organisation imports.

1.7.1 Literature study

A literature study was undertaken to explore the importance of information management in the organisation and how effective information management in the entire value chain can lead to a sustainable competitive advantage.

In order to reach the objectives of the study extensive searches was conducted on: Google Scholar and EBSCO host, Academic Search Premier, computers and applied sciences and Google databases, catalogues of South Africa and international university libraries, Sabinet as well as accredited publications and text books.

1.7.2 Empirical study

Primary information was also gathered by means of an empirical study. A quantitative research approach was used to gather valid and reliable data in order to address the research question and objectives. Questionnaires were distributed to the relevant employees and customers of Associated Motor Holdings of the Imperial Holdings Group in South Africa.

1.8 CHAPTER CLASSIFICATION

This dissertation is divided into four chapters. A brief description of each chapter is discussed in the section below:

Chapter One – This chapter briefly discusses the contents of and the nature and scope of the study. A brief overview is given on information management and information technology. The casual factors are discussed and the research objectives defined. The research methodology used as well as the target population is discussed.

Chapter Two – This chapter discusses the literature study. Information management in the organisation's supply and value chain is investigated. A further look is taken into the information management barriers within different role-players in the value chain in the motor industry. The chapter will also look at the concept of using information for better customer relationship management and how information is critical in the modern e-economy. This chapter will provide

recommendations on better utilization of information management techniques in order to achieve economic value and a sustainable competitive advantage.

Chapter Three – The research design is discussed outlining the methodology used during the empirical study. The design of the questionnaire is discussed as well as the sample design and process of analysis and evaluation of the data. The results from the survey questionnaires are presented in relation to the literature study.

Chapter Four – Final recommendations are made to the development of a general framework for the implementation of information management initiatives in the value chain of an organisation trading in the motor industry. A holistic approach is followed to present the recommendations for the study as emphasized in the nature of the study. Practical conclusions are made and a brief evaluation is done to confirm that the objectives were met.

1.9 CONCLUSION

The main conclusion that can be drawn from chapter one is that the strategic information management within the organisation's value chain can create a sustainable competitive advantage for the organisation, in the sense of a better customer needs analysis and customer retention. Strategic information management in the value chain will lead to a more efficient and more effective transaction process, by streamlining the value chain, eliminating all unnecessary movements in the value chain and enhancing value in the actual offering.

1.10 CHAPTER SUMMARY

In this chapter, we explored the background to the study into information management in the organisation's value chain and how it impacts the employees working with information management initiatives, and value is transferred to the end consumer. We propose to identify best practices by implementing a general framework for the implementation of certain information management initiatives in the motor industry. Our aim with this general framework for the implementation of information management initiatives is to create a sustainable competitive advantage for an organisation trading in the motor industry.

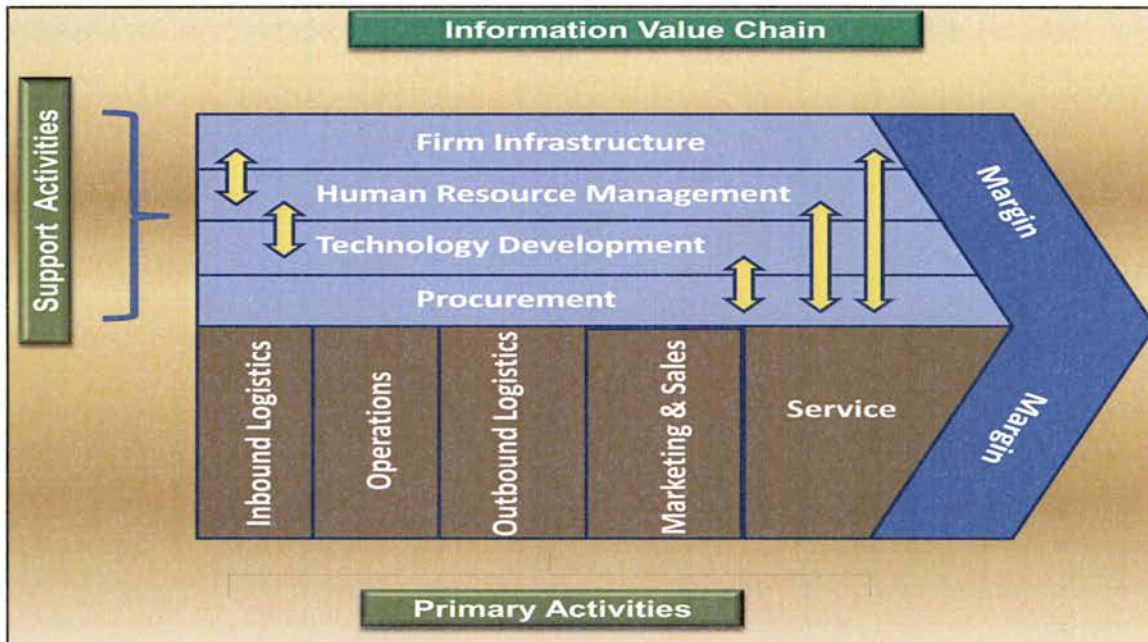
CHAPTER 2

LITERATURE STUDY

2.1 INTRODUCTION

According to the Business Dictionary (n.d.), Information Management can be defined as the application of management techniques to collect information, communicate it within and outside the organisation, and process it to enable managers to make quicker and better decisions. In this study information management will be used to integrate and manage all the functions of an organisation's value chain, where the value chain according to Ventureline (n.d.) can be defined as the sequential set of primary and support activities that an enterprise performs to turn inputs into value-added outputs for its external customers. As developed by Michael E. Porter (2001), it is a connected series of organisations, resources, and knowledge streams involved in the creation and delivery of value to end-customers. Value systems integrate supply chain activities, from determination of customer needs through product or service development, production, operations and distribution, including first-, second-, and third-tier suppliers. The objective of value systems which will only be reached by successfully managing the flow of information is to position organisations in the value chain to achieve the highest levels of customer satisfaction and value while effectively exploiting the competencies of all organisations in the value chain.

FIGURE 2.1: THE INFORMATION VALUE CHAIN



Adapted from: SchwolowandJungfalk (2009)

In this study the traditional value chain as developed by Porter (2001) was studied and analysed. The purpose of the study is to create a sustainable competitive advantage by better information management in the value chain. Looking at figure 1.1 it depicts a typical value chain in an organisation; the only illustration that is missing is information that will be used as invisible glue that holds the entire value chain together and enables synergy between departments to take place. In this chapter the research study will look at literature on the concepts of information management in an organisation's value chain and how successful management of the flow of information will enhance the organisation's final product offering and ensure better customer satisfaction and thus return business.

The study will focus specifically on the automotive industry's point of sale function and will look at how a motor vehicle import and retail organisation will gain a competitive advantage, by better utilization of structured and unstructured information within the organisation. From import to actual customer contact, information gets transferred and the aim will be to use information to better manage production functions, so that actual value will be gained and transferred to the final product offering and perceived value be transferred to the end user.

Thus the primary objective of this study is to make recommendations based on the literature and empirical study, towards the development of a general framework to implement information management technologies and better management of information in the value chain of an organisation in the motor industry. The intent of the literature study is thus to investigate the implications of information management in the value chain of an organisation and to provide an overview of frameworks found in literature with an emphasis on information management.

The first focus point of this study is to look at the motor industry in South Africa and how the industry is currently performing and how the industry is evolving.

2.2 THE AUTOMOTIVE INDUSTRY IN SOUTH AFRICA

The South African motor industry incorporates the manufacture, distribution, servicing and maintenance of motor vehicles and plays a vital role in South Africa's economy.

The sector accounts for about 10% of South Africa's manufacturing exports, making it a crucial part of the economy. In amplification of the new vehicle sales statistics for the month of June, 2012, released by the National Association of Automobile Manufacturers of South Africa (NAAMSA) the Association commented that the June 2012 new vehicle sales reflected a relatively solid performance with sales in all major segments registering double digit growth compared to the corresponding month in 2011. June 2012 aggregate Industry domestic sales had improved by 7 015 units or 15.6% to 51 891 vehicles from 44 876 units in June 2011. Total domestic sales for the first half of calendar year 2012 remained 10.5% ahead of the six months in 2011. June 2012 export sales at 27 061 vehicles had registered modest growth rising by 1735 units or 7.0% (NAAMSA, 2012). Overall, out of the total detailed (disaggregated) reported Industry sales of 49 108 vehicles (excluding Mercedes-Benz South Africa), 86.2% or 42 340 units represented dealer sales, which will in effect represent sales to consumers in South Africa, 5.9% represented sales to the vehicle rental industry, 4.1% to government and 3.8% to Industry corporate fleet sales. South Africa can be regarded as a minor contributor internationally. Locally, however, the automotive sector is a giant, contributing about 7.5% to South Africa's gross domestic product (GDP) and employing around 36 000 people (NAAMSA, 2012).

The South African automotive sector, regarded as the leading manufacturing sector accounts for 6-7% of South Africa's nearly 280 billion dollar a year economy and about half of the vehicles manufactured in the country are exported to other African states, Europe and the United States.

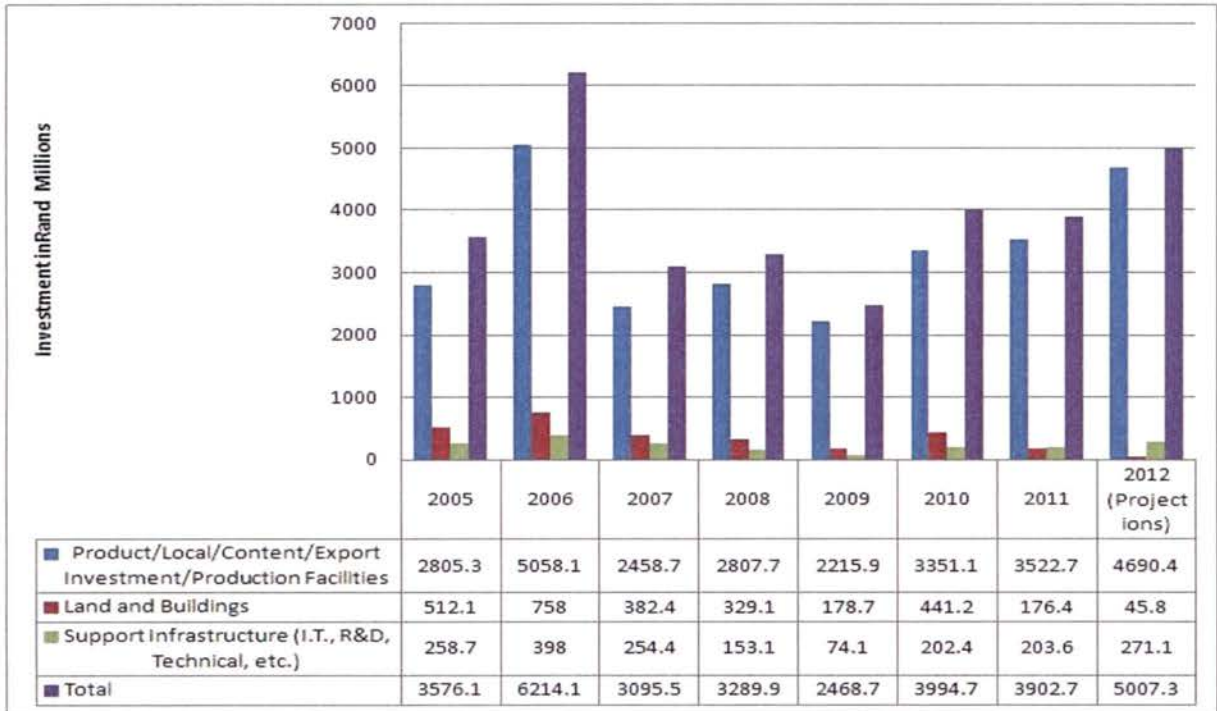
However, vehicle exports into Europe will likely continue to be under pressure as a result of the recession in the Euro zone, but could be offset by higher exports to African countries and Australia.

Despite indications of further slowing in the domestic economy, new vehicle sales continued to perform remarkably well. A number of factors should support the domestic market and these include:

- Historically low interest rates
- Continuing improvement in vehicle affordability in real terms
- Improving demand for credit by households and businesses
- Pre-emptive buying by consumers in response to the weaker exchange rate in recent months
- Highly competitive trading environment and on-going new model introduction would also support demand.

Another important factor that should be noted is that a shift in the capital expenditure of new vehicle manufacturers has taken place that will be explained with figure 1.2 illustrated on the next page. With the abovementioned, it is evident that the motor industry in South Africa is very healthy and still remains a highly lucrative industry taking into account the effects that the global recession has on the economy. With that said, competition in the motor industry has increased significantly over the last two decades and consumers are spoiled for choice with all the different high quality products available. This leaves the different vehicle suppliers with a challenge; customers tend to be less loyal these days. A paradigm shift has taken place not only in South Africa but the rest of the world; from a supplier fulfilling a consumer demand to consumers having the philosophy of “what’s in it for me”? Consumers have an enormous range of choices and are increasingly experimenting, becoming less predictable and displaying less brand loyalty. They expect some pay-back or incentive for their loyalty. This concept will prove to be a huge challenge for motor vehicle manufacturers and suppliers in South Africa striving for brand loyalty from their customers. Information management and information technology in the South African motor industry will play a bigger role than ever before to better understand consumer behaviour and perceived value for customers.

FIGURE 2.2: CAPITAL EXPENDITURE IN MOTOR VEHICLE MANUFACTURER INDUSTRY



Source: NAAMSA (2012)

The National Association of Automobile Manufacturers of South Africa (NAAMSA) released figures in February 2012 on the capital expenditure within the automotive industry for the years 2005-2012. These figures represent aggregated data from seven major and one separate Truck and Bus manufacturer. As it can be seen in figure 1.2 the 2012 projections show a relatively huge increase with regards to capital expenditure in the industry for the year. According to the NAAMSA press release, this is related in a large part to the Automotive Production and Development Program (APDP) Investment projects. Furthermore, with regards to the objectives of this study, the graph indicates a huge decrease in capital expenditure on Land and Buildings in 2012 and is in fact the lowest since 2005. And importantly, investment in Support infrastructure (IT, Research and Development) continues its upward trend from 2010, with the 2012 projections suggesting that this will be the highest since 2005. This indicates that motor vehicle manufacturers and retailers are focusing on information technology and thus increased information management.

Information technology and information management has become a huge asset for vehicle manufacturers and suppliers trading in South Africa and the rest of the world. With all the

manufacturers using best practice in their production functions and at actual “point of sale”, the competitive edge will come from how information is used within the organisation. Information must be used to retain existing customers and fulfil the needs of prospecting customers. The correct management of Information will enable the organisation to cut waste in the value chain and provide the customer with exceptional value and enhance the emotional connection to the product and brand, resulting in a loyal customer or customer “for life”.

2.3 THE INFORMATION VALUE CHAIN

The notion of a value chain is now deeply embedded into the collective wisdom of business leaders. Enormous efficiencies have already been gained from how organisations manage value chains. However, the next round of efficiencies will come from how organisations manage the production, delivery and use of the information on which value chains are built.

The modern value chain is far more intricate than the value chains of even a decade ago. New levels of connectivity, persistent focus on cost cutting, core competency, and market demand for innovation have created monstrously complex interactions between enterprises. With the on-going pressures of the struggling economy which influences the motor industry directly, organisations within the motor industry were forced to look at efficiency in product and service delivery and to use information in the value chain to ensure customer satisfaction and retention (Delphi Group, 2004:1).

The challenge for organisations in the motor industry has been that information and the applications that house it have increasingly become more fragmented over time. The result is often to limit the free flow of value chain activity between employees, partners, suppliers and customers. Add to this the increasing reliance on unstructured information in the form of documents, correspondence, rich media and Meta data describing data, the organisation will have to overcome the challenge of housing information on a centralized accessible database. Although, in virtually every industry today, partnering across the value chain has become the norm. However, the systems and infrastructure needed to support this partnering are often home grown, proprietary, fragile, extremely difficult and costly to support, and rarely able to keep pace with the shifting demands of employees, suppliers, partners and customers(Delphi Group, 2004:1).

The organisation will need a new notion of the value chain; one that considers the impact and the payback of a tighter integration of information and applications into Porter's original concept that will be called the information value chain.

One of the questions that the study will answer is: what impact does information management in the value chain have on a business in the motor industry? To appreciate the answer it must be considered for a moment, the notion of a business not as a vertically integrated organisation, but instead as a collection of information-based activities that occur within a specific context. For instance, a customer service representative may need to access a range of structured and unstructured information about a customer to determine a problem or to satisfy a need. This may include information about the firm's products and services, support, customer history, component suppliers, regulatory and compliance concerns, and much more. While it is not possible to anticipate all of the combinations and sources of information the call or contact might require, the speed at which this information is accessible to the representative will determine the ability to build a solution and provide an answer. While implementing this concept, the organisation will have the ability to address each such problem or opportunity by assembling the right combination of information sources and instantly being able to communicate, co-ordinate and respond appropriately to the situation at hand. This is why the information value chain is defined as a way to leverage information architecture in context, based on the user's immediate needs. In this environment, new levels of information access (inside and outside the firm) are requirements for businesses to be able to still claim any unique value in their ultimate product offering (Delphi Group, 2004:2).

Value is created not just in the process of generating the information, but also in the ability to access that information regardless of its location and repository, and then deliver it to the right individuals at the right place and time. Indeed, when looking for opportunities to optimize the value chain, the latter is often the greatest source of inadequacy.

In the information value chain, efficiency results from the free flow of information. The degree to which an organisation is able to seamlessly share, exchange, modify and enhance this information across employees, partners, suppliers, and customers is what will be called information velocity. Information velocity determines virtually every aspect of an organisation's efficiency by reducing transaction times and increasing responsiveness. It is easy to recognize in today's enterprise areas of practices that are destructive to achieving velocity: information

overload, lack of integration of business information, difficulty of finding online information, lack of process context in information work (Delphi Group, 2004:3).

The shortcoming of many value chains in today's organisations is that they lack this level of velocity in their unstructured information access and their application of information architecture in context. A poorly structured information value chain may result in delays during the transfer of information from one task to another, extending the time to react to a situation beyond the window of opportunity. More importantly, however, the ability to integrate otherwise unrelated stores of information, structured and unstructured, is essential to creating unique value for the organisation's service and product offering. The innovative capacity of an organisation will ultimately depend on how well and how fast it is able to do this (Delphi Group, 2004: 3-4).

2.3.1 A model for information value chain management

The information value chain is a framework for determining how to leverage information resources across an organisation and its many third party and market connections.

The information value chain can be broken into four categories for which every organisation must achieve excellence in order to effectively compete and innovate.

The four categories are (in order of the information value chain activities) and illustrated in figure 2.3 (Delphi Group, 2004:5).

Internal awareness

The ability of the organisation to assess its inventory of skills quickly and effectively.

- Employee intranets
- Records management
- Knowledge management

Internal responsiveness

The ability to build and coordinate global teams that can share all information resources and collaborate seamlessly and effectively.

- Taxonomy and search

- Document Management
- Collaboration

External responsiveness

The organisation's responsiveness with partners and customer communities.

- Supplier and channel interaction
- Compliance and governance
- Web content management

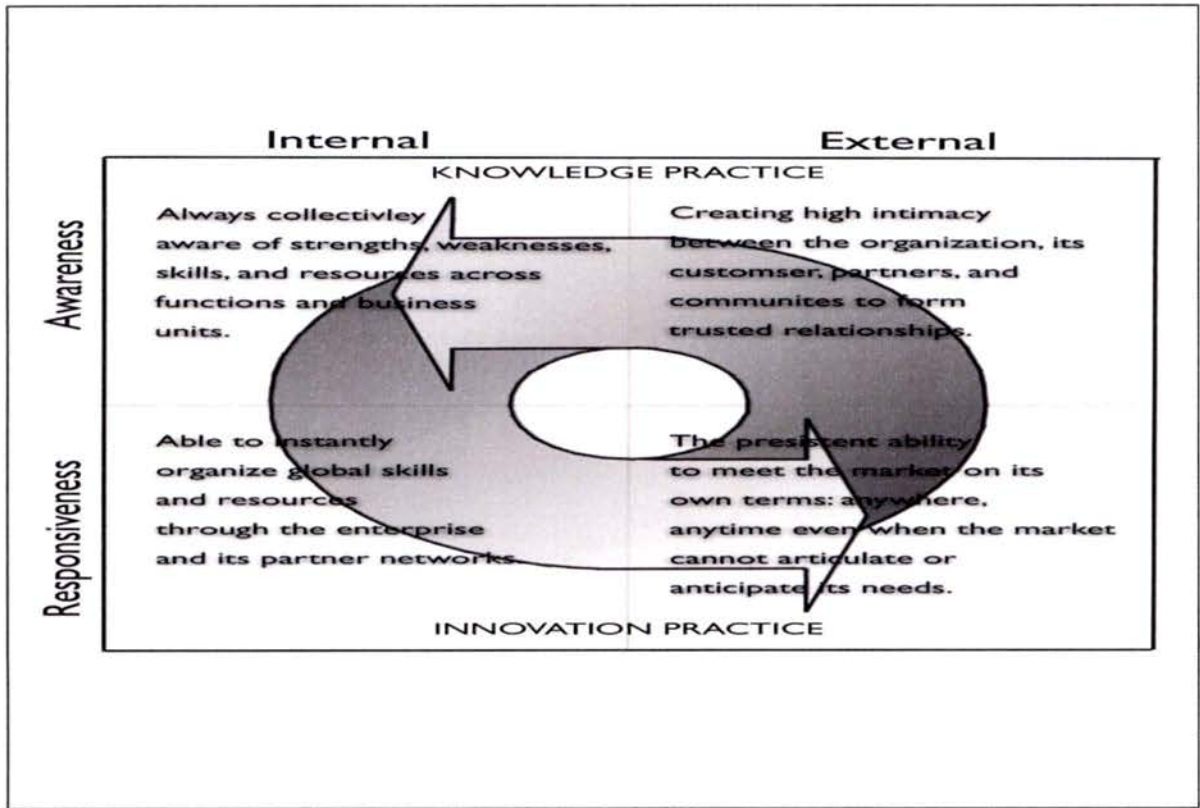
External awareness

The organisation's ability to understand how its products and services are used and valued by customers and then to feed this information back into Internal Awareness.

- Public Website and brand management
- Customer self-service
- Portal

FIGURE 2.3 FOLLOWS ON THE NEXT PAGE

FIGURE 2.3: CATEGORIES FOR INFORMATION VALUE CHAIN ACTIVITIES



Source: (Delphi Group, 2004:5)

In this study, it is clear that a lot of emphasis is placed on the management of information in the value chain of an organisation conducting business in the motor industry. For the organisation to increase the free flow of information and efficiency between different departments, which all form part of the value chain, an in-depth look on the organisation's supply chain will be needed to establish key areas where improvement with regards to information flow can be established. Basically an organisation's supply chain forms the backbone of a company's value chain and the concepts can be regarded as synonymous to one another for the purpose of this study.

2.3.2 Information management in the supply chain of organisations within the motor industry

Today's marketplace is more fiercely competitive than ever before. Globalization, technological innovation and demanding consumers promise to eliminate traces of mediocrity and brand

loyalty is a concept that will have to be earned. The very nature of competition has changed. Companies no longer compete against companies. Supply chains and value chains compete against other supply chains and value chains for superiority, for example, "Toyota and its total value offering, meaning its value and supply chain will compete with General Motors and its total value offering for global competitive advantage" (Fawcett, Ellram& Ogden, 2007:xvii).

Firstly, to understand the importance of successfully managing a supply chain within an organisation and how important the role of information management is, this study will take a look at different definitions of the concept.

- Supply Chain Management is defined by the Global Supply Chain Forum as "the integration of business processes from end-user through original suppliers that provide products, services and information that add value for customers and other stakeholders" (Cousins et al., 2008:174; Lambert, 2006:2).
- Supply Chain Management is "the design and management of seamless, value added processes across organisational boundaries to meet the real need of the end consumer. The development and integration of people and technology resources are critical to successful supply chain integration" (Institute of Supply Management, 2000).
- A supply chain is a network of organisations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the final customer or consumer (Lysons& Farrington, 2006:91).

From the definitions above, Supply Chain Management can be seen as a shared approach, spanning across firm boundaries, including various parties in the supply chain that contribute significantly to improved product quality, shorter lead times, and a more responsive supply chain, at lower cost and with increased customer satisfaction levels.

A supply chain comprises two or more parties linked by a flow of resources – typically material, information and money. Supply Chain Management will basically involve the management of activities surrounding the flow of raw materials to the finished product enjoyed by end customers, and back, in the case of recycling or returns (Webster, 2008:4). The movement of materials and information through the supply chain is core to the success of the supply chain, since it is essentially aimed at creating a competitive advantage by providing outstanding customer service. It is clear that many parties, processes, operational and management activities, management strategies and resources are integrated and coordinated as a single

process in the supply chain management approach. Problems with any one of those parties, activities, processes strategies and resources in the integrated process can potentially result in inefficiencies in the whole supply chain.

For organisations in the motor industry wanting to manage their supply chains successfully in order to capture the competitive advantage of better customer satisfaction and product delivery, information generated and passed from one department to another will be a key performance area. In order for the organisation to collaborate with other stakeholders in the supply and value chain information management systems will need to be implemented so that “usable” (meaning usable for business decision-making) data can be generated and passed upward and downwards throughout the entire supply and value chain. Thus information generation and management will be the key for organisations to successfully integrate their supply and value chains.

2.3.3 Key factors of supply chain management

The core of the Supply Chain Management approach perhaps lies in the summary of Van Weele’s approach, “Supply Chain Management represents a system approach to viewing the supply chain as an integrated entity rather than a set of fragmented parts” (Van Weele, 2010:255).

Supply chain management starts with internal integration with business processes and a move away from the silo approach, where each department or step in the organisation’s supply and value chain functions like an individual entity, to the systems approach, as indicated in the quote from Van Weele. Supply chain management, however, does not stop with internal integration – as is clear from the definition and description from supply chain management. Supply Chain Management requires external integration with other supply chain partners. Burt, Petcavage and Pinkerton are of the opinion that a majority of firms attempting to engage in Supply Chain Management are still inattentive with internal integration of functional activities and material and information flows. The real potential of Supply Chain Management can be realized only after external integration of customers, key suppliers and information flows have been attained (Burt, Petcavage& Pinkerton,2010:529).

An important aspect that became clear from the discussion of supply chain management that will be elaborated upon is the concept of supply chain integration.

2.3.3.1 Supply chain integration

Supply Chain Management revolves around proficient integration of suppliers, manufacturers, complementary stakeholders, warehouses and stores. The challenge in supply chain integration is to coordinate activities across the supply chain so that the enterprise can improve performance by reducing costs, increasing customer service levels, reducing the bullwhip effect (which is described and discussed in the next section), better utilizing resources, and effectively responding to changes in the marketplace (Semchi-Levi, Kaminsky&Semchi-Levi, 2009:188).

Kwon and Suh(2005:26) consider supply chain integration to be a strategic tool that aims to reduce costs and thus increase customer and shareholder value. Effective supply chain planning, built on shared information and trust among partners, is a vital part of successful supply chain functioning. Monczka et al. (2010:104) define integration as follows: “the process of incorporating or bringing together different groups, functions, or organisations, either formally or informally, physically or by information technology, to work jointly and often concurrently on a common business-related assignment or purpose”.

Supply chain integration is also described as:

- Supply chain members using techniques enabling them to work together to optimize their collective performance in creation, distribution and support of the end product (Sundaram&Metha, 2002:537).
- The seamless flow of products and information from supplier to customer (Van Donk, Akkermen& Van der Vaart, 2008:218).
- Coordination mechanisms imply that business processes should be streamlined and interconnected, both within and outside the organisation’s boundaries (Cagliano, Caniato&Spina,2006:283).

The basis of integration can therefore be characterized by cooperation, collaboration, information sharing, trust, partnerships, shared technology and a fundamental shift away from managing individual functional processes to managing integrated chains of processes (Power, 2005:253).

In connecting this description of supply chain integration with the philosophy, description and definitions of supply chain management. The conclusion of Hugo, Badenhorst-Weiss and Van Biljon (2004:66) becomes clear, namely that supply chain management integrates suppliers, manufacturers, warehouses and other intermediate value-adding partners so that production

and distribution is synchronized with customer demand, thereby reducing overall system or pipeline costs and satisfying service level requirements. Hence, successful supply chain integration takes place when the players realize that supply chain management must become part of all the business's strategic planning processes, in which the objectives and policies are jointly determined on the basis of the needs of the final customers and what the supply chain as a whole does well. Eventually, businesses act together to maximize total supply chain profits by determining optimal purchase quantities, product availabilities, service levels, lead times, production quantities and technical and product support at each level within the supply chain (Wisner, Tan & Leong, 2009:23).

2.3.3.2 Benefits of an integrated and automated supply chain

In the constantly growing world of local and global supply chains, the organisation can derive many benefits by integrating processes in their supply chain. Benefits such as achieving value and cost advantages are some of the few. Integrating and automating processes in supply chains may also help to reduce demand-uncertainty, as well as optimize product and data flows (Kumar, 2001). In order to achieve these benefits companies must focus on different competitive strategies (O'Brien, 1999). These competitive strategies can help companies to improve their businesses. Each of these strategies has different benefits associated with it:

- The first competitive strategy is cost reduction. An e-enabled supply chain can assist a company in reducing its costs in many ways. For instance, if a company can access real-time demand information through an e-enabled supply chain it can reduce its inventory holding and in so doing reduce its cost (Lee & Whang, 1998).
- Differentiation is another competitive strategy. Companies can make use of technology to differentiate themselves (Garc'ia-Dastugue & Lambert, 2003).
- Promoting growth is the third competitive strategy. By using the Internet as sales medium, companies can often reach a larger customer base, and in so doing also increase their market share.
- An integrated supply chain can also assist in developing alliances. If a supplier can monitor its customer's inventory levels via an integrated supply chain it can better fulfil these requirements and develop a better alliance (Asmus & Griffin, 1993).
- The last competitive strategy is that of improved quality and efficiency. Integrated supply chains can affect the quality and efficiency of a company. For instance, increased data

accuracy can be achieved by submitting orders electronically through an automated supply chain (Buelow, 2001).

According to Boyn (2001), most transactions in the automotive sector are now done across EDI (electronic data interchange) links using customized interfaces-systems set up over the last decade or more. All sides see it as a low priority to update these links, simply because the benefits to the organisation of upgrading the full web-based commerce are minimal, but the costs and associated technical risks are high. Instead, the effort is being placed on creating web solutions for activities where no EDI solution exists. Within the auto sector, therefore, most web-based e-commerce programs will be built around new contracts and the use of distributed applications to improve co-working among multi-disciplinary teams. The concept of e-commerce and e-business will be explained in a later stage of this study.

2.3.3.3 Benefits of an integrated and automated supply chain

The bullwhip effect has been observed in numerous industries, including the automotive industry (Jacobs, Chase & Aquilano, 2009:361). It has been estimated that bullwhip related costs can be as high as 12-25% for each member of the supply chain (Fawcett et al., 2007:515). Several definitions of the bullwhip effect are provided, and the causes and effect of the bullwhip effect are briefly discussed. The definitions include:

- The bullwhip effect is “exaggerations of fluctuating demand through the supply chain as suppliers overcompensate to avoid stock outages, and then under-anticipate future demand” (Fawcett et al., 2007:515).
- The so-called ‘bullwhip effect’ is the uncertainty caused by information flowing upstream and downstream in the supply chain. Forecasts of demand become less reliable as they move up the supply chain from users or retailers to wholesalers, to manufacturers, to suppliers (Lysons & Farrington, 2006:334).
- Jacobs and co-authors see the bullwhip effect as “the phenomenon of variable magnification as we move from the customer to the producer in the supply chain”. Even a slight change in consumer sales ripples backwards in the form of magnified oscillations upstream, resembling the result of a flick of a bullwhip handle. Because the supply patterns do not match the demand patterns, inventory accumulates at various stages, and shortages and delays occur at others (Jacobs et al., 2009:361).

- “Small variations in demand at the customer end of the supply chain can produce massive variations in orders upstream” (Swink et al., 2011:226).

Failure to estimate demand accurately (through wrong forecasting) can result in blown up inventory levels caused by the snowballing effect of poor information cascading up through a supply chain. Poor demand data force the supplying firm to carry additional inventory or increase lead-times to account for the uncertainty. (The lead-time increases when suppliers decide not to carry the additional inventory but to order it higher up in the supply chain when larger orders are received from customers). Either way, the inventory levels in the supply chain are increased. If the lead-time is increased, the buyer (based on conventional re-order point calculations) will increase order quantities. The supplier will interpret the increase in the order quantity as increased customer demand, and will also give this information through to its suppliers. The suppliers at the various levels will then need to take action to increase capacity to meet the fictional trend. Just as the suppliers had added capacity to meet the increased demand, demand falls off because the retailer realized the mistaken over-estimation of market demand. The retailer will reduce its orders because it has excessive stock available. The supplier will then in turn need to reduce its capacity by measures such as retrenchments or selling of financial assets (Burt et al., 2010:532; Fawcett et al., 2007:10; Simchi-Levi et al., 2009:153-154).

The following should serve as a summary of the most significant factors related to the bullwhip effect: excessive inventory quantities; poor customer service; negative influence on free cash flow; stock-outs; high material cost; overtime expenses and transport costs. In the worst-case scenario, working capital reduces, costs increase, customer service is unsatisfactory, lead times lengthen, production needs to be rescheduled and ultimately sales are lost (Lysons& Farrington, 2006:334-335). The bullwhip effect contributes to high cost and poor service in supply chains (Webster, 2008:85).

The basic approach to resolving the bullwhip effect and problem will be to ensure transparency and information sharing throughout the supply chain. Many of the problems can be avoided by relying less on forecasting and more on direct demand data. Supply chain systems and value chain systems that provide open communication and reliable data avoid situations in which small demand fluctuations become high variability swings at the production stage (Lysons&Farrington, 2006:335). Technology such as XML can help organisations improve the daily flow of information, where the meaning of the term XML or *Extensible Markup Language*

is; a universal standard for representing any kind of structured data. And the term “Markup” means the insertion of information into a document to convey information about its contents. The power of the language is that users can access documents in an intelligent manner based on the grammar they use. Therefore specific files can only be accessed according to standard, predetermined syntax. Further centralizing demand information can dramatically reduce the variability seen by the upstream stages of the supply chain (Semchi-Levi et al., 2009:162). Point-of-sale information, provided immediately and simultaneously to all members of the chain, can reduce the bullwhip effect. Additional steps may be retailers working with distributors and manufacturers to develop collaborative forecasts as well as to plan future product promotions together (Fawcett et al., 2007:10). Other tools and techniques are electronic data interchange implementation, reducing uncertainty by centralizing demand information, lead-time reduction, strategic partnerships and vendor managed inventory.

After careful consideration of the importance of information management in an organisation’s value and supply chain, the study will now focus on the Customer Relationship Management function of an organisation in the motor industry. Further emphasis will also be placed on e-business, e-commerce and how CRM functionality will fit in with the E-economy and enable the organisation to engage with customers in all the different formats of “point of sale” (referring to internet, dot mobi sites, social media and ad hoc business). In this study, information management in the supply and value chain will be regarded as the internal process of better management of information, so that waste can be eliminated and actual value and perceived value be delivered to the end customer. On an external basis, information with regards to the customer will be used in a Customer Relationship Management module. The next section of the study will focus on how information on the organisations’ existing and prospective customers can enable the company to increase customer loyalty and thus increase profits.

2.3.4 Customer relationship management and the concept in the motor industry

The South African motor industry operates in a highly competitive environment with challenges ranging from tighter profit margins to new entrants in the new vehicle and aftermarket service business. Original equipment manufacturers (OEMs) and dealers are turning more aggressively to customer relationship management (CRM) to help attract new customers, increase brand loyalty, reduce costs, increase efficiency, and maintain a competitive advantage (SAP Solution Brief, 2005:1). For example, data is available from Wesbank indicating that, on average, a new

car owner will drive his/her vehicle for 33 months before becoming available for his/her next purchase. With the correct CRM system in place, the organisation's sales force would be encouraged by the system to come in contact with the customer before he/she becomes available to the market. With the customer's demographics and financial information already available to the dealer's sales personnel, a clear need could easily be established and a new vehicle sale initiated.

Furthermore, one of the challenges that need to be addressed is that today's automotive consumers are increasingly well-informed and have an unprecedented level of choice in the marketplace. Customer loyalty is no longer a "given", and forward-looking automotive organisations will have to work harder than ever to earn and retain it. To respond to high customer expectations, companies will find that they have to use both traditional and emerging channels to deliver more effective, efficient, and profitable marketing, sales, and customer service. To truly get to know and understand their customers, automotive companies will have to look for ways to gather and analyse vital data about their customers, their vehicles, and their transactions with dealers. Only then can they effectively match their products and service offers with the customers they want to target. So, companies need to be able to track customer behaviours and then to link that information to not only the production scheduling process to build the right products now, but also to the product development cycle to bring new products to market faster. And because OEMs and dealers will need to collaborate closely, they will have to be able to share information with greater visibility in real time (SAP Solution Brief, 2005:1).

In this study, the CRM concept will be regarded as the front-end system of an organisation's total integrated systems application. All the information generated internally from the organisation's value chain and externally from industry statistics will influence the organisation's CRM system. Furthermore, in the text below, this study will look at research done on the CRM concept and what is important for successful implementation.

CRM has been viewed as business strategy that enables seamless integration of every area of business that touches the customer, namely marketing, sales, customer service and field support through integrated management of people, processes and technology (Pan & Lee, 2003:95-99). In other words, the concept being that all departments within an organisation log their activities through one common database ensuring that all the stakeholders involved in the business cycle has visibility relating to that customer, ensuring that necessary actions can be taken quicker and more effectively, thereby providing a more efficient service. Adapted from the

definition above, the implementation of a CRM system will improve productivity of a business by ensuring that all customers facing employees have up-to-date status and activity information to that specific customer in real time.

CRM, first coined by Gartner Group Research (Gartner Group Research, 2002), continues to be an insidious issue both for enterprises and academics (Coltman, 2007:301-320). According to Romano and Fjermestad (2003b:233-258), CRM research can be classified into five major non-mutually-exclusive areas: CRM markets, CRM business models, CRM knowledge management, CRM technology, and CRM human factors. These five research areas influence each other and also the process, practice and outcome of CRM adoption (Romano&Fermestad, 2003b:233-258) & (Romano&Fermestad, 2002:61-114). However, there is little understanding as yet about organisational success of CRM initiatives (Romano&Fermestad, 2002a:61-114).

In the context of CRM, scholars McNally and Griffin (2007:382-397) and Rapp (2000:13-17) point out that the integration of customer strategy, organisational processes, and information technology is the key to CRM success. Hewson and McAlpine (1999) propose that CRM implementation differs from that of other information systems in respect of eight sets of risks that must be managed. They are risks from:

- The dominant characteristics of the sales people who are the primary users;
- Complexity of various business processes that CRM embraces;
- Rapid environmental changes affecting users of the system;
- Politics;
- Multiple means of technical access to CRM systems;
- Lack of established implementation methodology;
- The need to rework existing processes; and
- Funding requirements.

Roh, Ahnand Han (2005:641-654) assert that process fit, customer information quality and system support are the key factors of CRM success. Canon (1994:10-15) mentions that insufficient planning causes CRM project implementation problems, while Cavaye (1995:85-96), in support of Davenport (1994:119-132), stresses that business processes must be aligned to meet the need of the system users. CRM success has also been measured in terms of the efficiency of business processes, appropriate strategy formulation, customer satisfaction, as well as system design perspective (Ozok, Denburger&Salvendy, 2007:283-309; Terri, Goes & Gupta, 2004:161-182). Review of prior research indicates that the management of process (the

fit between organisational strategy and CRM strategy), people (management of users, user satisfaction and access to the software), technology (ubiquitous access points to users and management of the technology deployment and usage) and information (management of quality of customer information captured and knowledge generated from the information) seem to be the crucial factors of CRM success. In addition, there is indication that the ability to address the environmental factors resident outside the organisation also impacts the successful deployment and usage of CRM. Furthermore, successful implementation of a CRM application will have the following advantages for an organisation:

- Every satisfied customer brings in at least three more customers.
- The rate of repeat sales climbs with increased reliance and satisfaction with the performance of their suppliers.
- Regular customers exhibit less price sensitivity than new customers.
- Customer-oriented companies can even charge higher prices than the competition.
- Marketing and sales costs for maintaining customer relationships will decrease.
- Reducing the level of customers leaving the firm by 5% can raise profit by as much as 85% (Raab et al., 2008:8-9).

In the next section of this study the concept of e-commerce will be analyzed to broaden the research field of the front end information systems of the organisation. E-commerce will fit into the organisation's CRM application. People can transact electronically with the organisation and consumer behaviours and promotions can be delivered electronically through a CRM platform.

2.3.5 E-commerce in the modern economy

In the following section of this study, the definition of the term e-commerce will be identified and how the term differs from e-business will be explained.

E-commerce involves digitally enabled commercial transactions between and among organisations and individuals. Digitally enabled transactions include all those mediated by digital technology, meaning, for the most part, transactions that occur over the Internet and the Web. Commercial transactions involve the exchange of value across organisational or individual boundaries in return for products or services. The e-commerce side of the motor industry will typically be Web systems where customers can purchase vehicles and second gross products online, systems like CarFind and Auto Trader showed success in the South African market.

Another e-commerce initiative of the motor industry will be the implementation of CRM systems, where predictive marketing and sales will be conducted. On the other hand, e-business refers primarily to the digital enabling of transactions and processes within a firm, involving information systems under control of the firm. For the most part, e-business does not involve commercial transactions across organisational boundaries where value is exchanged (Laudon&Traver, 2012:93). Daniel, Wilson and Myers (2002) state that electronic business is one of the most discussed topics in business today. It is already leading to the reshaping of customer and supplier relationships, the streamlining of business processes and, in some cases, even the restructuring of whole industries. Goldstein and O'Connor (2001) state that e-business is primarily a product of six significant transformations in the global economy:

- The globalization of markets;
- Shift towards an economy based on knowledge and information;
- The growing prominence of ICTs in the economy;
- Innovations in business organisation and practice (such as Just-In-Time Production, Total Quality Management, Knowledge Management, and others);
- The liberalization of the telecommunications sector in primarily OECD countries; and
- Technological innovations such as email, World Wide Web, Internet browsers, and the expansion in the volume and capacity of communication networks.

These six factors are closely linked to the emergence of e-business.

Bartel (2000) states that e-business and e-commerce are terms that are sometimes used interchangeably and sometimes used to differentiate one vendor's product from another. But the terms are different, and that difference matters to today's companies. In both cases, the "e" stands for "electronic networks" and describes the application of electronic network technology-including Internet and electronic data interchange (EDI) to improve business processes.

Since the early years of e-commerce, during the late 1990s, were a period of business vision, inspiration and experimentation. It soon became apparent, however, that establishing a successful business model based on those visions would not be easy. There followed a period of retrenchment and re-evaluation, which led to the stock market crash of 2000-2001, with the value of e-commerce, telecommunications, and other technology stocks plummeting by more than 90% in the space of a year. After the bubble burst, many people were quick to write off e-commerce, predicting that its growth would stagnate, and the Internet audience would plateau. But they were wrong. The surviving firms refined and honed their business models, ultimately

leading to models that actually produced profits. Between 2002-2008 retail e-commerce grew at over 25% per year (Laudon&Traver, 2012:44).

Today, however, business industries are in the middle of yet another transition: a new and vibrant service/social network-based model of e-commerce growing alongside the more traditional e-commerce retail sales models.

The next section of this study will look at the revolution of e-commerce and how it has evolved from the old traditional economy to a virtual world that sets the stage for a new trading platform, where a market exists for consumers, connected to the World Wide Web, using mobile devices and being active on social networks. For the purpose of this study, facts and statistics were adapted and used from the US market. The USA can be regarded as a trend setter internationally, and the South African market can expect similar statistical results with regards to the concept of e-commerce.

The revolution is just beginning. For example, in 2011:

- Online consumer sales were expected to grow about 14% compared to traditional retail growth of about 4%. This followed the positive results during the recession of 2008-2009, when e-commerce sales actually expanded while traditional retail lost 4.5%.
- The major source of online retail growth in the United States continues to be increased spending by existing online buyers rather than new buyers. As trust and consumer confidence have grown, shoppers are now buying expensive, “high touch” goods online such as motor vehicles, consumer electronics, and home furnishings.
- Mobile commerce, finally coming into its own, is expected to generate \$5.3 billion in retail sales, the explosion in interest in local commerce is predicted to generate about \$1.25 billion, and social commerce, although just emerging, about \$1 billion.
- The number of individuals of all ages online in the United States increased to about 232 million, up from 224 million in 2010. (The total population of the United States is about 311 million.) Of these, about 188 million are adults over the age of 18 years.
- Of the total 118 million households in the United States, the number online increased to about 86 million.
- On an average day, around 76% of adult U.S. Internet users go online. About 61% send e-mail, 49% use a search engine, and 41% get news. Around 37% use a social network, 26% do online banking, 23% watch online videos, and 17% look for information on the open encyclopaedia Wikipedia.

- The number of people who have purchased something online expanded to about 148 million, with an additional 30 million using the Web to gather information on potential product purchases.
- The demographic profile of online shoppers continued to broaden while at the same time significant generational differences in purchase and media consumption patterns have emerged.
- B2B e-commerce use of the Internet for business-to-business commerce will total about \$3.3 trillion, comprising about 33% of all business-to-business trade.
- The Internet technology base gained greater depth and power, as around 82.5 million households (about 68% of all U.S. households) have broadband cable or DSL access to the Internet and 91 million people access the Internet via mobile devices (Laudon&Traver, 2012:43).

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2.3.6 Seven unique features of e-commerce technology

In this section the study will list seven distinctive features of e-commerce technology that both challenge traditional business philosophy and explain why there is so much interest in e-commerce in the motor industry. These unique dimensions of e-commerce technologies suggest many new possibilities for marketing and selling, with a powerful set of interactive, personalized, and rich messages that are available for delivery to segmented, targeted audiences. E-commerce technologies make it possible for motor dealers to know much more about consumers and to be able to use this information more effectively than in the past. Potentially, online dealer merchants, like CarFind and McCarthy Call a Car, can use this information to develop new information asymmetries, improve their ability to brand products, charge premium prices for high-quality service, and segment the market into an endless number of subgroups, each receiving a different price.

Ubiquity

In traditional commerce, a marketplace is a physical place the consumer visits in order to conduct business. For example, television and radio typically motivate the consumer to go to the dealership to make a vehicle purchase. E-commerce, in contrast, is characterized by its ubiquity: it is available just about everywhere, at all times. It liberates the market from being restricted to a physical space and makes it possible for consumers to transact from their desktop, at home, work, or anywhere, using mobile commerce. The result is called a market

space – a marketplace extended beyond traditional boundaries and removed from a temporal and geographic location. From a consumer point of view ubiquity reduces transaction costs – the cost of participating in a market, and at a broader level, the ubiquity of e-commerce lowers the cognitive energy required to transact in a market space (Laudon&Traver, 2012:51).

Global Reach

E-commerce technology permits commercial transactions to cross cultural and national boundaries far more conveniently and cost-effectively than is true in traditional commerce. As a result, the potential market size for e-commerce dealerships is roughly equal to the size of the online population with disposable income (Laudon&Traver, 2012:53).

Universal Standards

One strikingly unusual feature of e-commerce technologies is that the technical standards of the Internet, and therefore the technical standards for conducting e-commerce, are universal standards – they are shared by all nations around the world. In contrast, most traditional commerce technologies differ from one nation to the next. For instance, television and radio standards differ around the world, as does cell phone technology. The universal technical standards of the Internet and e-commerce greatly lower market entry costs; the cost suppliers must pay just to bring their goods to market. At the same time, for consumers, universal standards reduce search costs; the effort required to find suitable products. And by creating a single, one-world market space, where prices and product descriptions can be inexpensively displayed for all to see, price discovery becomes simpler, faster, and more accurate (Laudon&Traver, 2012:53).

Richness

Information richness refers to the complexity and content of a message. Traditional markets, national sales forces and small retail stores have great richness: they are able to provide personal, face-to-face service and using aural and visual cues when making a sale. The richness of traditional markets makes them a powerful selling or commercial environment. Prior to the development of the web, there was a trade-off between richness and reach: the larger the audience reached the less rich the message. The Internet has the potential for offering considerably more information richness than traditional media such as printing presses, radio, and television because it is interactive and can adjust the message to individual users (Laudon&Traver, 2012:53, 54).

Interactivity

Unlike any of the commercial technologies of the 20th century, with the possible exception of the telephone, e-commerce technologies allow for interactivity, meaning they enable two-way communication between the dealership and consumer. Traditional television, for instance, cannot ask viewers questions or enter into conversations with them, or request that customer information be entered into a form. In contrast, all of these activities are possible on an e-commerce Web site. Interactivity allows a virtual dealership to engage a consumer in ways similar to a face-to-face experience, but on a much more massive, global scale (Laudon&Traver, 2012:54).

Information Density

The Internet and the Web vastly increase Information density – the total amount and quality of information available to all market participants, consumers and suppliers alike. E-commerce technologies reduce information collection, storage, processing, and communication costs. At the same time these technologies increase greatly the currency, accuracy and timelessness of information – making information more useful and important than ever. As a result, information becomes more plentiful, less expensive, and of higher quality (Laudon&Traver, 2012:54).

Personalization/Customization

E-commerce technologies permit personalization: dealerships can target their marketing messages to specific individuals by adjusting the message to a person's name, interests and past purchases. The technology also permits customization – changing the delivered product or service based on a user's preference or prior behaviour. Given the interactive nature of e-commerce technology, much information about the consumer can be gathered in the marketplace at the moment of purchase. With the increase of information density a great deal of information about the consumers' past purchases and behaviour can be stored and used by the dealership. The result is a level of personalization and customization unthinkable with existing commerce technologies (Laudon&Traver, 2012:54).

Social Technology: Users' Content Generation and Social Networking

In a way quite different from all previous technologies, the Internet and e-commerce technologies have evolved to be much more social by allowing users to create and share content in the form of Web and Facebook pages, text, videos, music and photos with a worldwide community. Using these forms of communication, users are able to create new social networks and strengthen existing ones. Old previous mass media in modern history, including the printing press, user broadcast model where content is created in a central location by experts and audiences are concentrated in huge aggregates to consume a standardized product. The telephone would appear to be an exception but it is not a "mass communication" technology. Instead the telephone is a one-to-one technology. The Internet and e-commerce technologies have the potential to invert the standard media model by giving users the power to create and distribute content on a large scale, and permit users to program their own content consumption. The Internet provides a many-to-many model of mass communication that is unique (Laudon&Traver, 2012:55).

This section of e-commerce together with the customer relationship section concludes the front-end section of information management in the value chain of an organisation. The front-end system section of the study illustrates the potential for the organisation in using information to better customer satisfaction and with possible higher penetration ratio's when engaging with customers, because individual customer needs can be established.

In the next section of this study IT barriers within the motor industry's role-players will be identified by looking at barriers within the organisation's value chain. Thereafter the chapter will give recommendations and conclude the chapter.

2.4 CHALLENGES WITH REGARDS TO INFORMATION MANGEMENT

2.4.1 Dealer

- IT Systems barriers centre on the lack of integration between Dealer Management Systems (DMS) and Dealer Communication Systems (DCS).
- Excessive hand keying, manual controls and repetition of information are involved in the new car purchasing process. Around 20 "hard copies" of invoices and certificates are required per vehicle purchase.

- There is insufficient system support for dealers by Vehicle Manufacturers, particularly on Saturdays, a busy day for customer enquiries. Dealers are generally not being consulted regarding relevant system improvements by Vehicle Manufactures.
- Dealers can typically only sell what is on their computer screens. Visibility is generally good for stock but poor for orders.
- Whilst technology such as middleware and XML can go some way towards helping dealers improve their daily flow of information, many of the present issues involve changes at a more basic level. The rise of the Internet and electronic economy is currently redefining sales territories and customer relationships, causing doubt amongst many dealers and manufacturers over what future business model they should adopt (Howard, 2000:4).

2.4.2 Vehicle manufacturer

- Legacy systems were originally built for a “different world” of IT capability and manufacture rather than customer-led production, and where technology was associated with control. Existing IT infrastructure is often too costly to replace en masse, leaving the Vehicle Manufacturers’ who run the most complex systems, with a serious disadvantage in terms of reducing order lead-time.
- Central management systems are popular amongst Vehicle Manufacturers, because of the ease of maintenance and the purchasing advantage gained through economies of scale. However, the time delay introduced at regional plant level, where central batch processing cannot allow for local time differences, can result in higher levels of inventory.
- There is a lack of regularity of data formats and protocol across Vehicle Manufacturers which leads to duplication, confusion and excess system development work in suppliers, logistic providers and dealers (Howard, 2000:4).

2.4.3 Suppliers

- Suppliers perceive the lack of adherence to Electronic Data Interchange standards by Vehicle Manufacturers, both in terms of language protocol and data format, to be the major barrier to the Order to Delivery process.
- Opinion is divided as to whether “EDI is dead” (i.e. bespoke, dedicated communication links between two businesses) or the existence and capabilities of the Internet has revitalized existing EDI formats by allowing them to be placed on a web page.
- There is a concern by suppliers who have adopted web-enabled systems that they do not offer the same reliability or security to conduct transactions between businesses as bespoke EDI systems. However, web enabled mission critical systems do exist in other industries such as finance.
- Uncertainty exists amongst suppliers over what new technologies should be adopted, resulting in a rather chaotic uptake within the industry of technologies such as Odette, Edifact, web enabled PCs and membership of internet trade exchanges (Howard, 2000:5).

2.4.4 Logistics

- Logistics providers, particularly in out-bound delivery, lack a universal, open access data system. Whilst they have their own IT systems, these are not fully integrated with Vehicle Manufacturer systems.
- Out-bound logistics suffer from inadequate real-time forward data for delivery planning from the Vehicle Manufacturers. This means the end of long lead-time based load consolidation and requires smart, fast routing systems.
- Transport providers currently utilize routing and load planning software, but more sophisticated network planning systems that learn from route planning are under developed. This software uses ‘genetic algorithms’ that claim to cut journeys through experience and recalculation.
- Mobile ‘in-cab data units’ should be used to monitor job progression on out-bound delivery, as is the case currently on in-bound delivery (Howard, 2000:5,6).

2.5 RECOMMENDATIONS

Improving information management practices is a key focus for many organisations, across both the public and private sectors. This is being driven by a range of factors, including a need to improve the effectiveness of business processes, the demand of compliance regulations, the desire to deliver new services and the drastic rise of the e-economy. In many cases, “information management” has meant deploying new technology solutions, such as content or document management systems, data warehousing or portal applications.

These projects have a poor track record of success, and most organisations are still struggling to deliver an integrated information management environment. Successful information management is not simple. There are many systems to integrate, a huge range of business needs to meet, and intricate organisational and cultural issues to address.

This study draws together a number of critical success factors that will be illustrated in principles that can be used to guide the planning and implementation of information management activities.

Firstly, an important fact that should be noted is that information management encompasses (Robertson, 2005:2):

- People
- Process
- Technology
- Content

And that each of these must be addressed if information management is to succeed.

Principle 1: Recognize and manage complexity

Organisations are very complex environments in which to deliver concrete solutions. As outlined above, there are many challenges that need to be overcome when planning and implementing information management projects. When confronted with this complexity, project teams often fall back upon approaches such as (Robertson, 2005:2):

- Focusing on deploying just one technology in isolation.

- Purchasing a very large collection of applications from a single vendor, in the hope that this can be used to solve all information management problems at once.
- Rolling out rigid homogeneous solutions across a whole organisation, even though individual business areas may have different needs.
- Forcing the use of a single technology system in all cases, regardless of whether it is a suitable solution.
- Purchasing a product “for life”, even though business requirements will change over time.
- Fully centralizing information management activities, to ensure that every activity is tightly controlled.

All of these approaches will fail, as they are attempting to exchange a complex set of needs and problems into simple solutions. The hope is that the complexity can be limited or avoided when planning and deploying solutions. In practice, however, there is no way of avoiding the inherent complexities within organisations. New approaches to information management must therefore be found that recognize and manage this complexity (Robertson, 2005:2).

Organisations must stop looking for simple approaches, and must stop believing vendors when they offer “silver bullet” technology solutions (Robertson, 2005:2).

Instead, successful information management is underpinned by strong management that defines a clear direction. Many small activities should then be planned to address in parallel the many needs and issues. Risks must then be identified and mitigated throughout the project, to ensure that organisational complexities do not prevent the delivery of effective solutions (Robertson, 2005:2).

Principle 2: Enable collaborative, customer-centric business

An organisation that competes in the automotive industry must implement an industry specific set of solutions that will enable the organisation to deliver customer value, enhance capabilities across the sales and service value chain, and that will eventually achieve profitable growth. With the “right” platform implemented, the organisation must be able to connect all resources, from suppliers to OEMs to dealers to sales offices, in a closed-loop customer and vehicle interaction cycle (SAP Solution Brief, 2005:2).

Furthermore, the information system implemented must provide the organisation with powerful business intelligence, so that the organisation can integrate analytics into customer-focused business processes. Real-time business insight will help the organisation to make quick, informed decisions while capabilities for capturing and mining relevant data will enable the organisation to measure, predict, plan, and optimize customer relationships with greater effectiveness (SAP Solution Brief, 2005:2).

Principle 3: Focus on adoption

Information management systems are only successful if they are actually used by staff, and it is not adequate to simply focus on installing the software centrally (Robertson, 2005:3).

In practice, most information management systems need the active contribution of staff throughout the organisation. For example (Robertson, 2005:3):

- Staff must save all key files into the document/records management system.
- Decentralized authors must use the content management system to regularly update the intranet.
- Front-line staff must capture call details in the CRM system.

In all these cases, the challenge is to gain sufficient adoption to ensure that required information is captured in the system. Without a critical mass of usage, corporate repositories will not contain enough information to be useful. This presents a substantial change management challenge for information management projects. In practice, it means that projects must be carefully designed from the outset to ensure that sufficient adoption is gained. This may include (Robertson, 2005:3):

- Identifying the “what’s in it for me” factors for end-users of the system.
- Communicating clearly to all staff the purpose and benefits of the project.
- Carefully targeting initial projects to build momentum for the project.
- Conducting extensive change management and cultural change activities throughout the project.
- Ensuring that the systems that are deployed are useful and usable for staff.

These are just a few of the possible approaches, and they reveal the wide implications of needing to gain adoption by staff (Robertson, 2005:3).

Principle 4: Better communication across all channels

Lack of communication between OEMs and their end customers is a pervasive problem. Contact between OEMs and a customer are limited and often involve a customer-initiated problem or complaint. Or customers may hear only indirectly from the OEM in the form of marketing campaigns. So a key IT process requirement in the automotive industry is to facilitate effective communications between OEMs and their dealers and – through the dealers – with the customers who buy the vehicles (SAP Solution Brief, 2005:2).

The solution that must be implemented should be a platform that makes channel integration across entire networks possible in a cost-effective manner and that supports key business processes. Sales and service organisations can give dealer employees access through portal applications and provide access to dealer management systems through Web-based services. For example, the portal solutions will help enable business processes, whether it's a dealer employee placing or confirming orders with the OEM or whether it's a national sales company representative viewing vehicle inventories, flooring cost, or stock aging. Using contact and vehicle management tools, the organisation will be able to incorporate end-customer information and history into sales processes, providing partners and brand owners with a single comprehensive view into all the information relevant to sales accounts (SAP Solution Brief, 2005:2).

Principle 5: Deliver tangible and visible benefits

It is not enough to simply improve the management of information “behind the scenes”. While this approach will deliver real benefits, it will not drive the required cultural changes, or assist with gaining adoption by staff. In many cases, information management projects initially focus on improving the productivity of publishers or information managers.

While these are important projects, they are undetectable to the rest of the organisation. When challenged, it can be hard to demonstrate the return of investment of these projects, and they do little to assist project teams to gain further funding. Instead, information management

projects must always be designed so that they deliver tangible and visible benefits. Delivering tangible benefits involves identifying complete business needs that must be met. This allows meaningful measurement of the impact of the projects on the operation of the organisation.

The project should also target issues or needs that are very visible within the organisation. When solutions are delivered, the improvement should be obvious, and widely promoted throughout the organisation. For example, improving the information available to call centre staff can have a very visible and tangible impact on customer service. In contrast, creating a standard taxonomy to classify information across systems, is difficult to quantify, and rarely visible to general personnel.

This is not to say that “behind the scenes” improvements are not required, but rather that they should always be partnered with changes that deliver more visible benefits. This also has a major impact on the choice of the initial activities conducted (Robertson, 2005:3-4).

Principle 6: Prioritize according to business needs

It can be difficult to know where to start when planning information management projects.

While some organisations attempt to prioritize projects according to the simplicity of the technology to be deployed, this is not a meaningful approach. In particular, this often doesn't deliver short-term benefits that are tangible and visible. Instead of this technology-driven approach, the planning process should be turned around entirely, to drive projects based on their ability to address business needs. In this way, information management projects are targeted at the most urgent business needs or issues. These in turn are derived from the overall business strategy and direction for the organisation as a whole.

For example, the rate of errors in vehicle finance applications might be identified as a strategic issue for the organisation. A new system might therefore be put in place, along with other activities to better manage the information that supports the processing of these applications.

Alternatively, a new call centre might be in the process of being planned. Information management activities can be put in place to support the establishment of the new call centre, and the training of new staff (Robertson, 2005:4).

Principle 7: Provide strong leadership

Successful information management is about organisational and cultural change, and this can only be achieved through strong leadership.

The starting point will be to create a clear vision of the preferred outcomes of the information management strategy. This will describe how the organisation will operate, more than just describing how the information system will work.

Effort must then be put into generating a sufficient sense of urgency to drive the deployment and adoption of new systems and processes. Stakeholders must also be engaged and involved in the project, to ensure that there is support at all levels of the organisation.

This focus of leadership then underpins a range of communication activities that ensure that the organisation has a clear understanding of the projects and the benefits they will deliver. When projects are solely driven by acquisition and deployment of new technology solutions, this leadership is often lacking. Without the engagement and support of key stakeholders outside the IT area, the projects often have little impact (Robertson, 2005:4-5).

2.6 CONCLUSION

In this chapter information management and the value chain of an organisation as defined; a brief explanation of the two concepts interlinked with each other was given. The main goal of information management in the value chain was to eliminate the bullwhip effect and enhance customer satisfaction which will then enhance return business. Internal and external information needs that encompass the organisations' entire value chain were identified and potential of using these information management tools and techniques became clear.

Value chains are getting more attention lately, due to increased competition and the availability of collaborative business models. As a result of this, this chapter has reviewed the automotive value chain as well as the move towards the e-enabling of this value chain. The different benefits that pertain to an e-enabled value chain have been

discussed. In the current economic climate, companies not only have to rely on them, but on their entire supply chain in order to remain competitive. Information management between role-players of the entire value chain will enable companies to become more efficient and more competitive. Information management in the value chain can offer streamlined collaboration and coordination between suppliers, business partners and customers.

CHAPTER 3

EMPIRICAL STUDY

3.1 INTRODUCTION

This chapter deals with the empirical research study conducted within Associated Motor Holdings (AMH), which forms part of the Imperial Holdings group in South Africa, to explore the implications of information management in the value chain of the organisation, and how successful management of information will benefit the organisation and transfer true value to the final customer. The research will thus also explore how information management will influence consumer behaviour by better understanding the customer and implementing predictive responses to consumer demand. The main objective was to develop a general framework to gain a better understanding of how an organisation in the motor industry can manage information to add value and reduce waste in all facets in order to gain economies of scale and sustainable growth. To achieve this primary objective of the study, the secondary objectives of the empirical research needed to be investigated. This chapter sets out the scope of the research, the research design, data collection, data analysis, and a discussion of the results of the study.

3.2 SCOPE OF THE EMPIRICAL RESEARCH

The primary objective of this empirical research study will be to gain knowledge on:

- How an organisation trading in the automotive industry can gain better value by managing information in the organisation's value chain, and how the value gained can be transferred to the end consumer?

The empirical study, to research the management of information in the value chain of an organisation in the motor industry, will focus on the following:

- Investigating the implications of information management on business decision-makers, customers purchase decisions and thus the implications for the AMH group trading in the automotive industry.

- Identifying the Information Technology assets of respondents with regards to the hardware and software that they own, and how they use this technology to transact in the modern economy.
- Identifying information systems within the organisation and how they are currently put to use.
- Identifying the respondents' attitude towards Information Technology.

3.3 RESEARCH DESIGN

3.3.1 Population

The population can be seen as the entire personnel and brand consumers of the Associated Motor Holdings group (AMH) in South Africa, specifically in Gauteng. Based in Johannesburg, the Associated Motor Holdings (AMH) group is an automotive retail company that sells imported vehicles across South Africa. The group represents brands including KIA and Hyundai from Korea; Daihatsu and Mitsubishi from Japan; Renault from Europe; TATA from India; Proton from Malaysia and Chery and Foton from China. AMH is part of the Imperial Holdings Group, which is a diversified transportation company operating throughout South Africa. AMH measures sales and activities on a regular basis, comparing these with previous figures whilst trying to continuously improve. The company works to ISO9001 standards as well as keeping up-to-date with industry trends. The study is limited to the part of the sample population that could be reached.

3.3.2 Sample type and size

It is impractical and uneconomic to involve all the members of the population in a research project; consequently, we have to rely on the data obtained for a sample of the population (Welman, Kruger & Mitchell, 2005:55). Sampling thus enables the researcher to study a relatively small part of the target population, and yet obtain data that are representative of the whole (Sarantakos, 2005:152). Due to time constraints and a limited budget, respondents were selected by the means of a non-probability, convenience sample. Non-probability sampling size is flexible, does not control the researcher bias, involves simple procedures, has flexible

parameters, involves relatively low costs, and the planning is not time consuming and relatively easy (Sarantakos, 2005:155). Convenience sampling allows the researcher to choose a few respondents, using accidental sampling or any other method, and asks them to recommend other people who meet the criteria of the research and who might be willing to participate in the project. This process is continued with the new respondents until saturation, that is, until no more substantial information can be acquired through additional respondents (Sarantakos, 2005:165).

The target sample for the employee questionnaire was established by using the forty (40) dealerships that AMH operates in Gauteng and sending questionnaires to all levels of occupation. Out of the two hundred (200) questionnaires that were sent, 66 responses were received. That leaves a 33% response rate. The target sample for the consumer questionnaire was established by using two customers that have purchased vehicles from each AMH branch in the past. The data of the customers were given to the author by AMH staff. Eighty (80) questionnaires were sent and sixty (60) were returned.

3.3.3 Survey design

There are two schools of thought which can be grouped into distinguishing between instruments that can be used by researchers for capturing the information needed, namely qualitative and quantitative research approaches (Welman et. al., 2005:8-9). Quantitative research methods are generally geared towards documenting subject attributes expressed in quantity, extent, or strength as well as guaranteeing – among other things – objectivity, accuracy, validity and reliability. The purpose is to measure variables and to produce figures which will allow judgments as to the status of the variables in question, which in turn will allow further processing, and comparisons that will permit replicability. Overall, quantitative research is objective, simple and has a single nature of reality (Sarantakos, 2005:50). Qualitative methods as a whole are unique and marked by certain criteria. Overall, qualitative research can be described as subjective, holistic interpretive research. It has no strict rules and less emphasis on statistics. It is an active form of research where both parties are interactive and inseparable (Sarantakos, 2005:50). An objective approach was selected to conduct the research, thus, a quantitative approach was selected.

A questionnaire was used as the survey instrument, for both consumers of the brand as well as employees of the organisation that sells the brand. Using the literature study in chapter two, and other existing questionnaires on the concept of using information management techniques to add economic value and consumer behaviour with regards to information technology and the use of information, new questionnaires were developed as an exploratory study in the use of information management technologies by both consumer and product supplier. The questionnaire for employees was structured into seven sections namely Section A: Biographic detail with five questions; Section B: Initiating an information management effort with three questions; Section C: Alignment of information management strategy with business strategy with four questions; Section D: Create and manage an information sharing culture in the organisation with four questions; Section E: Create and manage organisational learning through information management in the company with four questions; Section F: Managing people in the organisation with two questions, and lastly: Section G: Choosing the right technology with four questions. A four point Likert scale was utilized depending on the questions. Refer to Appendix A for the questionnaire developed for the research survey.

The questionnaire that was developed for consumers was structured into four sections with question 23 that will be regarded as the fifth section. Section A: Biographical details with six questions; Section B: Information source used with four questions; Section C: Lead-time expectations and experience with five questions; Section D: Establishing a relationship with seven questions, and lastly Section E: Rate the experience that you receive from your Dealership with five questions. A four point Likert scale was utilized depending on the question. Refer to Appendix B for the questionnaire developed for the research survey.

3.4 DATA COLLECTION

3.4.1 Proof of concept

The questionnaire was subjected to a pilot test to identify weaknesses in the construction and formulation of the questions. Feedback on the content was carefully considered and after suggestions had been incorporated, the final questionnaire was distributed. A draft questionnaire was sent to Statistical Consultation Services of the North-West University Potchefstroom Campus to get their views and recommendations, as proof of concept.

3.4.2 Selection method

The final version of the questionnaire was distributed through e-mail and hardcopy using the network of AMH colleagues, to gather data. The questionnaire to the employees of AMH, was electronically deployed to the target population via an e-mail containing the background to the study where after the questionnaire was printed, completed and picked-up by the author. The e-mail was sent to 200 respondents. The questionnaire was collected after seven business days; after the week 66 employees had responded.

The questionnaire for the consumers of the brand was printed in hard copy and 80 questionnaires were distributed by the author personally. 60 questionnaires were completed.

3.5 DATA ANALYSIS

3.5.1 Frequency analysis and descriptive statistics

The data collected from both the responding consumer and employee questionnaires were processed using Microsoft Excel spreadsheets; where standard Excel functions and the programme SPSS version 20 were used to analyse data. Using SPSS, a frequency analysis and descriptive statistics were performed on both consumer and employee response datasets by Statistical Consultation Services of the North-West University.

The arithmetic mean is the most commonly used measure of central tendency indicating the balance point in a set of data. It is the average of the set of data (Levine et al.,2008:97). Standard deviation is the primary measure of variation in a frequency distribution. A large standard deviation will indicate that the data are spread out, where concentrated data will have a small standard deviation (Levine et al.,2005:116-118). Refer to Appendix C for the summary of the descriptive statistics.

EQUATION 3.1: CALCULATION OF THE ARITHMETIC MEAN

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n}$$

Source: Levine et al. (2008:97)

EQUATION 3.2: CALCULATION OF THE STANDARD DEVIATION

$$s = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n - 1}}$$

Where:

\bar{X} = Arithmetic mean

n = Sample size

$\sum_{i=1}^n X_i$ = The sum of all the observed values in the data set

S = Standard deviation

Source: Levine *et al.* (2008:117)

Statistical significance tests were conducted to validate the data. In many cases it is important to know whether a relationship between two variables is practically significant, for example, between consumer and employee and preference for the amount of interaction between the two parties and which medium the consumer is likely to use when browsing for new vehicles and how the employee can infiltrate the medium. For random samples, the statistical significance of such relationships is determined with Chi-square tests (Ellis & Steyn, 2003:54). Although non-probability convenient sampling was used for this study, for the sake of thoroughness, p-values will be reported as if probability sampling was done. Statistical significance does not necessarily imply that the result is important in practice as these tests have a tendency to yield small p-values as the sizes of the data sets increase. Practical significance can be understood as a large enough difference to have an effect in practice, with the effect size independent of sample size (Ellis & Steyn, 2003:54). To determine the effect size for the relationship in contingency tables the Phi coefficient was used. Phi measures strength of association between two categorical variables.

EQUATION 3.3: CALCULATION OF PHI

$$w = \sqrt{\frac{x^2}{n}}$$

Where:

X= is the usual Chi-square statistic for the contingency table

N= is the sample size

W= is the effect size given by the Phi (ϕ) coefficient.

Source: Ellis & Steyn (2003:54)

The following are given as guidelines for the interpretation of the effect size:

- Small effect: $w=0.1$
- Medium effect: $w=0.3$
- Large effect: $w=0.5$.

Therefore, when w is calculated to be greater than 0.5, the effect size is large and considered to be practically significant and thus of practical importance (Ellis & Steyn, 2003:54).

3.5.2 Validity and reliability

The validity of a questionnaire relies first and foremost on reliability. If the questionnaire cannot be shown to be reliable, there is no discussion of validity. If the content of an instrument matches an actual situation that is being studied, then the questionnaire has content validity. Validity is the extent to which the research findings accurately represent what is happening in the situation (Welman et al., 2005:242). To ensure the data collected with the instrument was valid the questionnaire was reviewed by both subject experts and Statistical Consultation Services of the North-West University to determine internal validity.

Reliability is concerned with the findings of the research and relates to the credibility of the findings. Cronbach's alpha coefficient was used to test the internal consistency method utilized to estimate reliability. Cronbach's alpha coefficient is stated as a number between 0 and 1; a generally acceptable value of Cronbach's alpha of greater than 0.7 is ideal. However, according to Field (2009:675), even lower values can be realistically accepted due to diversity of the constructs. The questionnaire was developed as an explorative study into the respondents' attitudes and opinion towards information management within an organisation and information

technology as a powerful purchasing tool. A construct, intentionally developed, is an abstract concept used to represent a divergent collection of responded opinion and attitude towards issues identified in the literature study. The question relevant to the consumers' overall experience from a dealership which is also the last section in the questionnaire scored a Cronbach's alpha of higher than 0.8. The questionnaire constructed for the employees varied from section to section. For instance, Section B scored an average Cronbach's alpha of 0.77. Section C scored at 0.82. The Cronbach's alpha of the construct on consumers' experience and employees' attitude towards information management and information sharing will be discussed at a later stage in this study.

3.6 RESULTS AND DISCUSSIONS

3.6.1 Employee questionnaire

Responses assessing the importance and attitude towards information management in the organisation were analysed in the dataset observed. To simplify the process during data analysis, a Likert scale was used, with Section B to G (1-4), during the data analysis:

1. Section A rated the response according to employment level, employment history, age, gender and education.

3.6.2 Results of Section A

Section A consists of biographical information of respondents. The respondents populated the table with their demographic information, such as age and gender. This was done to see if there were any major differences or correlations between demographic groups in the work environment of AMH.

3.6.2.1 Age

The respondents align well with and are representative of the target population with the majority of employees falling in the 30-39 age range, with 18-29 trailing close by. Youth and young adults (age 14-34) is the second largest age range (excluding the open-ended age group of the elderly, which don't normally form part of the workforce). Almost 40% of the population fell into this category at the time of the Census 2001 (Lehohla, 2005).

TABLE 3.1: BIOGRAPHICAL PROFILE OF RESPONDENTS BY AGE

Responding employees		
Age	Number of respondents	% of respondents
18-29	22	33.3
30-39	29	43.9
40-49	11	16.7
50 >	4	6.1
Total	66	100
Missing	0	0

As illustrated in table 3.1 the majority (77.2%) of respondents are between the age group of 18 and 39 years of age.

3.6.2.2 Gender

The respondents' distribution on gender had a strong representation of males working in the motor industry. The motor industry has traditionally been a male oriented working environment. Males represent most of the sales force, middle-and senior management. In most dealerships females will work as Finance and Insurance managers which can be regarded as line managers.

TABLE 3.2: BIOGRAPHICAL PROFILE OF RESPONDENTS BY GENDER

Responding employees		
Gender	Number of respondents	% of respondents
Male	40	60.6
Female	25	37.9
Total	65	98.5
Missing	1	1.5

As illustrated by table 3.2 the responding males represent 60.6% and 37.9% were females.

3.6.2.3 Occupational level

The respondents align well with and are representative of the target population with middle management and staff being the majority of the respondents. They will essentially represent the workforce that will interact with customers the most and work on information management platforms (CRM systems).

TABLE 3.3: BIOGRAPHICAL PROFILE OF RESPONDENTS' OCCUPATIONAL LEVEL

Responding employees		
Occupation level	Number of respondents	% of respondents
Senior management	8	12.1
Middle management	24	36.4
Staff	28	42.4
Other	6	9.1
Total	66	100
Missing	0	0

As illustrated by table 3.3 the majority of respondents (78.8%) represent middle management and staff. Their attitudes towards information management initiatives will give the most insight to this study because of their excessive use thereof. Senior management represents 12.1% of the target population and they will essentially drive information management initiatives. Other employees represent 9.1% of the target population and will essentially work in administrative positions.

3.6.2.4 Time in current position

The respondents are spread evenly among the different categories of work experience. This will give insight into the study because different skill sets and attitudes can be tested.

TABLE 3.4: TIME IN CURRENT POSITION

Responding employees		
Time in current position	Number of respondents	% of respondents
1-2 years	19	28.8
3-5 years	16	24.2
6-10 years	18	27.3
10 >	13	19.7
Total	66	100
Missing	0	0

As illustrated in table 3.4 almost half (47%) of the respondents have worked for the organisation for longer than six years. This will give a clear indication of their attitudes towards the implementation of information management initiatives because they would have evolved with the organisation. The other 53% of respondents worked for the organisation less than 5 years, with 29% of this group working for the organisation less than 2 years. The study will gain insight into the attitudes of employees towards information management initiatives that worked for the organisation less than 5 years.

3.6.2.5 Level of education

The respondents align well to an educated workforce. This will give insight into the attitudes of employees with regards to information management initiatives.

TABLE 3.5: BIOGRAPHICAL PROFILE OF RESPONDENTS' HIGHEST LEVEL OF EDUCATION

Responding employees		
Level of education	Number of respondents	% of respondents
Postgraduate	10	15.2
Undergraduate	14	21.2
Matriculated	37	56.1
Other	5	7.6
Total	66	100
Missing	0	0

As illustrated in table 3.5 more than half of the respondents (56.1%) have matric certificates. The other 36.4% of respondents are under-or-post graduates. An educated workforce will provide the organisation with a higher skill set with regards to Information Technology and the use thereof.

3.6.3 Results of Cronbach Alpha values

Section B-G rated the response according to the following example: (Example: 1 = Not important, 2 = somewhat important, 3 = Important, 4 = Very important). The responses were grouped under: Positive response (1) and (2) and negative response (3) and (4).

To determine reliability in this survey, the internal consistency method the Cronbach's alpha is to be measured. This will show the degree to which all the items in the survey measure the same attribute.

Section B through to Section G was used as a construct and values can be seen from table 3.6 on the next page.

TABLE 3.6: CRONBACH'S ALPHA VALUES

	CONSTRUCT	Cronbach's Alpha in survey
SECTION B		
Q: 6-8	Initiating information management	0.77
SECTION C		
Q: 9-12	Alignment of information management strategy	0.82
SECTION D		
Q:13-16	Information sharing culture	0.69
SECTION E		
Q:17-20	Organisational learning through information management	0.74
SECTION F		
Q:21-22	Management of people in the organisation	0.57
SECTION G		
Q:23-26	Choosing the right technology	0.78

The first construct, Section B that measures respondents' attitude towards initiating an information management effort scored a Cronbach's alpha of 0.77, indicating a high level of reliability. Further, Section C scored the highest level of 0.82; Section D and E were at 0.69 and 0.74 respectively. Section F scored the lowest at 0.57 and Section G was at 0.78.

Table 3.6 indicates that the scales all had acceptable Cronbach's alpha values. This can be accepted as an indication of reliability and results can thus be used for further analysis.

3.6.4 Descriptive Statistics

Table 3.7 reflects the mean and standard deviation results.

TABLE 3.7: MEAN AND STANDARD DEVIATION

	CONSTRUCT	Mean	Std. deviation
SECTION B			
Q: 6-8	Initiating information management	3.39	0.55
SECTION C			
Q: 9-12	Alignment of information management strategy	3.42	0.5
SECTION D			
Q:13-16	Information sharing culture	3.32	0.44
SECTION E			
Q:17-20	Organisational learning through information management	3.37	0.42
SECTION F			
Q:21-22	Management of people in the organisation	3.31	0.52
SECTION G			
Q:23-26	Choosing the right technology	3.32	0.46

Source: Annexure C

From the Likert scale of Section B it is evident from a mean value of 3.39 that the respondents have a positive attitude towards the importance of initiating an information management effort within the organisation. The mean value of 3.39 gives an indication that most respondents feel that it is important or very important for information management within the organisation. In Section B a standard deviation value of 0.55 was calculated, this is very low and indicates that there is a small variance in opinions of the employees. This tends to support the literature study, whereas when implemented correctly, it can add value in the organisation and to the people working for the organisation and the results from Section B tend to support this notion.

Section C measures the opinion of employees towards the importance of alignment of information management strategy with business strategy. Section C has a mean value of 3.42 and a standard deviation of 0.5 which indicates that respondents feel positive about the importance of an information management strategy, and they understand the goal of information management in the organisation, which is to ultimately make the organisation more competitive and profitable, enabling it to minimize wasteful activities and maximize optimization. The small standard deviation of 0.5 indicates that there is small variance between the opinions of employees.

Section D measures the importance of an information sharing culture in the organisation. Section D has a mean value of 3.32 and a standard deviation of 0.44, which indicates that respondents have a positive attitude towards the importance of an information sharing culture in the organisation and that information will enhance better decision-making. The standard deviation of 0.44 indicates a small variance between the opinions of respondents.

Section E measures the importance of organisational learning through information management. This section had a mean value of 3.37 and a standard deviation of 0.42 which will indicate a positive attitude towards the importance of organisational learning through information management in the organisation. This section also tends to support the literature study on the basis of perceived importance of information management and information sharing in the organisation. The standard deviation of 0.42 indicates that there is a small variance between the opinions of respondents.

Section F measures the importance of managing people; by sharing information and rewarding the use thereof. Section F has a mean value of 3.31 and a standard deviation of 0.52 which indicates a positive inclination towards the importance of managing people correctly in the organisation. The standard deviation value of 0.52 indicates a small variance between the opinions of respondents.

Section G measures the importance of choosing the right technology for better information management. This section had a mean value of 3.32 and a standard deviation of 0.46. The mean value indicates a positive attitude towards the importance of technology within the organisation, meaning collaborative technologies to link suppliers and customers. The standard deviation of 0.46 indicates a small variance between the opinions of respondents.

3.6.5 Correlation between variables

Pearson's correlation coefficient or Spearman's rho is a non-parametric measure of statistical dependence between two variables. It assesses how well the relationship between two variables can be described using a monotonic function. If there are no repeated data values, a perfect Spearman's correlation of +1 or -1 occurs when each of the variables is a perfect monotone function of the other. Spearman's coefficient can be used when both dependent variable and independent variable are ordinal numeric or when one variable is ordinal numeric

and the other is a continuous variable. This can also be used when both variables are continuous (Field, 2009:372-373).

In this study the non-parametric measure was chosen because the sample in some of the equations was less than 30.

TABLE 3.8: PEARSON'S CORRELATION COEFFICIENT

r=+/- 0.1	Small effect	No practical significant correlation
r=+/- 0.3	Medium effect	Practical visible correlation
r=+/- 0.5	Large effect	Practically significant relationship
Sign	+	Positive relationship
Sign	-	Negative relationship

Source: Field (2009:372)

TABLE 3.9: SPEARMAN'S CORRELATIONS COEFFICIENT FOUND IN THE SURVEY

	Q 1	Q4	Sec B	Sec C	Sec D	Sec E	Sec F	Sec G
Question 1	1	0.463**	0.137	0.093	0.084	0.015	0.154	0.177
Question 4	0.463**	1	-0.166	-0.192	-0.12	-0.115	-0.208	-0.161
Sec B	0.137	-0.166	1	0.621**	0.331**	0.308*	0.403**	0.394**
Sec C	0.093	-0.192	0.621**	1	0.697**	0.645**	0.540**	0.628**
Sec D	0.084	-0.12	0.331**	0.697**	1	0.662**	0.601**	0.485**
Sec E	0.015	-0.115	0.308*	0.645**	0.662**	1	0.509**	0.624**
Sec F	0.154	-0.208	0.403**	0.540**	0.601**	0.509**	1	0.636**
Sec G	0.117	-0.161	0.394**	0.628**	0.485**	0.624**	0.636**	1
Question 1: AGE								
Question 4: Time in current position								
Sec B: Initiating information management								
Sec C: Alignment of information management strategy								
Sec D: Information sharing culture								
Sec E: Organisational learning through information management								
Sec F: Management of people in the organisation								
Sec G: Choosing the right technology								

**Correlation is significant at the level 0.01

*Correlation is significant at the level 0.05

From the results in table 3.9 (Spearman's correlation coefficient for this survey) it can be seen that Question 1 and Question 4 correlate well with each other, indicating a practically significant relationship between employees' age and time in current position. Question 1 and Question 4's practical significance is quite obvious, but looking at Section B through to Section G it can be seen that they correlate well with each other, indicating practical significance.

In Section B, the survey wants to measure respondents' attitude towards the importance of initiating information management within the organisation. It makes sense that when a respondent feels strongly about initiating information management in the organisation he will also feel strongly about the importance of Section C (Alignment of information management strategy with business strategy), as well as Section D (Information sharing culture in the organisation). The point is that respondents are likely to feel a positive attitude towards all the sections and not just one or two.

3.6.6 Comparing aspects of information management-based on respondents' age

The independent t-test is used in this analysis to compare the mean scores of two independent groups. If a random sample from the population is used, small p-values can be used to indicate whether the differences are statistically significant. It indicates a difference in population with a certain margin of error ($p < 0.05$ that indicates a statistically significance difference on 5% significance level). For the non-parametric test the Levene's test method was used for assessing whether one or two samples of independent observations tend to have a larger value than the other. For the parametric test the independent t-test was conducted and used to compare age with attitude towards initiating information management initiatives, importance of alignment of information management strategy with business strategy, importance of information sharing culture in the organisation, importance of organisational learning through information management and the importance of choosing the right information management technology.

TABLE 3.10: PARAMETRIC TEST

d=+/- 0.2	Small effect	Not practically significant
d=+/- 0.5	Medium effect	Practically visible significant
d=+/- 0.8	Large effect	Practically significant

Adapted from: Field (2009:150)

TABLE 3.11: NON-PARAMETRIC TEST

r=+/- 0.1	Small effect	Not practically significant
r=+/- 0.3	Medium effect	Practically visible significant
r=+/- 0.5	Large effect	Practically significant

Adapted from: Field (2009:57)

In this study, the Levene's test was used to analyse the groups of data. Levene's test, tests the null hypothesis that the variance in different groups are equal. Levene's test is significant at level p being smaller or equal to 0.05 and it can then be concluded that the null hypothesis is incorrect and that the variances is significantly different, therefore the assumption of homogeneity of variance is violated. Further, Levene's test is not significant at $p > 0.05$; the variances are approximately equal and the assumption is justifiable (Field, 2009:150).

Although a lot of evidence suggests that the t-test was accurate when distribution was skewed the t-test can be intolerant when the assumption of normality is not met. The important factor is the shape of the sampling distribution and not the sample data. The parametric independent t-test relies on the assumption of normally distributed data. When samples in each of the groups are big (>30) the central limit therein implies normality of means can be assumed (Field, 2009:42).

The solution for this problem is to use one of a group of tests commonly referred to as non-parametric tests. These tests have fewer assumptions than the parametric test and so are useful when data violate the assumptions.

TABLE 3.12: GENDER DIFFERENCE

	Male			Female			Effect size
	N	Mean	St deviation	N	Mean	Std	
Section B	40	3.33	0.589	25	3.45	0.479	0.203
Section C	40	3.4	0.536	25	3.47	0.434	0.118
Section D	40	3.36	0.483	25	3.29	0.379	0.149
Section E	40	3.4	0.437	25	3.32	0.405	0.197
Section F	40	3.4	0.508	25	3.18	0.537	0.409
Section G	40	3.33	0.484	25	3.34	0.438	0.018
	t-test Parametric test	Levene's test Non-Parametric test					
	p-Value	p-value					
Section B	0.396	0.384					
Section C	0.619	0.215					
Section D	0.527	0.111					
Section E	0.429	0.586					
Section F	0.102	0.596					
Section G	0.942	0.512					

It is visible from table 3.12 that the construct of Section B illustrated an average of female respondents (3.45) and standard deviation of 0.48 who had a positive attitude towards initiating information management initiatives in the organisation. The male respondents had a mean value of 3.32 and standard deviation of 0.59. The p-value for Levene's test is significant at the value smaller or equal to 0.05. Section B had a value of 0.38 and a t-test value of 0.39, which indicates that there is no parametric and non-parametric significance in this construct. However, it represented a medium size effect of 0.203.

In Section C, females ($M=3.47$, $SE=0.43$) had a more positive attitude towards the importance of alignment of information management strategy with business strategy than males ($M=3.4$, $SE=0.54$). Levene's test had a p-value of 0.22 and a t-test value of 0.62 which leads to believe that this construct with regards to the parametric and non-parametric test is insignificant because $p>0.05$. However, it did represent a small effect of 0.118.

In Section D, males ($M=3.36$, $SE=0.483$) had a more positive attitude towards the importance of creating and managing an information sharing culture in the organisation than females ($M=3.29$, $SE=0.38$). The p-value of Levene's test and normal t-test was larger than 0.05; therefore, the construct is not significant. It did represent a small effect of 0.149.

The rest of the Sections E-F also had p-values larger than 0.05 which indicates no significance; however, Section F had an effect size of 0.409 which will indicate the construct is practically important.

3.7 RESULTS AND DISCUSSIONS

3.7.1 Consumer questionnaire

Responses assessing biographical details of consumers were observed in Section A. Section B consisted of questions measuring which information sources consumers' use. Section C measured lead-time expectations and current experience thereof. Section D measured the importance of a relationship from the customers' perspective and finally Question 23 will be handled as a construct measuring customer experience at a dealership.

3.7.2 Results of Section A: Biographical details

3.7.2.1 Age

The age group is shown in the figure below.

FIGURE 3.1: AGE GROUP OF THE RESPONDENTS

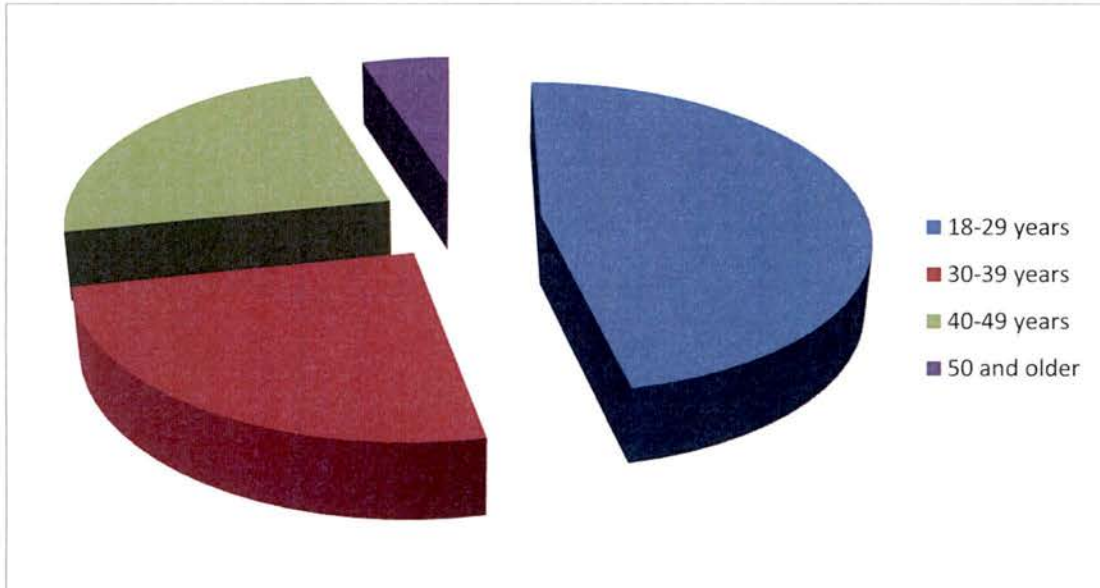
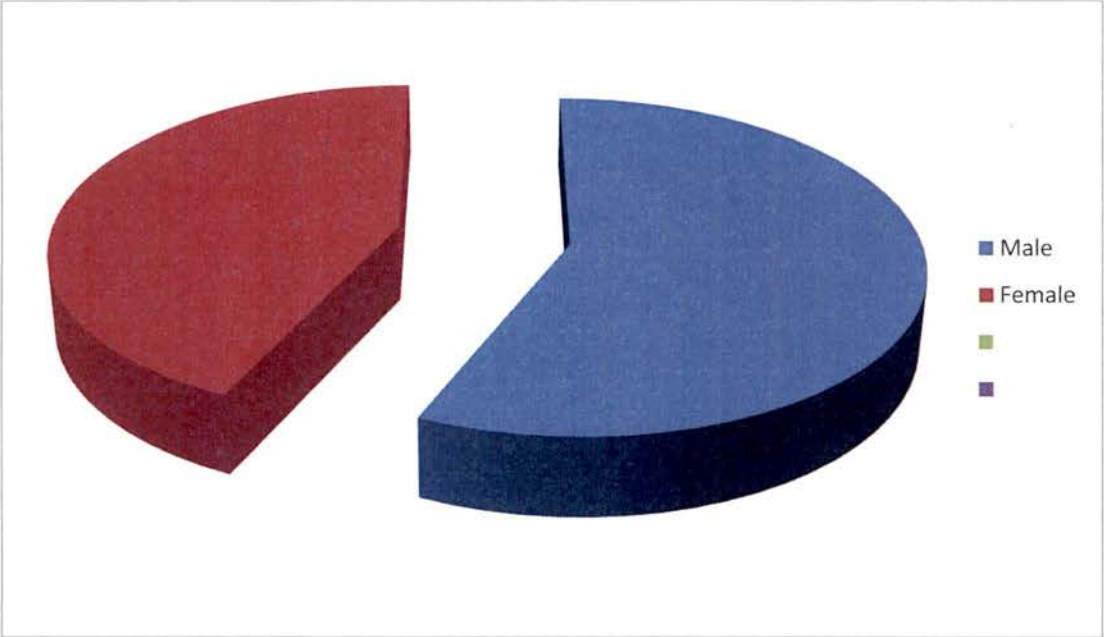


Figure 3.1 illustrates that 46.7% of respondents fall in the age group of 18-29 years. The figure also illustrates that 25% and 23.3% of respondents fall in the age groups of 30-39 years and 40-49 years respectively.

3.7.2.2 Gender

FIGURE 3.2: RESPONDENTS' GENDER



Calculated from Annexure D

Figure 1.2 illustrates that 56.7% of respondents are male and 43.3% are female.

3.7.2.3 Income

FIGURE 3.3: ESTIMATED MONTHLY HOUSEHOLD INCOME

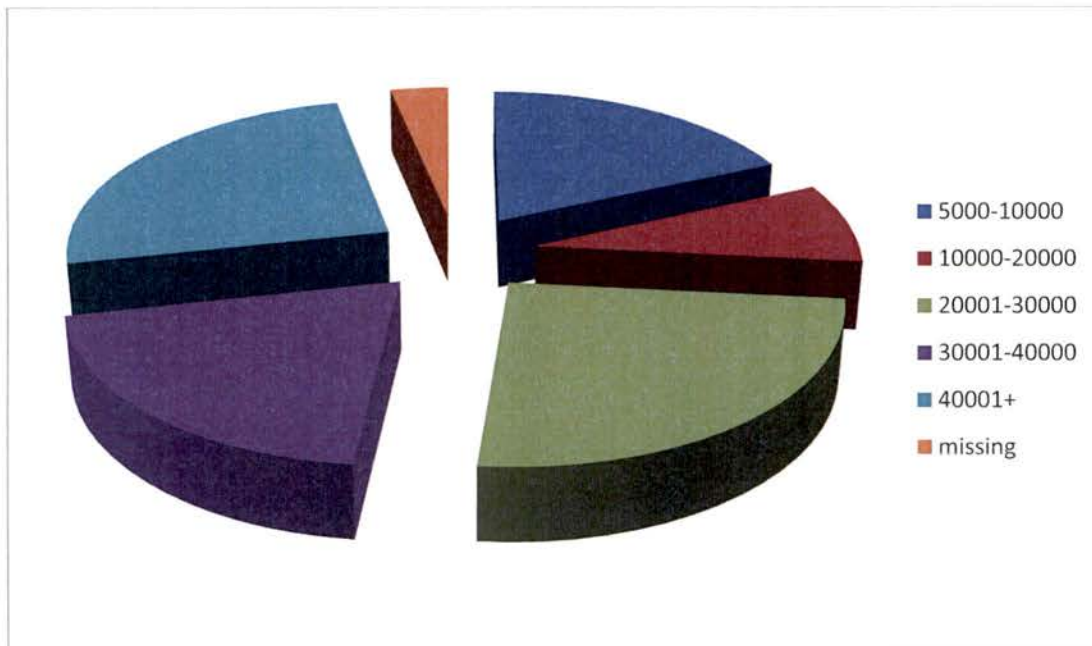


Figure 1.3 illustrates that respondents were spread out relatively even with regards to estimated household income. With 25% of respondents earning R 40001 and above, 20% of respondents were at R 30001-R 40000, 25% at R 20001-R 30000, 8.3% at R 10000-R 20000 and 18.3% at R 5000-R10000. Some 3.3% of respondents did not respond to the question. This results shows that the brand in question is very diverse and suits people from different financial backgrounds.

3.7.2.4 Vehicle brand

FIGURE 3.4: RESPONDENTS' BRAND THAT THEY OWN

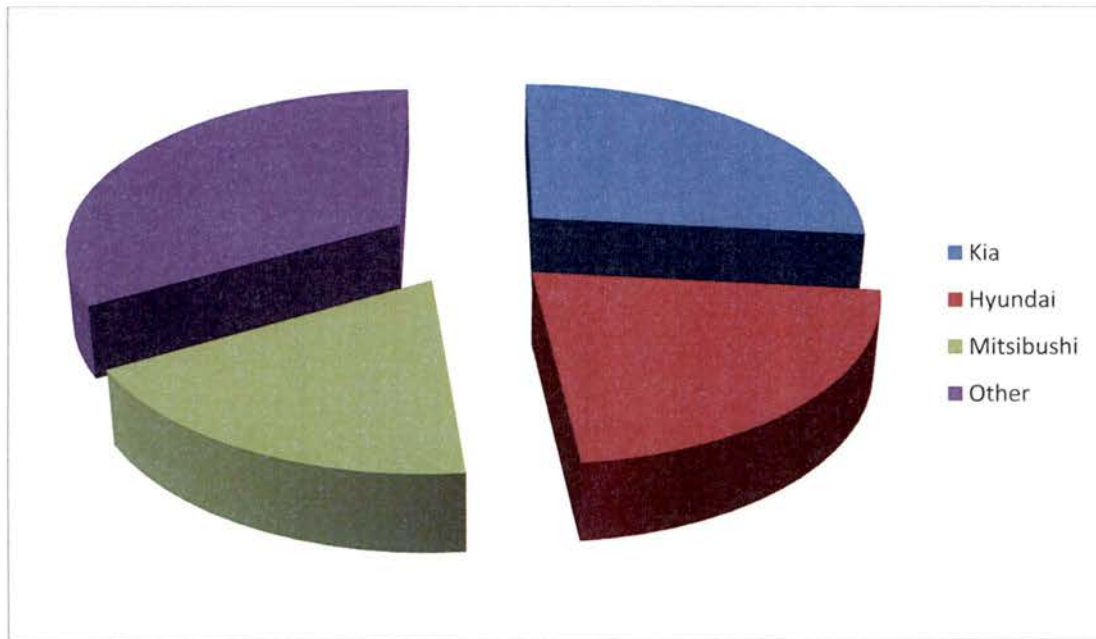


Figure 1.4 illustrates that 26.7% of respondents own KIAs and 21.7% own Hyundai's, which is representative of the market (AMH's best sellers). 18.3% of respondents own Mitsubishi's. 33.3% of respondents fall into the "other" category, for better analysis brands like Renault, Tata and Daihatsu were put into the "other" category because of small representation.

3.7.2.5 Number of brands in the last 10 years

FIGURE 3.5: NUMBER OF BRANDS THE RESPONDENTS OWNED IN THE LAST 10 YEARS

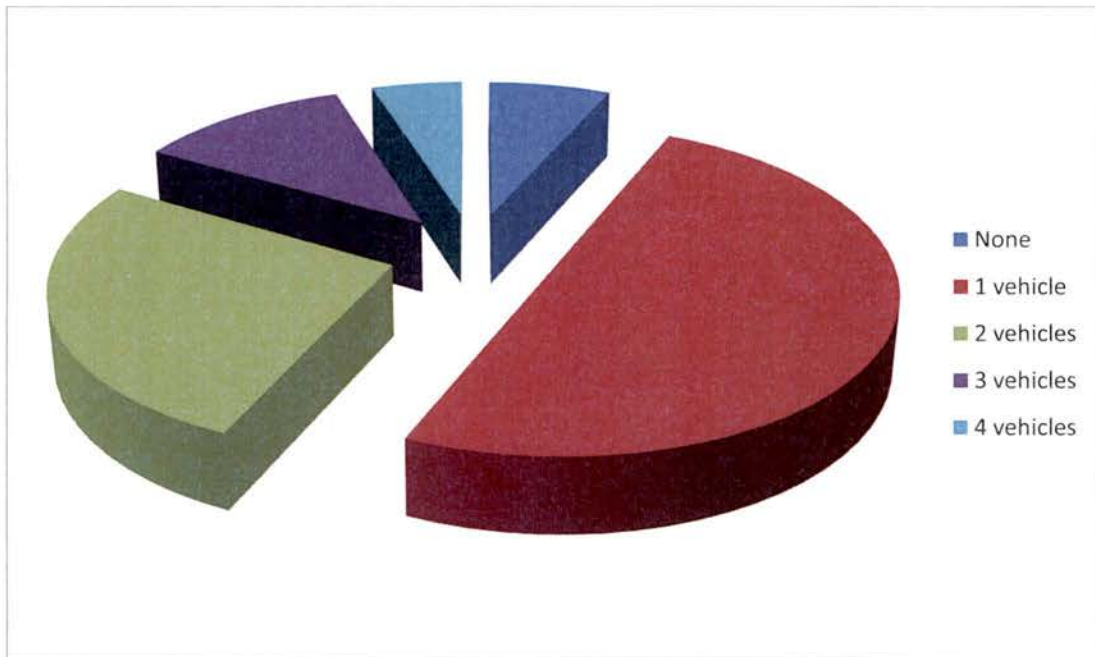


Figure 3.5 illustrates that 50% of respondents owned one vehicle of the brand in the last 10 years, 26.7% owned 2 vehicles, 11.7% owned 3 vehicles and 5% owned 4 vehicles. The AMH group grew at a rapid pace from the year 2007, thus the figure of 50% makes sense because many respondents only made their first purchase of the brand in the last few years.

3.7.2.6 Ownership time

FIGURE 3.6: AMOUNT OF TIME THAT WILL PASS, BEFORE RESPONDENTS WILL PURCHASE A NEW CAR

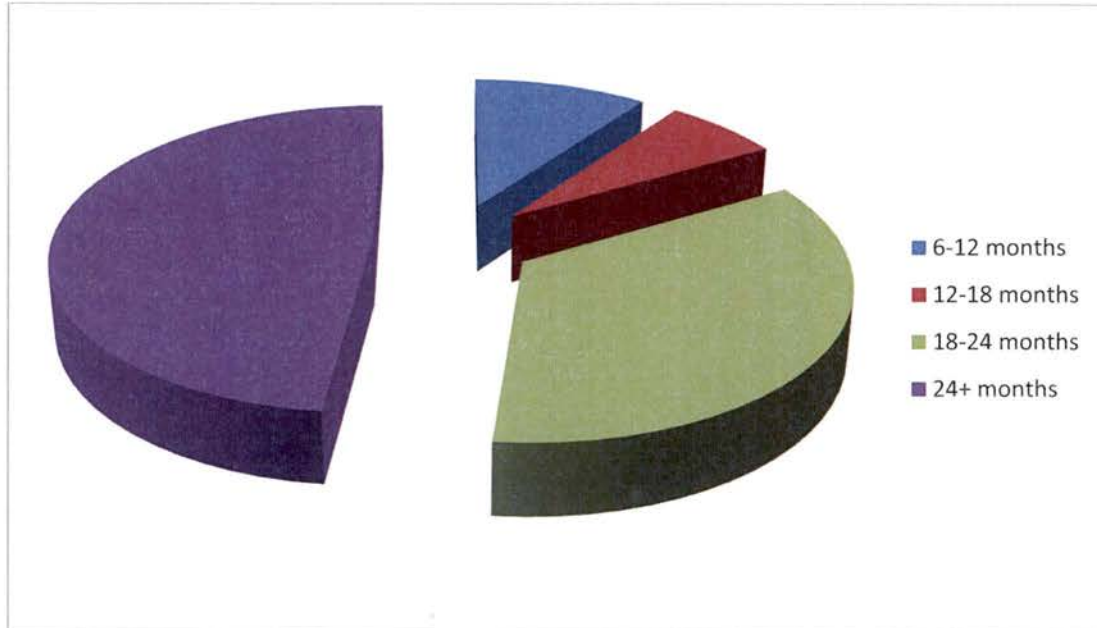


Figure 3.6 illustrates that 48.3% of respondents will own their vehicles for 24+ months, 35% will sell after 18-24 months, with the majority falling in the 18+ months category. This statistic relates to the literature study where it was established with Wesbank, the leader in vehicle and asset finance in South Africa, that a customer will own their vehicles an average of 33 months before renewing lease agreements.

3.7.3 Results of Section B: Information sources used

Section B illustrates the values of customers with regards to the information sources that they use when searching for new vehicles. Question 7 illustrates that 58.3% of respondents often use the internet when searching for new products and services. 27.7% of respondents always use the internet. Question 8 was used to establish which of the biggest search engines customers will use when browsing for cars, and establishing if they used search engines at all. The majority of respondents (56.7%) use the Auto Trader search engine when browsing for

cars. Some 10% of respondents' uses Car Find which is also a company owned by AMH. 5% uses Surf for Cars. 15% don't use the abovementioned search engines and 6.7% of respondents were missing. Question 9 establishes the importance of interactivity of the search engines to customers, meaning that the platform can adapt quite easily to consumer needs. The majority of respondents felt that interactivity is important with 45% of respondents' selection and 23.3% of respondents' felt that it is very important. 3.3% of customers were missing.

3.7.4 Results of Section C: Lead-time expectations and experience

Section C measures the respondents' attitude towards lead-time expectations and experience of the customer. Question 11 measured the length of time from initial decision to buy, to placing the order. 41.7% of respondents made a decision to buy and placed an order, in less than 2 weeks. 28.3% of respondents made a decision and placed an order between 2 weeks and one month. 23.3% took between 1 and 3 months and 6.7% took more than 3 months. Question 12 measured the length of time from placing an order to taking delivery of the vehicle. 38.3% of respondents waited less than 2 weeks for delivery, 38.3% of respondents waited for delivery between two weeks and one month. 23.3% of respondents' waited between 1 and 3 months. Question 13 measured the importance of waiting for delivery of the vehicle relevant to their final car choice from the customers' perspective. 63.3% of respondents felt that it is very important to make a car selection where the waiting time is not long. Question 14 measured the number of times the customer will typically visit the dealership before the transaction was concluded. 41.7% of respondents visited the dealership between 3 and 5 times. 21.7% visited the dealership less than 3 times and 28.3% visited the dealership between 5 and 7 times. Question 15 measures the ideal length of time customers will wait from order to delivery. 68.3% of respondents felt that the ideal waiting time for delivery was up to one week. 30% of respondents felt 1 to 2 weeks were acceptable and 1.7% of customers were willing to wait 2 to 3 weeks.

3.7.5 Results of Section D: Establishing a relationship

Section D measures customers' attitude towards establishing a relationship with the dealership. Question 16 measured the importance to customers to be informed about value added products and new product promotions by the dealer. 18.3% of respondents felt that the notion was somewhat important. 55% of respondents felt it was important. Question 17 measures how

often the customer would prefer to be contacted by the dealership. 43.3% of respondents opted for once in every 6 months. 23.3% of respondents opted for once in 3 months and 21.7% once in 2 months and 11.7% opted for once a month. Question 18 measures the importance of having a relationship between the customer and dealership. 65% of respondents' felt that it is important to have a relationship with the dealership. 18.3% of respondents felt that it is very important having a relationship with the dealership. Question 19 measures the dealerships' ability to anticipate and satisfy customers' needs. 73.3% of respondents felt that the dealership will often satisfy or anticipate possible needs. 73.3% of respondents felt that the dealership will often satisfy or anticipate possible needs. 16.7% of respondents felt that the dealership will always fulfil their needs. Question 20 measures how likely customers are to purchase another vehicle from the dealership. 58.3% of respondents' selected that they probably would purchase another vehicle from the specific dealership. 11.7% of respondents' said they definitely would purchase another vehicle, 15% of respondents selected that they were neutral and the other 15% selected that they probably would not purchase another vehicle from the dealership. Question 21 measures the probability of consumers to purchase another vehicle of this particular brand. 51.7% of respondents selected that they probably would purchase another AMH brand and 20% of respondents selected that they definitely would purchase another AMH brand. Question 22 measures the most important reason for the customer initially shopping at the chosen dealership. 31.7% of respondents were recommended by others, 23.3% of respondents were located in close vicinity. 25% of respondents were enticed by advertising and 15% of respondents were enticed by previous experiences. 5% of respondents were missing.

Question 23 measures the overall experience of the customer with the dealership. 48.3% of respondents felt that they were very comfortable with their experience and 23.3% felt that it was excellent (See Annexure D).

3.7.6 Cronbach's alpha values of question 23

TABLE 3.13: CRONBACH'S ALPHA

Question construct	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q23n1	8.5424	7.666	.807	.678	.856
q23n2	8.4068	6.866	.862	.752	.840
q23n3	8.4746	8.426	.699	.519	.880
q23n4	8.5085	7.909	.714	.538	.875
q23n5	8.5085	7.427	.652	.467	.895
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items			
.893	.897	5			

It is evident from table 3.13 that the scale variance of items all had acceptable Cronbach's alpha values. The construct of question 23 were asked to the respondents to test their overall attitude of experience that they feel when they engage with their respective dealerships. The construct had an overall Cronbach's alpha of 0.893 which is a clear indication of reliability and results can thus be used for further analysis. Means and standard deviations will be analysed next.

3.7.7 Descriptive statistics

The mean indicates the central tendency the respondents were most likely to choose between the questions. The standard deviation will indicate the variation in a frequency distribution. A large standard deviation will indicate that the data are spread out, where concentrated data will have a small standard deviation. Question 10 and question 23 were left out of table 3.14 and will be explained at a later stage (see Annexure D for descriptive statistics).

TABLE 3.14: THE MEAN AND STANDARD DEVIATION RESULTS

	Section	Mean	Std. deviation	Missing
Question 7	Information source	3.85	0.99	
Question 8		2.18	1.78	4
Question 9		2.84	0.91	2
Question 11	Lead time expectations	1.95	0.96	
Question 12		1.85	0.78	
Question 13		3.45	0.81	
Question 14		2.27	0.97	
Question 15		1.33	0.51	
Question 16	Establishing a relationship	2.93	0.78	
Question 17		2.98	1.07	
Question 18		3	0.64	
Question 19		3.03	0.61	
Question 20		2.33	0.88	
Question 21		2.25	0.97	
Question 22		2.25	1.09	3

Question 7 asks the respondents if they browse the internet when searching for new vehicles. Question 7 had a mean value of 3.85 which indicates that most respondents often use this medium; the standard deviation of 0.99 indicates that the respondents' answers were concentrated.

Question 8 asked which of the popular vehicle search engines respondents are most likely to use; where the question was statistically analysed, only using "Auto Trader" as an option and the rest falling under "other". The question had a mean value of 2.18 which meant that most respondents preferred the "Auto Trader" search engine with a standard deviation of 1.78 which meant that the answers were spread out between the options. Four respondents were missing.

Question 9 asks the respondents how important they perceive interactivity of the search engine is to them, meaning the platform adapts easily to their needs. The question had a mean value of

2.84 which indicates that most respondents perceive it to be important and with a standard deviation of 0.91, the respondents' answers were concentrated around the mean.

Question 11 falls in Section C that measures respondents' attitude towards lead time expectations and experience. Question 11 asked respondents the length of time from initial decision to buy, to placing the order of the vehicle. Question 11 had a mean value of 1.95 which indicates that most respondents made a decision in less than 2 weeks and with a small standard deviation of 0.96 indicates that options selected were concentrated.

Question 12 asked respondents the actual time of placing the order to delivery of the vehicle. Question 12 had a mean value of 1.85 and a standard deviation of 0.78 which indicates that most respondents waited on average between 2 weeks and a month. The questions' answers were concentrated around the mean.

Question 13 asked respondents the importance of waiting for delivery of the vehicle, relevant to the final vehicle choice. Question 13 had a mean value of 3.45 which indicates that most respondents felt it was very important and the standard deviation of 0.81 indicates that answers were concentrated around the mean.

Question 14 asks the respondents the number of times the dealer was contacted by the respondent before the transaction was concluded. The question had a mean value of 2.27 which indicates that respondents visited the dealer between 3 and 5 times. Standard deviation of 0.97 indicates that data concentrated around the mean.

Question 15 asks the respondents what the ideal waiting time from order to delivery would be, with a mean value of 1.33 respondents felt the ideal time would be up to 1 week with a standard deviation of 0.51; the data is concentrated around the mean.

Question 16 asks the respondents how important they feel it is to be contacted by the dealer and to be informed about new product promotions. The question had a mean value of 2.93 which indicates that most respondents felt it was important and the standard deviation of 0.78 indicate that data are concentrated around the mean.

Question 17 asks the respondents how often they would prefer contact between themselves and the dealer. The question had a mean value of 2.98 which indicates that once in 3 months are preferred and the standard deviation of 1.07 indicates that data is relatively concentrated.

Question 18 asks the respondents how important they feel it is to have a business relationship with the dealership. The question had a mean value of 3 which indicates most respondents felt it was important and the standard deviation of 0.64 indicates that data are concentrated around the mean.

Question 19 asks the respondents' perception on how they think their dealerships can anticipate and satisfy possible needs. The question had a mean value of 3.03 which indicates respondents felt that dealerships can "often" satisfy and anticipate possible needs. The standard deviation of 0.61 indicates that data are concentrated around the mean.

Question 20 asks the respondents how likely they would be to purchase or lease another vehicle from that specific dealer. With a mean value of 2.33 most respondents probably would. The standard deviation of 0.88 indicates that data are concentrated around the mean.

Question 21 asks the respondents how likely they would be to purchase another vehicle of the specific brand if they were to replace it today. With a mean value of 2.25 most respondents selected that they probably would and the standard deviation of .097 indicates that data are concentrated around the mean.

Question 22 asked respondents what the most important reason was for buying a vehicle at a specific dealership. The mean value of 2.25 indicates that recommendations by others and location played an important role in respondents' decision. The standard deviation of 1.09 indicates that data were relatively concentrated around the mean.

3.7.8 Correlation between variables

Pearson's correlation coefficient or Spearman's rho is a non-parametric measure of statistical dependence between two variables. It assesses how well the relationship between two variables can be described using a monotonic function. If there are no repeated data values, a perfect Spearman's correlation of +1 or -1 occurs when each of the variables is a perfect monotone function of the other. Spearman's coefficient can be used when both dependant variable and independent variable are ordinal numeric or when one variable is ordinal numeric and the other is a continuous variable. This can also be used when both variables are continuous (Field, 2009:373).

TABLE 3.15: RESULTS FROM THE SPEARMAN'S COEFFICIENT

	Q1	Q3	Q5	Q6	Q7	Q9	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21
Q1	1	.558**	.224	-.028	-.234	-.029	-.202	.136	.027	-.068	.122	-.141	.130	.027	-.202	.096	.234
Q3		1	.393**	.033	-.290*	-.070	-.159	.329	.069	-.111	-.040	-.200	.381**	.112	-.308*	-.171	.012
Q5			1	-.091	-.055	.112	-.181	.074	.048	-.079	-.174	-.123	.055	-.125	-.118	-.214	-.287*
Q6				1	.161	-.065	.437**	.136	.246	.040	-.296*	.073	-.119	.126	.211	-.047	-.083
Q7					1	.485**	.202	.000	.141	.078	-.061	.157	-.389**	.278*	.255*	.077	-.070
Q9						1	-.137	.127	.158	.160	-.123	.296*	-.212	.311*	.347**	-.185	-.138
Q11							1	.202	.074	.203	-.091	.101	-.033	-.015	.075	.125	.126
Q12								1	.277*	.371**	.063	.096	.126	.038	-.108	-.032	-.043
Q13									1	.019	-.232	.098	-.264*	.178	.093	-.265*	-.093
Q14										1	.102	-.061	.038	.118	.020	.037	-.057
Q15											1.	.051	-.071	.101	-.085	.138	.044
Q16												1.	-.115	.283*	.346**	-.176	-.030
Q17													1.	-.053	-.096	.049	.108
Q18														1.	.372**	-.146	-.031
Q19															1.	.043	-.069
Q20																1.	.628**
Q21																	1.
Exp																	

** Correlation is significant at the 0.01 level

* Correlation is significant at the 0.05 level

From the results in table 3.15 question 1 and question 3 is positively correlated with a coefficient of 0.558*. This will indicate that the older respondents are, the more money they are likely to earn. Question 3 correlates positively with question 7, 12, 17 and 19. This will indicate that the more money respondents earn, the time that they will wait to purchase a new vehicle becomes shorter. The more money respondents earn also indicates that they become less tolerant on waiting for delivery of a vehicle. Lastly, respondents earning more money seem to be more satisfied with the dealership's ability to satisfy and anticipate possible needs. Question 5 is negatively correlated to question 21 and question 23 is constructed to measure overall experience when engaging with the dealership. From table 3.14 it seems like the more vehicles respondents owned of the particular brand, the less likely they are to purchase a vehicle of the same brand. Furthermore, the more vehicles that respondents have owned will lead to decreased satisfaction with the overall experience that they receive from the dealership.

Question 6 correlates positively with question 11, meaning that the longer respondents own their vehicle before deciding to sell, the time from decision to buying, to placing the order increases. Question 6 correlates negatively with question 15, meaning the longer respondents own their vehicles, the less time they are willing to wait for delivery.

Question 7 is positively correlated with question 9, 18, 19 and negatively correlated with Question 17. Question 7 measures how often respondents browse the internet when searching for new vehicles. The correlation between question 7 and question 9 indicates that the more respondents browse the internet when searching for new vehicles the more important they perceive interactivity of the search engine to be. Also, the more the internet is used, the more important respondents feel it is to have a business relationship with the dealership. Respondents that often use the internet to browse for new vehicles also feel that the dealership's ability to anticipate and satisfy all their possible needs is high. The negative correlation with question 17 indicates that respondents browsing the internet regularly would prefer less contact and interaction from the dealership.

Question 9 is positively correlated with question 16, 18 and 19, which indicates that respondents that feel interactivity of their particular search engines is important would also feel it is increasingly important to be informed about product promotions by the dealership. Respondents with a positive attitude towards interactivity of search engines will also feel the importance of having a business relationship with the dealership is high. Furthermore, respondents will also perceive the dealership's ability to anticipate and satisfy possible needs to be high.

Question 12 correlates positively with question 13 and 14, indicating that respondents that wait less time for vehicle delivery feel that choice of vehicle is important relative to the waiting time and they tend to visit the dealership less before the transaction is finalized.

Question 13 is negatively correlated with question 17 and 20, indicating that respondents with a high importance perception of waiting for the delivery of the vehicle, relevant to vehicle choice would like to be contacted less by the dealership and they probably would purchase another vehicle of this brand.

Question 16 is positively correlated with question 18, 19 and negatively correlated with the “experience” question. The correlation coefficient between question 16 and 18 indicates that respondents that feel it is important to be contacted by the dealership will also feel it is important to have a business relationship with the dealership and also that the dealership is capable of anticipating and satisfying all possible needs. However, the more important respondents feel it is to be contacted by the dealership the more negative their overall experience that they receive from the dealership will be.

Question 18 and question 19 is positively correlated indicating that respondents that feel high importance of having a business relationship with the dealership will also have a positive perception towards the dealership’s ability to anticipate and satisfy possible needs.

Question 20 is positively correlated with question 21 and overall experience, indicating that respondents that would probably purchase another vehicle from their specific dealerships would also be likely to purchase another vehicle of the same brand and has a positive overall experience from their specific dealerships.

Question 21 is positively correlated with the overall experience from the dealership, which indicates that respondents that probably would purchase another vehicle of the specific brand enjoys a positive experience from their specific dealerships.

3.8 CONCLUSION

There is evidence in the study that employees feel that it is important to initiate an information management effort in the organisation; they also feel that it is important to align the organisation’s information management strategy with business strategy. There is evidence that employees feel positive about information management in the organisation, the benefits that the

organisation enjoys are those employees' perceptions towards information management and technology is positive. A few years ago when the information age and e-commerce first started to play a role in business, a huge change management process needed to be implemented in order to change employees' negative perceptions so that technology could be implemented and utilized successfully. Employees of the organisation also feel that it is important to create and manage an information sharing culture in the organisation; with that said, it is evident that people in the organisation realize the value that information management can create. The key success factor of information management in this organisation will be the implementation thereof and choosing the right technology to fit the specific business processes. The reason for this conclusion is that employees already have a positive attitude towards information management technologies. Furthermore, employees feel that choosing the right technology and managing people correctly will lead to successful information management. The findings of the employee questionnaire fit in with the literature study, indicating that employees understand and perceive true value through successful information management in the business value chain.

From the customer questionnaire it is evident that consumer behaviour has changed drastically over the last few years. The information age and e-economy have changed the traditional way of doing business; this statement also fits in with findings in the literature study. Important findings that should be noted in the consumer questionnaire are that 58.3% of respondents often use, and 21.7% always use the internet when they are searching for a new vehicle. 56.7% prefers using the "Auto Trader" search engine, which is a lot more than 10% of "CarFind". "CarFind" is owned by AMH and recommendations on this e-commerce initiative will be given in chapter 4. 45% and 23.3% of respondents feel that it is important and very important respectively for the search engine to be able to adapt to their ever changing needs. The organisation will perceive this notion as system intelligence that needs to be incorporated in the system. The next section of the questionnaire gave evidence that customers expect service or product delivery to be as fast as possible. Customers also feel that the lead time will influence their decision on the brand that they choose. Also evident is that customers perceive information sharing from the dealership and establishing a business relationship with the dealership as important. The "experience" section of the questionnaire plays a very big role in calculating customer retention and building brand loyalty. From the perception of the dealership, the results obtained were satisfactory, with most respondents rating experience to be positive. Further research can be initiated by the dealership to quantify good experience into actual value.

3.9 CHAPTER SUMMARY

The empirical research conducted has as objective to investigate how an organisation trading in the automotive industry can gain better value by managing information in the organisation's value chain, and how the value gained can be transferred to the end consumer? The empirical research also investigated the implications of information management on business decision makers, customers' purchase decisions and thus the implications for the AMH group trading in the automotive industry. Also identifying the Information Technology assets of respondents with regards to the hardware and software that they own, and how they use this technology to transact in the modern economy, identifying information systems within the organisation and how they are currently put to use, and lastly, identifying the respondents' attitude towards Information Technology. To meet the research objectives a quantitative approach was selected. Using SPSS, a frequency analysis and descriptive statistics were performed on both employee and customer response datasets by Statistical Consultation Services of the North-West University. Statistical significance tests were also conducted to validate the data. Cronbach's alpha coefficient was used to test the internal consistency method utilized to estimate reliability. There is ample proof from the empirical study that successful information management within the organisation will lead to an increase in customers' overall purchasing experience. Information is a powerful tool and must be used by the organisation to enhance customer satisfaction, streamline business processes and thus increase profit.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

4.1 INTRODUCTION

The final chapter concludes with a summary of the secondary objectives researched in the literature (Chapter two) and the empirical research (Chapter three) chapters in order to support recommendations towards the primary objective of this study. The primary objective of this study was to gain a better understanding of how an organisation in the motor industry can manage information in the value chain to add productivity and reduce waste in all facets in order to gain economies of scale and sustainable growth. To achieve this primary objective of the study, the secondary objectives realized were a thorough theoretical evaluation of information management initiatives in the current automotive environment. The literature study in Chapter two also investigated the implications of information management in the supply chain and what benefits could be drawn from implementing such initiatives correctly. Information management towards customer relationship development was also discussed with a brief overview of e-commerce and e-business. The empirical research in Chapter three investigated employees' attitudes towards information management in the workplace and how they perceive the importance of information management within the organisation in order to add value. Consumer attitudes towards how they receive information management initiatives from their dealerships and how actively they use e-commerce initiatives were also investigated. From both theory and empirical research the final objective is to make recommendations towards a general framework for implementing better information management initiatives to create a sustainable competitive advantage for an organisation in the motor industry. A brief evaluation will be made to confirm that the study objectives are achieved, and recommendations for further study are made.

4.2 CONCLUSIONS

In order to draw conclusions towards the implementation and management of information in the value chain of an organisation, the information gathered with the empirical research conducted of employees and customers of an organisation trading in the motor industry was used to

analyse possible strengths, opportunities, weaknesses and threats regarding usage and attitude towards information management initiatives and technologies.

4.2.1 Strengths

- AMH has a relatively educated workforce, with 19% of employees being postgraduates and 16% being undergraduates. They will typically fill positions in middle and senior management. This will give an indication that the employees possess the necessary skill set for successful information management in the value chain. They will typically be faster in adapting and evolving with new business processes and structures.
- 24% of employees have worked for the organisation for between 3-5 years and 28% has worked 6-10 years; this will lead to believe that employees have settled into the organisation's culture and would be easier to adapt to new strategic vision, meaning the change management process of implementing new information management techniques will not be so cumbersome.
- With regards to employees' attitude towards initiating an information management effort, most employees had a very positive attitude towards the notion, meaning that they understand the value of the concept.
- Most employees felt very positive about creating and managing an information sharing culture in the organisation, which will give the indication that a seamlessly integrated process can be implemented with adequate employee teamwork.
- Employees also felt positive about the right technology that needs to be implemented for successful information management. This gives the indication that employees will follow through on new implementation strategies.

4.2.2 Opportunities

- The organisation has a much diversified customer base, meaning that people from different financial backgrounds own one of the specified brands. This indicates that implementation of new information management initiatives, like CRM systems and e-commerce initiatives, will be able to reach all the different customers at once. The opportunity lies in building an information system that will be implemented at point of sale that looks at different customer demographics and looking at past behaviour, the

organisation will then be able to do predictive marketing and satisfy more customer needs, thus one system with numerous capabilities.

- 58.3% of customers often use the internet when browsing for new vehicles and 27.7% of customers always use the internet. The opportunity will come in the form of implementing an internet platform and aggressively marketing that platform so that user volume can be increased. “CarFind” is an AMH owned search engine that does just that, but with only 10% preference by customers and 56.7% preference to the “Auto Trader”, there is a huge opportunity for enhancing the “CarFind” system, to make it more attractive, user friendly and value adding to the customers’ purchase experience. By doing this, the organisation can significantly increase market share.
- The next opportunity that can be pursued is the fact that customers’ ideal time for waiting for delivery of a new vehicle is up to 1 week. With the correct information management initiatives in the supply and value chain, the organisation must strive to make this a reality. The real opportunity lies in customer satisfaction and building brand loyalty through better information management, because 63.3% of customers perceive it to be very important of waiting for delivery of a vehicle, relevant to their final vehicle choice.
- Another important opportunity that needs to be pursued is that 65% of customers feel it is important to have a business relationship with their dealerships and 18.3% feel that it is very important. With a large customer base, all with unique customer needs, the only way how a productive relationship can be sustained, will be through the use of information. Every interaction with the customer should be electronically documented, processed and be made available to sales personnel, in order to supply the customer or “after sell” a product that fits with the exact customer need and preference.

4.2.3 Weaknesses

- A major challenge facing the organisation in the motor industry will be how they adopt an internet-enabled inter-organisational system that supports total supply chain transparency and connects all stakeholders with the customer. The implementation process will be very difficult and costly because of all the complexities around such a system, and new system development will have to be done to fill gaps in the supply and value chain that is currently driven by manual processes, or little collaboration exists.

- A coordinated adoption of information systems across multiple stakeholders will be needed, but this has to be driven by electronic leadership, skills that are currently lacking at boardroom level.
- Better measures will be needed to encourage supply chain collaboration and the adoption of inter-organisational systems over the nature of the realized benefits from build-to-order, and a more observable vision of who is likely to share in them.
- One of the bigger challenges will be to build an electronic infrastructure that overcomes the proliferation of standards and protocols that create so much additional work for supply partners.

4.2.4 Threats

- It is evident from the literature study, that customers are less brand-loyal these days because of abundant supply and a wide range of top quality products. Organisations not adapting with regards to having a virtual footprint in the e-economy are at risk of losing market share to organisations that implement such initiatives.
- Organisations are threatened by other big players in the market; for instance, if McCarthy's motor group are first movers in the information value chain management concept, they will be able to gain first mover advantage and win market share.
- Legislation like the "POPI" act and Consumer Protection Act restricts certain business practices that could have a negative impact on how the organisation manages relationships with customers.
- Not adapting to the changing market from a traditional economy to a more electronic economy can leave the organisation on a competitive back foot, and once IT infrastructures are behind, it proves to be very challenging to keep up.

4.3 RECOMMENDATIONS

From the study, it is unclear whether strategic directions exist that the suppliers are supposed to use as a guideline to implement common e-business and e-commerce strategies. Many of the different role-players in the value chain recognize the need to implement information management strategies in order to compete more effectively; however, it seems that there is no common drive to achieve such a strategy. The respondents seem to have common goals to

embrace this process and therefore these should be addressed by senior management that is responsible for developing business strategy and direction.

4.3.1 OEM Communications of e-business strategies

Vehicle manufacturers have an important role to play in assisting their suppliers to implement e-business as quickly as possible. By fast-tracking these issues, the OEMs will benefit in order to satisfy the ever increasing customer demand and market competition. It is also understandable that local OEM staff and management are facing similar issues to their supply chain counterparts in identifying strategies and course of action in light of conflicting directions from overseas parent companies, their applicability to local conditions, viability of business cases, difficulties of resourcing local initiatives and more (Federal Chamber of Automotive Industries, 2001).

Nevertheless, from the feedback received during this study it is important that emerging directions are communicated widely within the supply chain. OEMs and other role-players in the value chain should be prepared to listen or obtain feedback from their different suppliers about planned initiatives in order to reach situations where electronic collaboration is possible. As a concrete action plan to facilitate the process, this study will propose an information seminar and workshops about coordinated e-business and e-commerce activities in the automotive supply chain. Opening overviews would be followed by workshop sessions of specific topics like product development collaboration, EDI future directions, online procurement, supplier communications and Customer Relationship Management platforms.

4.3.2 Using Business Intelligence in value chain management

Business intelligence is a product of effective information management and further is an enabler in decision-making by accessing and analyzing relevant data from a wide variety of sources. Analytic models utilizing quantitative and qualitative methods can be used for data analysis to generate the intelligence to enhance business operations in the value chain. The application of business intelligence in value chain management spans across many value chain activities. It can enable marketing and sales in the determination of product mix by market segments and sales channels, cross-selling and up-selling strategies, and marketing campaign effectiveness.

In procurement, business intelligence can help in supplier selection and determining the optimal criteria for the quantity, price and time to purchase. Business intelligence can enhance production operations in capacity planning, preventing stock-out, automatic replenishment and preventative maintenance (Malykhina, 2005 in Chan, 2007). In logistics, business intelligence can enhance carrier capacity planning, scheduling, route optimization and warehouse inventory control. Leveraging business intelligence through effective information management, quick and relevant responses can be provided by anticipating and preventing potential customer and product problems and thus providing better customer service. Information management to acquire business intelligence for real-time value chain management requires real-time analytics which is the capability of applying intelligence to support time-sensitive decisions (Chan, 2007).

Technologies in data warehousing and analytical processing are key components in the architecture for effective information management. Data warehouses which source data from various transactional systems and operational data stores are the basic data constructs for analytical processing. Analytics utilizing statistical methods and data mining create business intelligence to support value chain activities. In the realm of real-time business intelligence, virtual data warehouses and real-time analytics can be deployed. Virtual data warehouses will allow the real-time processing of queries to distribute data sources and bypassing the physical constructs of data warehouses. Real-time analytics utilizing virtual data warehousing can create the business intelligence required for value chain management.

4.3.3 Implementation of a customer relationship management system

For successful information management throughout the value chain, a CRM system must be utilized correctly. The CRM system will be the starting point of information flow throughout the organisation. The CRM system must clearly show customer wants and specific needs and by doing so the organisation can plan the entire value chain accordingly. The CRM system must include the following customer related functionality.

Sales Force Automation

- Contact management: Must help maintaining, tracking and managing customer information and contact histories for present customers.

- Activity management: The system must have a combination of calendar, task and scheduling management solutions for sales people at dealership point of sale.
- Communication management: The use of e-mails and messaging management.
- Sales forecasting: Must help to analyze and project future sales goals and targets.
- Lead management: System must help manage leads and potential new business opportunities.
- Document management: System must help create, store and manage documents.

Customer service

- Call centre management: The system must provide automated, end-to-end call routing and tracking and must capture customer feedback information for performance measurement, quality control and product development.
- Field service management: The system must allocate, schedule and dispatch people, parts and time; the system must also track materials, expenses and time associated with service orders.
- Help desk management: The system must solve problems by searching an existing knowledge base, and keep logs of problem reports.

For implementation of the CRM system, the best option for the organisation will be to adopt the CRM system phase by phase, meaning the organisation must identify the areas where return on investment would be the highest and adopt CRM technology there. Another good approach would be to automate one of the key departments with an inexpensive CRM solution and if the project becomes successful the organisation can adopt a cross-company CRM solution.

4.3.4 Enterprise resource planning software solution

The ERP system that the organisation must implement must be designed in such a way so that a seamless flow of information between different sales and “back office” departments is possible. The design of the system must be based on a customer centric approach, meaning that push and pull drivers are directly influenced by customer movement. Furthermore, one of the most important success factors of the ERP system will be clean, usable data. Data and

other information must not be duplicated and this will only be possible if all the different information systems in the organisation are integrated with the ERP system.

4.3.5 Case studies, business plans, cost benefit analysis and justification

Information management initiatives need to be planned and researched by senior decision makers in the organisation. A clear implementation plan needs to be drawn up and all participating role-players will have to understand the value of implementing the process. Once the business and cost benefit is established by using existing case studies and industry analysis the implementation process of different information management initiatives will be justified among decision-makers in different cycles of the value chain.

4.3.6 Creating adequate regulatory and institutional frameworks

Discussion and adoption of industry standards within the automotive industry should be conducted in industry-associated sponsored workgroups and committees consisting of volunteers from within the industry. The outcomes and directions of standard activities emanating from these meetings can be communicated to a wider industry audience. Developing countries need to take a proactive role in developing a robust, flexible regulatory framework for e-business. It is equally important to ensure effective coordination of government agencies, industry associations and other facilitators. E-business will succeed only if a stable physical and virtual infrastructure of trust, shared by all parties concerned, including public authorities exists.

4.3.7 E-marketplaces in the motor industry

The emergence of e-commerce locally and internationally, for direct and indirect goods and services needs to be rolled out cautiously. While internet technologies are global and standardized, their applications can and must be adapted to local circumstances.

4.3.8 Education of the next generation employee

Given the perceived or real difficulties in finding staff or resources with e-business as well as automotive industry skills and expertise, the utilization of existing job networks and search facilities should be explored, with particular attention to the needs of this industry. E-business modules should also be lectured at university to ensure that graduates can be prepared to fill this gap.

4.4 ACHIEVEMENT OF THE STUDY OBJECTIVES

The success of the study can be measured in terms of the objectives formulated in chapter one.

4.4.1 Primary objectives of the study

The primary objective of this study was to gain a better understanding of how an organisation in the motor industry can manage information in the value chain to add productivity and reduce waste in all facets in order to gain economies of scale and sustainable growth. This was achieved through the literature study in chapter two and the empirical study in chapter three that researched the implications of information management initiatives for employees working in the motor industry and consumers of the motor industry. The primary impacts of information management within the value chain of an organisation conducting business in the motor industry are expanding business opportunities for the organisation. The implications are leading to increased efficiency and productivity and finally leading to increased quality of the final product. All the positive attributes that information management in the value chain contributes to the final product offering will lead to increased customer loyalty and increased economic value. The recommendations made in this final chapter will guide the decision-makers in the motor industry towards the right choices in the implementation of information management modules in the value chain.

4.4.2 Secondary objectives of the study

The literature study in chapter two set out to investigate the state of information management in the organisations value chain and why it is relevant to sustainable business operations and

customer satisfaction. The literature study in chapter two investigated the implications of information management in the supply chain and the benefits thereof. Also, the literature study investigated the importance of information management when utilizing and implementing a Customer Relationship Management system. Lastly, the literature study investigated the concept of e-commerce, e-business and how important it is for businesses to adapt to an electronic trading platform. With regards to answering all of the secondary objectives in the literature study, a clear understanding of the abovementioned concepts were achieved and the literature study achieved the desired objectives set out in chapter one.

The empirical research in chapter three investigated respondents' attitudes towards an information management initiative within the organisation, and respondents' perceptions towards the importance of information management within the organisation. The empirical research also investigated which information source customers use when they browse the internet for products and the importance of building relationships with customers through information management. With regards to the statistical analysis that was conducted in chapter three, it is evident that the empirical research achieved the research objectives as set out in chapter one.

4.5 RECOMMENDATIONS FOR FURTHER STUDY

Information management initiatives and e-commerce initiatives are on the increase and becoming increasingly important for sustainable business operations. The effective use and implementation of information management in the organisations' value chain will become a necessity for organisations trading in the motor industry in order to build a sustainable competitive advantage. Especially in an ever increasing competitive global marketplace with the motor industry facing changes to how consumer behaviours have changed and traditional consumption evolved to a more e-based economy. Additional research is required to study the effective and optimal implementation of information management initiatives in the value chain of an organisation. A better understanding of the benefits and leverage thereof is also required and additional research should be able to answer these questions.

Ethical aspects of information management and information sharing should be further investigated. The impact of information management and information sharing with regards to the

POPI act (Protection of Personal Information) and the Consumer Protection Act should be researched further and implications should be draw.

4.6 CONCLUSION

The primary objective of this study was to gain a better understanding of how an organisation in the motor industry can manage information in the value chain to add productivity and reduce waste in all facets in order to gain economies of scale and sustainable growth. This final chapter concludes with a summary of the secondary objectives researched in the literature study (Chapter two) and empirical research (Chapter three) chapters in order to support recommendations towards the primary objective of this study. The information age and information technology is playing a bigger role than ever before and influencing consumer behaviour and evolution of business processes in a big way. The only way a business transacting on a business-to-customer and business-to-business basis can survive in today's volatile economic conditions, is by using information to gather business intelligence, or customer intelligence and using this intelligence to make informed decisions or adapt at a faster pace than competitors. Recommendations were made in this final chapter on how information management in the value chain can benefit the organisation economically and secure sustainable growth. The success of the study can be measured in terms of the objectives formulated in chapter one; the primary objective of the study was achieved through the secondary objectives as set out in chapter one. The theoretical objectives as researched in the literature study in chapter two and the empirical objectives as researched in chapter three were viewed and summarized in the final chapter.

4.7 CHAPTER SUMMARY

In this final chapter recommendations and conclusions were presented based on the literature study in chapter two and the empirical study in chapter three. A SWOT analysis was constructed to illustrate the conclusions that were gathered from the literature and empirical study. Recommendations were then given to the organisation to successfully use information management in the value chain and how beneficial it would be for the organisation. Additional research is required to study the effective and optimal implementation of information management initiatives.

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APPENDIX A

Management of information in the value chain of an organization, trading in the automotive industry.

Aim of the study

The advances made with the development of new information management technologies present the automotive industry with many opportunities to improve business processes.

The challenges that need to be addressed, is how to make the most of these opportunities presented by the development of new information management technologies and how to support stakeholders in the use thereof? An understanding of employees' expectations of and experiences with information management technologies and techniques may provide insight into this challenge.

Instructions

This questionnaire measures your personal expectations of and experiences with the use of information management systems and techniques. In most questions you need only select ONE of the items, unless specifically stated otherwise.

Thank you for your participation in this project.

Section A: Biographical details.

1. What is your age group?

20-29 years	1
30-39 years	2
40-49 years	3
50 and older	4

2. Gender?

Male	1
Female	2

3. Occupation?

Senior Management	1
Middle Management	2
Staff	3
Other	4

If other, please specify:

4. Time in current position?

1-2 years	1
3-5 years	2
6-10 years	3
10 + years	4

5. Education?

Postgraduate	1
Undergraduate	2
Matriculated	3
Other	4

If other, please specify:

Section B: Initiating an Information Management effort.

6. What is the level of importance of Information Integration throughout your organization?

Not important	1
Somewhat important	2
Important	3
Very important	4

Please rate the importance of carrying out the following tasks/activities when initiating an information management effort in your organization.

7. Analyze the importance of the Strengths, Weaknesses, Opportunities, and Threats of the organization in terms of information management resources.

Not important	1
Somewhat important	2
Important	3
Very important	4

8. Analyze the importance of appointing a leader (Chief Information Officer) for information management efforts.

Not important	1
Somewhat important	2
Important	3
Very important	4

Section C: Alignment of Information Management Strategy with Business Strategy.

Please indicate how important it is for your organization to align its information management effort with the overall organizational strategy:

9. Derive the difference between what the organization can do and what it wants to do, that is, its strategic gap.

Not important	1
Somewhat important	2
Important	3
Very important	4

10. Derive the difference between what the organization knows and what it must know in order to achieve what it wants to do, that is, its information gap.

Not important	1
Somewhat important	2
Important	3
Very important	4

11. Create a high-level plan defining how and where information management resources will be used in the organization, based on its strategic gap and its information gap.

Not important	1
Somewhat important	2
Important	3
Very important	4

12. Information management must make the organization more competitive and profitable, enabling it to minimize wasteful activities, maximize optimization, and achieve its goals.

Not important	1
Somewhat important	2
Important	3
Very important	4

Section D: Create and Manage an Information Sharing Culture in the Organization.

Please indicate how important it is for your organization to create and maintain a working environment where people are encouraged to share information.

13. View of employees was taken in consideration when initiating the information management effort.

Not important	1
Somewhat important	2
Important	3
Very important	4

14. Senior, middle and line managers involve employees in decision-making.

Not important	1
Somewhat important	2
Important	3
Very important	4

15. Organization provides a work environment where people can make on-the-spot decisions based on the information available in real time.

Not important	1
Somewhat important	2
Important	3
Very important	4

16. The information management efforts will give the employees a more holistic view of the organizations total product offering which will lead to effective synergy between departments.

Not important	1
Somewhat important	2
Important	3
Very important	4

Section E: Create and Manage Organizational Learning through information management in the company.

Please indicate how important it is for your organization to create and maintain organizational learning in the workplace:

17. All information relevant to the organizations operations and customers are identified.

Not important	1
Somewhat important	2
Important	3
Very important	4

18. Relevant information is verified and organized in electronic information repositories.

Not important	1
Somewhat important	2
Important	3
Very important	4

19. Employees are encouraged to use information repositories and disseminate that information.

Not important	1
Somewhat important	2
Important	3
Very important	4

20. Employees are encouraged to re-evaluate old information knowledge and assumptions to create innovative ideas.

Not important	1
Somewhat important	2
Important	3
Very important	4

Section F: Managing People in the Organization.

Please indicate how important it is for your organization to manage people in the information management effort:

21. Management treats employees on an individual basis, and share information with them.

Not important	1
Somewhat important	2
Important	3
Very important	4

22 Management rewards employees for sharing and using knowledge gathered from information management.

Not important	1
Somewhat important	2
Important	3
Very important	4

Section G: Choosing the Right Technology.

Please indicate how important it is for your organization to implement the right technology to support the information management effort.

23. Organization uses collaborative technologies to facilitate transfer of information among employees.

Not important	1
Somewhat important	2
Important	3
Very important	4

24. Organization's technologies are easily linked to those of suppliers and customers.

Not important	1
Somewhat important	2
Important	3
Very important	4

25. Information repositories are easy to access and use, even for novice computer users.

Not important	1
Somewhat important	2
Important	3
Very important	4

26. Information is shared in an intellectual manner between employees and departments, meaning only relevant information get delivered.

Not important	1
Somewhat important	2
Important	3
Very important	4

APPENDIX B:

Management of information in the value chain of an organization, trading in the automotive industry.

Aim of the study

The advances made with the development of new information management technologies present the automotive industry with many opportunities to improve business processes.

The challenges that need to be addressed, is how to make the most of these opportunities presented by the development of new information management technologies and how to support stakeholders in the use thereof? An understanding of consumer expectations of and experiences with information management technologies and techniques may provide insight into this challenge.

Instructions

This questionnaire measures your personal expectations of and experiences with the use of information management systems and techniques. In most questions you need only select ONE of the items, unless specifically stated otherwise.

Thank you for your participation in this project.

Section A: Biographical details.

1. What is your age group?

	20-29 years
	30-39 years
	40-49 years
	50 and older

2. Gender?

	Male
	Female

3. What is your estimated monthly household income?

	10000-20000
	20001-30000
	30001-40000
	40001 and above

4. Which of the following vehicles do you currently own?

	KIA
	Hyundai
	TATA
	Foton
	Mitsubishi
	Daihatsu

5. How many of the above mentioned vehicles have you owned in the last 10 years?

	1 vehicle
	2 vehicles
	3 vehicles
	4 vehicles

6. What is the average amount of time that will pass, before you decide to sell and purchase a new vehicle?

	6-12 months
	12-18 months
	18-24 months
	24+ months

Section B: Information Sources used?

7. Do you browse the internet, when searching for new products and services to purchase?

	Never
	Not Often
	Often
	Always

8. Which of the following vehicle search engines are you most likely to use when browsing for a new or used vehicle?

	Auto Trader
	Car Find
	McCharthy Call a Car
	Surf for Cars

9. What role does interactivity of the above mentioned search engines play in your preference to the Website? (Meaning: platform adapts to consumer needs)

	Not Important
	Somewhat Important
	Important
	Very Important

10. Which of the following information sources were used in your purchase decision? (Rank the 3 most important)

	Brochure
	Dealer sale staff
	Car magazine
	Friend, Relative
	Newspaper ads
	TV ads
	Car shows
	TV programme
	World Wide Web

Section C: Lead time expectations and experience

11. Length of time from initial decision to buy, to placing order?

	< 2 weeks
	2 weeks-1month
	1 month-3 months
	> 3 months

12. Length of time from placing order to delivery of vehicle?

	< 2 weeks
	2 weeks-1month
	1 month-3 months
	> 3 months

13. Importance of waiting for delivery, relevant to your final car choice?

	Not Important
	Somewhat Important
	Important
	Very Important

16. Number of times you visited/contacted the Dealer before the transaction was finalized?

	under 3 times
	3-5 times
	5-7 times
	more than 7 times

17. Ideal length of time from order to delivery?

	up to 1 week
	1-2 weeks
	2-3 weeks
	3-4 weeks

Section D: Establishing a relationship

18. how important is it to you, to be informed about value added products and new product promotions by your dealer?

	Not Important
	Somewhat Important
	Important
	Very Important

19. How often would you prefer contact and interaction between yourself and your dealer?

	Once a month
	Once in 2 months
	Once in 3 months
	Once every 6 months

20. How would you classify the importance of having a business relationship with your dealer?

	Not Important
	Somewhat Important
	Important
	Very Important

21. How would you rate your dealerships' ability to anticipate and satisfy all your possible needs?

	Never
	Not Often
	Often
	Always

22. Based on your overall experience, how likely would you be to purchase or lease another vehicle from your dealer?

	Definitely would
	Probably would
	Might or Might not
	Probably would not

23. Based on your overall experience how likely would you be to purchase another vehicle of this brand, if you had to replace it today?

	Definitely would
	Probably would
	Might or Might not
	Probably would not

24. What was the single most important reason for initially shopping at the dealer where you bought or leased your new vehicle?

	Recommended by others
	Location
	Advertising
	Previous experience with the dealer

25. Please rate the experience that you receive from your dealership.

	Excellent	Very good	Good	Fair
1. Making you feel comfortable				
2. Working as a team to best satisfy you				
3. Making you feel confident that this was the right vehicle				
4. Handling you purchase in a professional and timely manner				
5. After-sales courtesy from the dealer				

APPENDIX C: Employee Questionnaire

Section A: Biographical details

Age group		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std dev.
Valid	18-29 years	22	33.3	33.3	33.3	1.950	0.867
	30-39 years	29	43.9	43.9	77.3		
	40-49 years	11	16.7	16.7	93.9		
	50 + years	4	6.1	6.1	100.0		
	Total	66	100.0	100.0			

Gender?		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std dev.
Valid	Male	40	60.6	61.5	61.5	1.380	0.490
	Female	25	37.9	38.5	100.0		
	Total	65	98.5	100.0			
Missing	System	1	1.5				
Total		66	100.0				

Level of occupation		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std dev.
Valid	Senior management	8	12.1	12.1	12.1	2.480	0.827
	middle management	24	36.4	36.4	48.5		
	staff	28	42.4	42.4	90.9		
	other	6	9.1	9.1	100.0		
	Total	66	100.0	100.0			

Time in current position		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std dev.
Valid	1-2 years	19	28.8	28.8	28.8	2.370	1.106
	3-5 years	16	24.2	24.2	53.0		
	6-10 years	18	27.3	27.3	80.3		
	10+ years	13	19.7	19.7	100.0		
	Total	66	100.0	100.0			

Level of education		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Postgraduate	10	15.2	15.2	15.2	2.560	0.843
	Undergraduate	14	21.2	21.2	36.4		
	Matriculated	37	56.1	56.1	92.4		
	Other	5	7.6	7.6	100.0		
	Total	66	100.0	100.0			

Section B: Initiating an Information Management effort

Question 6		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	2	3.0	3.0	3.0	3.340	0.733
	Somewhat important	4	6.1	6.1	9.1		
	Important	29	43.9	43.9	53.0		
	Very Important	31	47.0	47.0	100.0		
	Total	66	100.0	100.0			

Question 7		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	1	1.5	1.5	1.5	3.390	0.676
	Somewhat important	4	6.1	6.1	7.6		
	Important	29	43.9	43.9	51.5		
	Very Important	32	48.5	48.5	100.0		
	Total	66	100.0	100.0			

Question 8		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	3	4.5	4.5	4.5	3.420	0.583
	Important	32	48.5	48.5	53.0		
	Very Important	31	47.0	47.0	100.0		
	Total	66	100.0	100.0			

Section C: Alignment of Information Management strategy

Question 9		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	4	6.1	6.1	6.1	3.460	0.607
	Important	31	47.0	47.0	53.0		
	Very Important	31	47.0	47.0	100.0		
	Total	66	100.0	100.0			

Question 10		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	5	7.6	7.6	7.6	3.370	0.626
	Important	31	47.0	47.0	54.5		
	Very Important	30	45.5	45.5	100.0		
	Total	66	100.0	100.0			

Question 11		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	6	9.1	9.1	9.1	3.390	0.653
	Important	28	42.4	42.4	51.5		
	Very Important	32	48.5	48.5	100.0		
	Total	66	100.0	100.0			

Question 12		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	2	3.0	3.0	3.0	3.510	0.561
	Important	28	42.4	42.4	45.5		
	Very Important	36	54.5	54.5	100.0		
	Total	66	100.0	100.0			

Section D: Information sharing culture

Question 13		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	4	6.1	6.1	6.1	3.280	0.575
	Important	39	59.1	59.1	65.2		
	Very Important	23	34.8	34.8	100.0		
	Total	66	100.0	100.0			

Question 14		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	2	3.0	3.0	3.0	3.210	0.712
	Somewhat important	5	7.6	7.6	10.6		
	Important	36	54.5	54.5	65.2		
	Very Important	23	34.8	34.8	100.0		
	Total	66	100.0	100.0			

Question 15		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	1	1.5	1.5	1.5	3.370	0.626
	Somewhat important	2	3.0	3.0	4.5		
	Important	34	51.5	51.5	56.1		
	Very Important	29	43.9	43.9	100.0		
	Total	66	100.0	100.0			

Question 16		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	1	1.5	1.5	1.5	3.430	0.529
	Important	35	53.0	53.0	54.5		
	Very Important	30	45.5	45.5	100.0		
	Total	66	100.0	100.0			

Section E: Organisational learning through information management

Question 17		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	2	3.0	3.0	3.0	3.370	0.548
	Important	37	56.1	56.1	59.1		
	Very Important	27	40.9	40.9	100.0		
	Total	66	100.0	100.0			
Question 18		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	2	3.0	3.0	3.0	3.420	0.680
	Somewhat important	1	1.5	1.5	4.5		
	Important	30	45.5	45.5	50.0		
	Very Important	33	50.0	50.0	100.0		
	Total	66	100.0	100.0			
Question 19		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Important	45	68.2	68.2	68.2	3.310	0.469
	Very Important	21	31.8	31.8	100.0		
	Total	66	100.0	100.0			
Question 20		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	2	3.0	3.0	3.0	3.340	0.540
	Important	39	59.1	59.1	62.1		
	Very Important	25	37.9	37.9	100.0		
	Total	66	100.0	100.0			

Section F: Managing people

Question 21		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	1	1.5	1.5	1.5	3.409	0.525
	Important	37	56.1	56.1	57.6		
	Very Important	28	42.4	42.4	100.0		
	Total	66	100.0	100.0			
Question 22		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	2	3.0	3.0	3.0	3.210	0.712
	Somewhat important	5	7.6	7.6	10.6		
	Important	36	54.5	54.5	65.2		
	Very Important	23	34.8	34.8	100.0		
	Total	66	100.0	100.0			

Section G: Choosing the right technology

Question 23		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	2	3.0	3.0	3.0	3.360	0.544
	Important	38	57.6	57.6	60.6		
	Very Important	26	39.4	39.4	100.0		
	Total	66	100.0	100.0			
Question 24		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	1	1.5	1.5	1.5	3.360	0.598
	Somewhat important	1	1.5	1.5	3.0		
	Important	37	56.1	56.1	59.1		
	Very Important	27	40.9	40.9	100.0		
	Total	66	100.0	100.0			
Question 25		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Somewhat important	4	6.1	6.1	6.1	3.280	0.575
	Important	39	59.1	59.1	65.2		
	Very Important	23	34.8	34.8	100.0		
	Total	66	100.0	100.0			
Question 26		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	1	1.5	1.5	1.5	3.300	0.655
	Somewhat important	4	6.1	6.1	7.6		
	Important	35	53.0	53.0	60.6		
	Very Important	26	39.4	39.4	100.0		
	Total	66	100.0	100.0			

APPENDIX D

Question 1: Age group

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	18-29 years	28	46.7	46.7	46.7	1.06	0.947
	30-39 years	15	25.0	25.0	71.7		
	40-49 years	14	23.3	23.3	95.0		
	50and older	3	5.0	5.0	100.0		
	Total	60	100.0	100.0			

Question 2: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Male	34	56.7	56.7	56.7	1.43	0.499
	Female	26	43.3	43.3	100.0		
	Total	60	100.0	100.0			

Question 3: Household income

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	R5000-R10000	11	18.3	19.0	19.0	3.25	1.433
	R10001-R20000	5	8.3	8.6	27.6		
	R20001-R30000	15	25.0	25.9	53.4		
	R30001-R40000	12	20.0	20.7	74.1		
	R40001 +	15	25.0	25.9	100.0		
	Total	58	96.7	100.0			
Missing	System	2	3.3				
Total		60	100.0				

Question 4: vehicle ownership

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Kia	16	26.7	26.7	26.7	3.36	2.098
	Hyundai	13	21.7	21.7	48.3		
	Tata	3	5.0	5.0	53.3		
	Renault	6	10.0	10.0	63.3		
	Mitsubishi	11	18.3	18.3	81.7		
	Daihatsu	5	8.3	8.3	90.0		
	Other	6	10.0	10.0	100.0		
	Total	60	100.0	100.0			

Question 5: Number of vehicles owned

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	None	4	6.7	6.7	6.7	2.58	0.961
	1 vehicle	30	50.0	50.0	56.7		
	2 vehicles	16	26.7	26.7	83.3		
	3 vehicles	7	11.7	11.7	95.0		
	4 vehicles	3	5.0	5.0	100.0		
	Total	60	100.0	100.0			

Question 6: Time of ownership

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	6-12 months	6	10.0	10.0	10.0	3.21	0.958
	12-18 months	4	6.7	6.7	16.7		
	18-24 months	21	35.0	35.0	51.7		
	24+ months	29	48.3	48.3	100.0		
	Total	60	100.0	100.0			

Section B: Information sources used

Question 7

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Never	2	3.3	3.3	3.3	3.85	0.988
	Sometimes	6	10.0	10.0	13.3		
	Not often	4	6.7	6.7	20.0		
	Often	35	58.3	58.3	78.3		
	Always	13	21.7	21.7	100.0		
	Total	60	100.0	100.0			

Question 8

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Auto trader	34	56.7	60.7	60.7	2.17	1.779
	Car find	6	10.0	10.7	71.4		
	McCarthy	3	5.0	5.4	76.8		
	Surf for cars	4	6.7	7.1	83.9		
	None of the above	3	5.0	5.4	89.3		
	Never use system	6	10.0	10.7	100.0		
	Total	56	93.3	100.0			
Missing	System	4	6.7				
Total		60	100.0				

Question 9

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	6	10.0	10.3	10.3	2.84	0.913
	Somewhat important	11	18.3	19.0	29.3		
	Important	27	45.0	46.6	75.9		
	Very important	14	23.3	24.1	100.0		
	Total	58	96.7	100.0			
Missing	System	2	3.3				
Total		60	100.0				

Question 10n1

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Brochure	10	16.7	17.5	17.5	2.8	1.922
	Sales staff	24	40.0	42.1	59.6		
	Car magazine	12	20.0	21.1	80.7		
	Friend, relative	3	5.0	5.3	86.0		
	Newspaper	2	3.3	3.5	89.5		
	Tv ads	4	6.7	7.0	96.5		
	None of above	2	3.3	3.5	100.0		
	Total	57	95.0	100.0			
Missing	System	3	5.0				
Total		60	100.0				

Question 10n2

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Brochure	2	3.3	4.3	4.3	5.27	1.75
	Sales staff	7	11.7	14.9	19.1		
	Car magazine	8	13.3	17.0	36.2		
	Friend, relative	4	6.7	8.5	44.7		
	Newspaper	18	30.0	38.3	83.0		
	Tv ads	4	6.7	8.5	91.5		
	Tv program	1	1.7	2.1	93.6		
	World Wide Web	3	5.0	6.4	100.0		
	Total	47	78.3	100.0			
Missing	System	13	21.7				
Total		60	100.0				

Question 10n3

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Friend, relative	4	6.7	11.4	11.4	7.54	1.787
	Newspaper	1	1.7	2.9	14.3		
	Tv ads	5	8.3	14.3	28.6		
	car shows	5	8.3	14.3	42.9		
	Tv program	2	3.3	5.7	48.6		
	World Wide Web	18	30.0	51.4	100.0		
	Total	35	58.3	100.0			
Missing	System	25	41.7				
Total		60	100.0				

Question11

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	< 2 weeks	25	41.7	41.7	41.7	1.95	0.964
	2 weeks-1 month	17	28.3	28.3	70.0		
	1 month- 3 months	14	23.3	23.3	93.3		
	> 3 months	4	6.7	6.7	100.0		
	Total	60	100.0	100.0			

Question 12

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	2 weeks-1 month	23	38.3	38.3	38.3	1.85	0.777
	1 month- 3 months	23	38.3	38.3	76.7		
	> 3 months	14	23.3	23.3	100.0		
	Total	60	100.0	100.0			

Question 13

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	1	1.7	1.7	1.7	3.45	0.811
	Somewhat important	9	15.0	15.0	16.7		
	Important	12	20.0	20.0	36.7		
	Very important	38	63.3	63.3	100.0		
	Total	60	100.0	100.0			

Question 14

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	<3 times	13	21.7	21.7	21.7	2.26	0.971
	3-5 times	25	41.7	41.7	63.3		
	5-7 times	17	28.3	28.3	91.7		
	< 7 times	3	5.0	5.0	96.7		
	Other	2	3.3	3.3	100.0		
	Total	60	100.0	100.0			

Question 15

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	up to 1 week	41	68.3	68.3	68.3	1.33	0.509
	1-2 weeks	18	30.0	30.0	98.3		
	2-3 weeks	1	1.7	1.7	100.0		
	Total	60	100.0	100.0			

Question 16

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	3	5.0	5.0	5.0	2.93	0.778
	Somewhat important	11	18.3	18.3	23.3		
	Important	33	55.0	55.0	78.3		
	Very important	13	21.7	21.7	100.0		
	Total	60	100.0	100.0			

Question 17

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Once a month	7	11.7	11.7	11.7	2.98	1.065
	Once in 2 months	13	21.7	21.7	33.3		
	Once in 3 months	14	23.3	23.3	56.7		
	Once every 6 months	26	43.3	43.3	100.0		
	Total	60	100.0	100.0			

Question 18

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Not important	1	1.7	1.7	1.7	3	0.637
	Somewhat important	9	15.0	15.0	16.7		
	Important	39	65.0	65.0	81.7		
	Very important	11	18.3	18.3	100.0		
	Total	60	100.0	100.0			

Question 19

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Never	2	3.3	3.3	3.3	3.03	0.609
	Not often	4	6.7	6.7	10.0		
	Often	44	73.3	73.3	83.3		
	Always	10	16.7	16.7	100.0		
	Total	60	100.0	100.0			

Question 20

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Definitely would	7	11.7	11.7	11.7	2.33	0.876
	Probably would	35	58.3	58.3	70.0		
	Might or might not	9	15.0	15.0	85.0		
	Probably would not	9	15.0	15.0	100.0		
	Total	60	100.0	100.0			

Question 21

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Definitely would	12	20.0	20.0	20.0	2.25	0.967
	Probably would	31	51.7	51.7	71.7		
	Might or might not	7	11.7	11.7	83.3		
	Probably would not	10	16.7	16.7	100.0		
	Total	60	100.0	100.0			

Question 22

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Recommended	19	31.7	33.3	33.3	2.24	1.09
	Location	14	23.3	24.6	57.9		
	Advertising	15	25.0	26.3	84.2		
	Previous experience	9	15.0	15.8	100.0		
	Total	57	95.0	100.0			
Missing	System	3	5.0				
Total		60	100.0				

Question 23n1

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Excellent	14	23.3	23.3	23.3	2.06	0.756
	Very good	29	48.3	48.3	71.7		
	Good	16	26.7	26.7	98.3		
	Poor	1	1.7	1.7	100.0		
	Total	60	100.0	100.0			

Question 23n2

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Excellent	13	21.7	22.0	22.0	2.2	0.886
	Very good	26	43.3	44.1	66.1		
	Good	15	25.0	25.4	91.5		
	Poor	5	8.3	8.5	100.0		
	Total	59	98.3	100.0			
Missing	System	1	1.7				
Total		60	100.0				

Question 23n3

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Excellent	10	16.7	16.7	16.7	2.11	0.691
	Very good	34	56.7	56.7	73.3		
	Good	15	25.0	25.0	98.3		
	Poor	1	1.7	1.7	100.0		
	Total	60	100.0	100.0			

Question 23n4

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Excellent	13	21.7	21.7	21.7	2.1	0.774
	Very good	30	50.0	50.0	71.7		
	Good	15	25.0	25.0	96.7		
	Poor	2	3.3	3.3	100.0		
	Total	60	100.0	100.0			

Question 23n5

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std Dev.
Valid	Excellent	19	31.7	31.7	31.7	2.08	0.944
	Very good	22	36.7	36.7	68.3		
	Good	14	23.3	23.3	91.7		
	Poor	5	8.3	8.3	100.0		
	Total	60	100.0	100.0			